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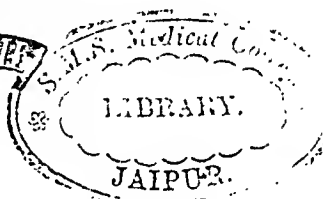
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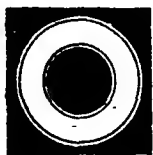
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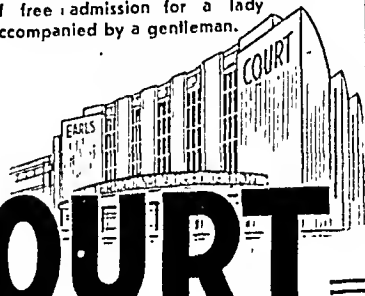
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YOU CAN SAIL INTO SUMMER NEXT JANUARY!

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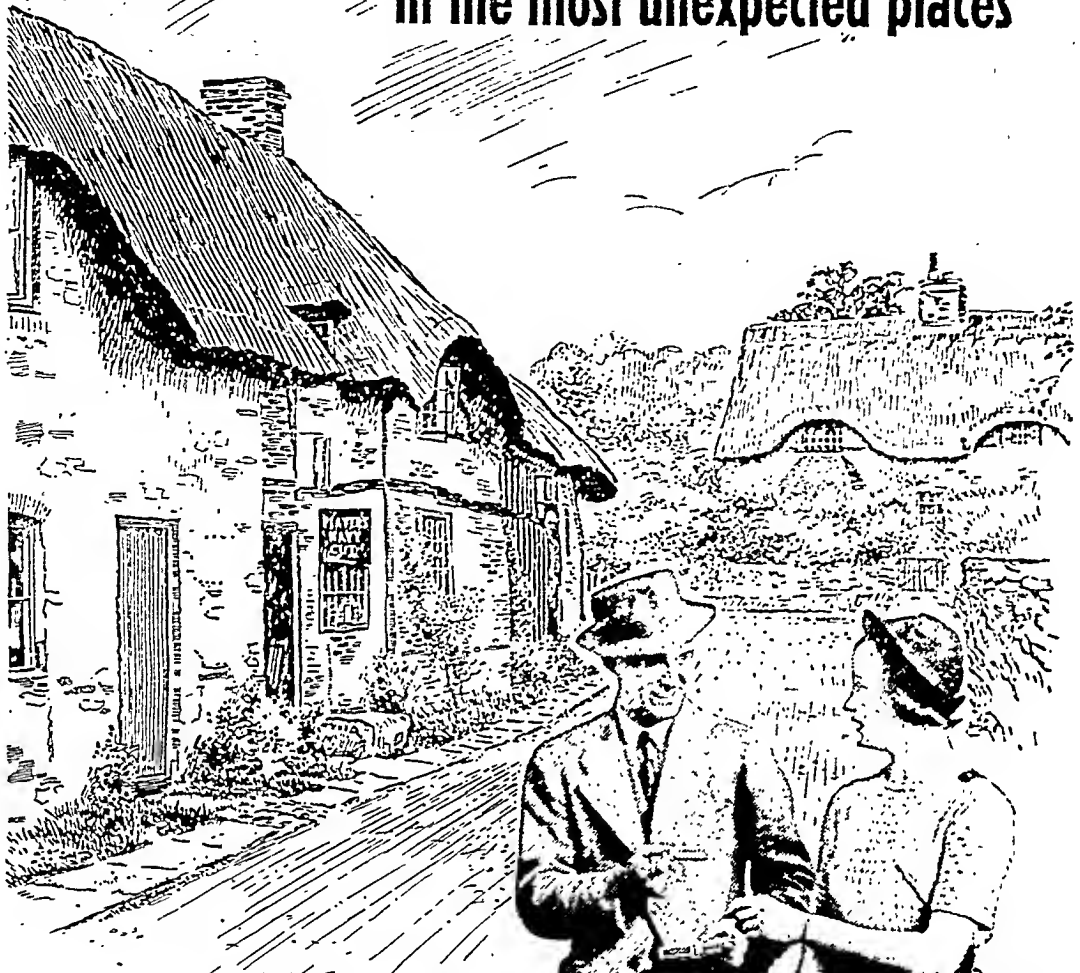
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Remember also, whatever your taste, you can please yourself by choosing "Medium" or "Mild" blends—Cork-tipped or Plain.

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PLAYER'S NAVY CUT CIGARETTES . "MEDIUM" OR "MILD" . CORK TIPPED OR PLAIN

10 for 6d. 20 for 11½d.



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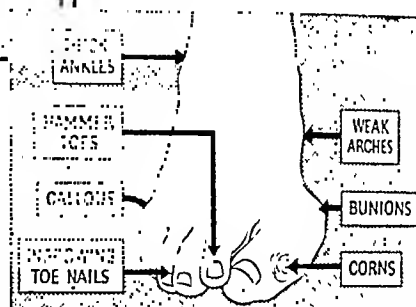
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'APTERNA' HEEL-LESS SHOES

These shoes are designed in the common-sense knowledge that the majority of foot troubles are due in large measure to faulty footwear which aggravates the trouble and does not permit the natural exercise and freedom which is essential to foot health.

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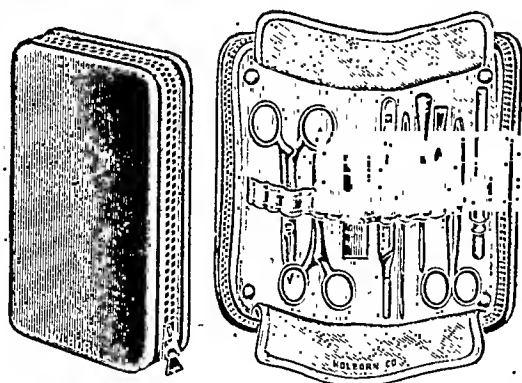
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Any of the common foot ailments mentioned in the above diagram can be successfully prevented and relieved by prescribing the correct series of "Apterna" Heel-less Shoes.

"Apterna" Shoes are available for men and women and children.

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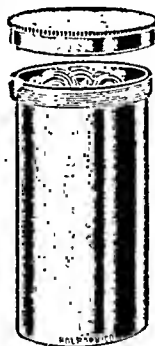


GP606/607

MOROCCO LEATHER POCKET CASE, with zip fastener and removable washable lining to take instruments up to 5½" in length, size closed 6½" x 4½" x 2", each ... 8/6
Spare linings 3/-

GP607.—Ditto, fitted with 2 Spencer Wells forceps, 1 dressing scissors, splinter forceps, pocket case trocar, all stainless steel; thermometer, silver probe, B.P. handle and packet of scalp blades. Per case £2.7.6

This pocket case is also supplied in pigskin at an extra cost of ... 5/-

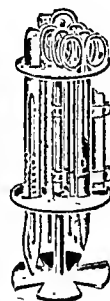


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chromium plated, lid to screw on, and removable cruet, containing 2 pairs Spencer Wells forceps, 5" stainless steel; 1 pair scissors, 5" round point, stainless steel; 1 pair scissors, 5", sharp point, stainless steel; 1 pair dissecting forceps with 1 x 2 teeth, stainless steel; 1 pair dissecting forceps without teeth, stainless steel; 1 B.P. knife handle and 6 blades. British make. Per case £3.3.0

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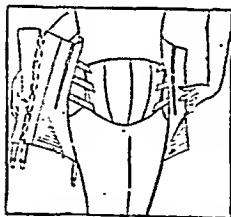
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AT RIGHT: Inner supporting section which is instantly adjustable at several different points by means of flat tapes and self-locking slides.

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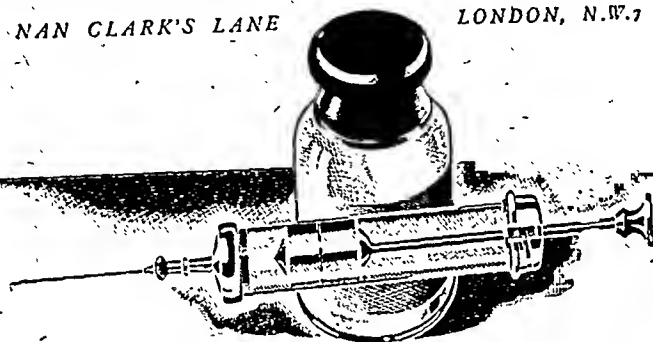
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INDICATED IN

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Approved by the Institute of Hygiene and the Diabetic Association.

These beverages have been analysed by the Institute of Hygiene and found "free from sugar and metallic contaminants." The analyses shown have been accepted by the Medical Advisory Council of The Diabetic Association and recommended for diabetic and obese subjects.

ANALYSIS SHOWED THE FOLLOWING RESULTS:

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|--|--------|--------------------------------|---|--------|-----------------------------|--|--------|--------------------------------|
| | | <i>Ordinary Dry Ginger Ale</i> | | | <i>Ordinary Tonic Water</i> | | | <i>Ordinary Sparkling Lime</i> |
| Carbohydrates | absent | 6.2% | Carbohydrates | absent | 9.1% | Carbohydrates | absent | 11.8% |
| Protein | absent | absent | Protein | absent | absent | Protein | absent | absent |
| Fat | absent | absent | Fat | absent | absent | Fat | absent | absent |

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for vitamin B complex
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"was advised to take Marmite, 2 drachms daily . . . made a gradual improvement and returned to work . . . still takes Marmite. . ."
(Lancet, May 7th, 1938, p. 1045.)

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ORAL COLD VACCINE

FOR PROPHYLACTIC IMMUNISATION TO RESPIRATORY INFECTIONS AND
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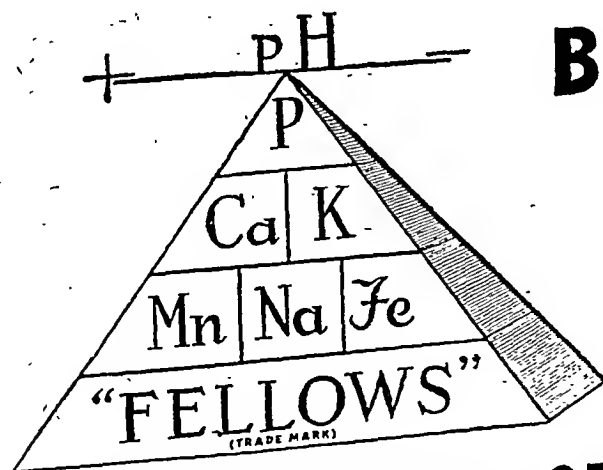
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ANAHÆMIN B.D.H.

In the treatment of pernicious anæmia

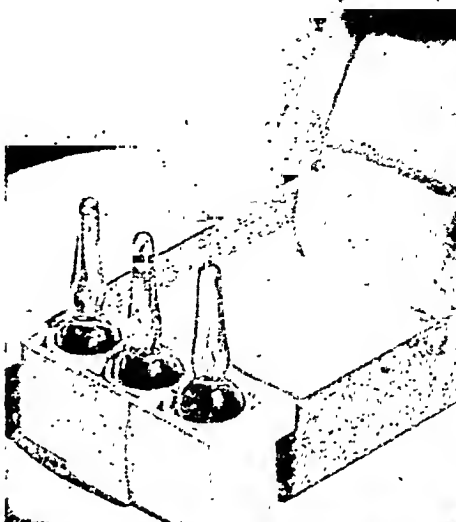
It has been demonstrated for more than 2½ years that Anahæmin B.D.H. is unique in its hæmatopoietic effect in pernicious anæmia.

In many cases an initial dose of 2 c.c. followed by 1 c.c. fortnightly constitutes effective treatment. In those instances, however, in which it is impracticable to make periodic blood examinations, it is important that the patient should receive adequate medication; this can always be ensured without risk of untoward effects either by increasing the dose of Anahæmin B.D.H. or by injecting it more frequently.

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IN the Treatment of Weak Babies, in the Gastric and Enteric Troubles of Infants and in the Wasting and Febrile Diseases of Children, the Ease of Assimilation and Power of Valentine's Meat-Juice to Sustain and Strengthen has been Demonstrated in

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 3 doses.



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Considerable diversity in the symptoms of deficiency are therefore to be expected; among the symptoms described are those so widely apart as neural degeneration and cataract. Further, it has been stated that lactoflavine increases visual acuity in diminished light. Lactoflavine, there-

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"Alasil" is a very definite advance on ordinary compounds of salicylic or acetyl-salicylic acid both in therapeutic efficiency and in freedom from the risk of unpleasant gastro-intestinal sequelae. This high tolerability is due to the fact that "Alasil" is composed of calcium acetyl-salicylate—the least irritating of the salicylate compounds—and "Alocol" (Colloidal Hydroxide of Aluminium), a powerful gastric sedative and antacid.

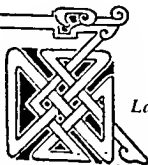
A careful series of experimental tests has shown that "Alasil" is more completely absorbed than ordinary salicylate compounds and that it is practically free from the risk of liberating free salicylic acid in the stomach.

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The LIQUID FILTRATE is indicated for ear infections, suppurating wounds, septic cavities (dental and others) and inflammatory conditions. Used as a gargle with a little glycerine and water, ANTIPEOL LIQUID is both prophylactic and therapeutic for infective conditions of the throat.

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The antiviral treatment of Gonorrhoea and Genito-urinary infections is effective because it introduces and reproduces in the human body the antibodies of the gonococci, and reaches the remote sites of infection. GONO-ANTIPEOL contains the sterile vaccine filtrates of numerous strains of gonococci, as well as the streptococci, staphylococci and *B. pyocyaneus* common to gynaecological infections. It is thus a preventive of the development of germs, and aborts the disease when already contracted. Non-toxic, non-irritating, yet potently microbicide, GONO-ANTIPEOL is a perfectly safe, simple and effective therapy.

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In addition to the antiviral of various strains of streptococci, staphylococci and *B. pyocyaneus*, OPHTHALMO-ANTIPEOL contains the autolysins of pneumococci Fraenkel and gonococci, since these micro-organisms are so frequently associated with eye troubles. The semifluid nature of OPHTHALMO-ANTIPEOL facilitates its dispersal over the affected area, and its soothing properties and efficacy are demonstrable from the first application. It is perfectly innocuous and may be used on babies.

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Nature's normal way of combating microbic infection is the production of antibodies (bacteriophages) capable of destroying the germs. ENTEROFAGOS is a combination of over a hundred strains of bacteriophages of the micro-organisms common to gastro-intestinal infections, and, when administered by mouth, immediately gets to the site of infection, and acts as a perfectly natural therapy. The intestinal troubles of early babyhood invariably respond to ENTEROFAGOS, as do seasonal diarrhoeas and the more serious dysenteric conditions of Typhoid and Paratyphoid fevers and Bacillary Dysentery. Certain major maladies trace their origin to intestinal infections, and the practical field of application of bacteriophage has by no means yet found its limit. ENTEROFAGOS is equally effective in the veterinary field, as greyhound and prize-cat owners have found to their joy, and the dreaded "white scour" in calves has no terrors when treated with ENTEROFAGOS. A non-irritant, innocuous medication administered by mouth, ENTEROFAGOS disinfects and immunises the digestive tract, and is more rapidly effective than vaccines, without the inherent disadvantages of the latter. A clinical test will prove these facts.

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Available only in boxes of 3—1 cc. vials, 14/5

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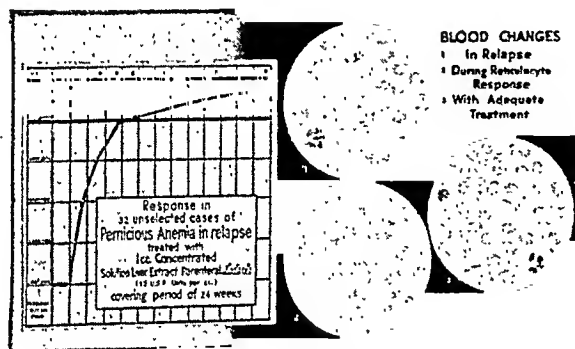
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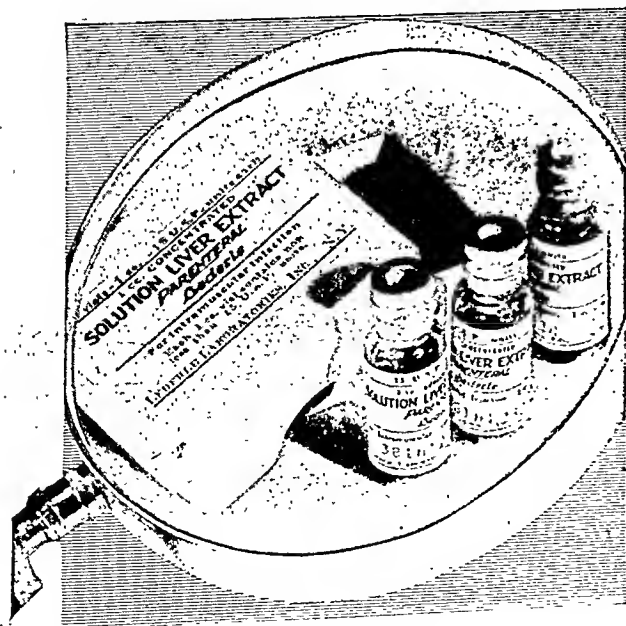
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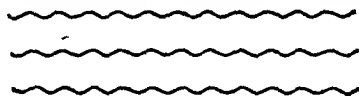
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A PRODUCT OF THE
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MODERN COD LIVER OIL AS THE METHOD OF CHOICE FOR ADMINISTERING VITAMINS A and D

In view of the widely divergent opinions expressed concerning the dosage and vitamin content of various liver oils, the proprietors of 'SevenSeaS' cod liver oil wish to remind the medical profession that on January 1, 1936, the British Pharmacopoeia Commission laid down not only a definite dosage, but also a definite standard of vitamin content for cod liver oil.

The dosage was fixed at a minimum of 15 minims (a quarter teaspoonful) three times a day, and the vitamin content was standardised at not less than 600 International Units of Vitamin A and not less than 85 International Units of Vitamin D per gramme.

In 'SevenSeaS' Standard Oil, the practitioner has at hand a cod liver oil of the highest quality, fresh, easily digestible, and with a uniform vitamin content guaranteed to conform to the standard of the British Pharmacopoeia. The oil is rendered from the livers at sea as soon as the fish are caught (a process impossible with any other fish liver), instead of waiting until the ship is back in port and the livers consequently stale. The high quality of 'SevenSeaS' cod liver oil, and the uniformity of its vitamin content arising from its method of preparation, make it possible to prescribe only small doses which cannot give rise to acidosis.

These attributes are still further increased in the case of 'SevenSeaS' High Potency cod liver oil which is guaranteed to be four times as rich in vitamin values as the standard oil of the Pharmacopoeia. *With this oil available the practitioner who wishes to prescribe a particularly small dosage has the advantage of using a fresh cod liver oil without going far in excess of the standards laid down by the Pharmacopoeia regarding vitamin content.*

This High Potency Oil is not reinforced or in any way treated to increase the vitamin content. It is simply pure natural oil obtained by selection from the richest livers on the best fishing grounds.

All 'SevenSeaS' cod liver oil is tested and packed in strict conformity with British Pharmacopoeia requirements. Samples of the High Potency Oil, the Standard Oil, and the High Potency Oil in Capsules, will be supplied on request.

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No. 15

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"The Need of Phosphates"

In convalescence from acute illness, perhaps the biggest problem confronting the doctor is that of diet and nutrition. Appetite, digestion and the absorptive faculties are all likely to be perverted; yet, at the same time, the provision of material for repairing and rebuilding the damaged and exhausted tissues is of first importance. There has generally been great protein waste, and obviously this must be made good. Carbohydrates are often metabolised with difficulty. There has nearly always been abnormal phosphorus elimination. It has been experimentally proved that in the formation of lactic acid from glycogen an essential intermediary is hexose diphosphate. Embden has shown that "muscle extracts incubated *in vitro* cannot form lactic acid from glucose, but can do so from hexose diphosphate"; the phosphate evidently acting as a catalyst. Moreover, for the building up of the lecithin, so essential a constituent of all cell protoplasm, an adequate supply of phosphate is necessary.

"I may say I have had excellent results from the use of 'SANATOGEN', and prescribe it extensively in convalescence after long illness, and in those cases where digestion is impaired."
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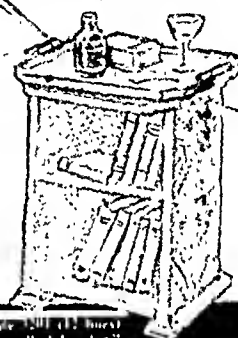
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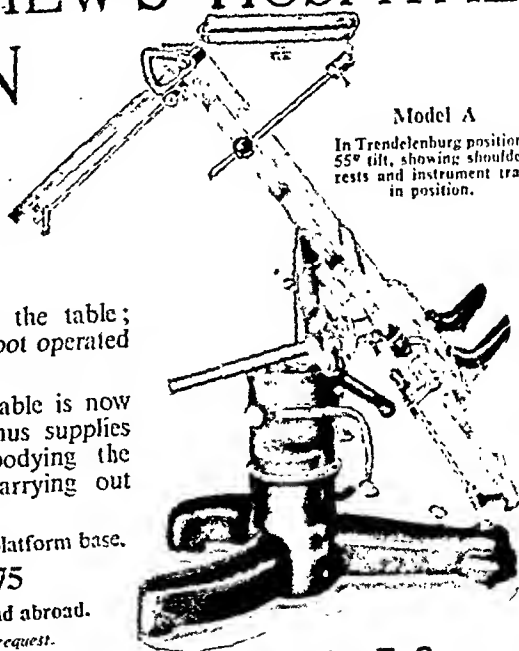
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ACUTE APPENDICITIS*

BY

G. GREY TURNER, M.S., F.R.C.S.

Professor of Surgery, University of London; Director of the Surgical Unit, British Postgraduate Medical School

"Let us return to our ideal; early operation is the only safe practice."—J. B. Murphy, 1916.

Since I was invited to take part in this discussion I have often wondered what induced the officers of the Section to choose this admittedly important subject. It appears to me that everything that can be said on appendicitis has already been much better said over and over again. Perhaps we are apt to forget that while the message is the same the audience is constantly changing.

It was Murphy of Chicago, one of the greatest teachers of all time, who declared that every few years important subjects in surgery should be reviewed and discussed so that the lessons connected with their management could be constantly kept before the profession. I am assuming that in discussing this matter we are but fulfilling this very proper idea.

Some time ago I was startled by the remark made by the husband of a very ill patient on whom I had operated for appendicitis with a complicating peritonitis, and who, unfortunately, succumbed. The man afterwards said how terribly disappointed he was, considering that his wife was only suffering from such a simple thing as appendicitis! I suppose it really means that as the great majority of the patients recover, when the result is otherwise everyone is surprised and disappointed. But, this being so, it shows how great is the responsibility laid on our shoulders. Yet in my view the real reason which justifies the discussion is because as a profession we cannot but be impressed by the individual tragedies to which we are unfortunately witness, and because we must feel in our heart of hearts that many of them might have been prevented.

Mortality Statistics

After all, appendicitis is not inherently a serious disease, though its potentialities for evil are great and alarming. The Registrar-General has very kindly supplied me with figures which show that about 3,000 people die every year from appendicitis in the United Kingdom. This number represents 12 per cent. of all the deaths from gastro-intestinal disease and 0.61 per cent. of the total deaths registered. Some may think this is not as high as might be expected, but at the same time, since we must know that it is largely preventable, it is somewhat of a reproach to our profession. In order to endeavour to discover the mortality of the surgical treatment of this disease I have been furnished with statistics covering a period of five years from two of our great hospitals—the London Hospital and the Royal Victoria Infirmary, Newcastle-on-Tyne. The figures are as follows:

TABLE I.—The Surgical Treatment of Appendicitis (Combined Figures for a Consecutive Five-year Period (1933-7) from the London Hospital and the Royal Victoria Infirmary, Newcastle-on-Tyne)

| | No. | Deaths |
|--|-------|-------------|
| Acute cases (excluding localized abscess) | 6,725 | 247 (3.67%) |
| Abscess cases | 604 | 51 (8.44%) |
| Above two groups (all acute cases) .. | 7,329 | 298 (4.07%) |
| All cases (acute, subacute, and interval) .. | 9,933 | 308 (3.10%) |

But I am not good at juggling with statistics, and I find that it is extremely difficult to get comparable figures from which one might draw perhaps some suggestive conclusions. I would, however, ask you to bear with me for a moment to consider some figures dealing with my own personal experience over the period of thirty-four years that I was in surgical practice in Newcastle-on-Tyne.

TABLE II.—Appendicitis to End of 1934 (Newcastle-on-Tyne)

| | No. of Cases | Deaths |
|---|--------------|------------|
| Group 1: Acute appendicitis without peritonitis .. | 159 | 0 |
| " 2: Acute appendicitis with localized peritonitis .. | 428 | 4 (0.93%) |
| " 3: Acute appendicitis with flank or pelvic peritonitis, or both | 230 | 22 (9.56%) |
| " 4: Acute appendicitis with diffuse peritonitis .. | 96 | 28 (29.2%) |
| " 5: Appendicitis with residual abscess | 64 | 5 (7.81%) |
| " 6: Appendicitis with primary localized abscess .. | 446 | 16 (3.59%) |
| " 7: Appendicitis—interval removals | 1,080 | 4 (0.37%) |
| " 8: Appendicitis with primary complications .. | 20 | 9 (45.00%) |
| " 9: Appendicitis—no operation | 0 | — |
| " 10: Appendicitis?—incidental removals | 0 | — |
| | 2,523 | 88 (3.49%) |

| | | |
|--|---------------------|---------|
| Groups 1 and 2 .. | 587 cases; 4 deaths | (0.68%) |
| Groups 1, 2, and 3 .. | 817 .. 26 .. | (3.18%) |
| Groups 1 to 6 and 8 (All acute cases) .. | 1,443 .. 84 .. | (5.82%) |
| All Groups .. | 2,523 .. 88 .. | (3.49%) |

The Classification of Appendicitis

So far as I am able to judge there can be no classification of appendicitis that is not open to error and to which objections cannot be raised. I can only suggest that the simple grouping employed has proved most useful. May I just point out that it is in no way selective and that, as it includes all the cases, anyone may draw their own conclusions from the information provided.

It will be noticed that the basis of the classification is a pathological one, for the disease starting in the appendix spreads from this area as a radiating infection. In the

* Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Plymouth, 1938.

great majority of cases appendicitis at its inception is a local disease, but when the infection spreads a secondary nidus arises in the peritoneum and in some cases in the blood stream. Group 5 includes those cases in which a more or less diffuse inflammation, as in Group 4, has fortuitously localized, but with abscess formation which is not necessarily around the appendix; it may be pelvic or subdiaphragmatic or in the flank. In Group 6, on the other hand, the inflammation has gone on to suppuration, but around the site of the appendix; wherever that organ may happen to be situated.

Group 8 comprises those cases in which there were primary complications—that is to say, in which patients have come under treatment suffering from appendicitis but with some such complication as acute intestinal obstruction, pyelophlebitis, advanced cardiac disease, pneumonia, or some other such condition. Group 9 was intended to include cases in which no operation was carried out, lest one might be accused of improving statistics by refusing to operate on bad risks. But the cases in which I have not operated have usually been those who refused surgical intervention, and these have been so few that years ago I ceased putting them in the table.

The heading "incidental removals" (Group 10) is included to give me the opportunity of saying that we ought not to count these cases in the statistics of appendicitis. If whenever the appendix is removed in the course of some other abdominal operation it is counted as an example of appendicitis, we can soon accumulate a very large series, but such a series can have no value so far as the problem of the treatment of appendicitis as an entity is concerned. The record goes back for many years, and includes those early days when I was formulating rules for my own guidance and learning technique. Many of those early operations were carried out in small industrial houses or country cottages.

If you will look at the figures you will see that the cases which reach the surgeon at an ideal stage—that is to say, while the inflammatory trouble is strictly limited to the appendix or in its immediate neighbourhood—can be operated upon with a mortality considerably less than 1 per cent. even in a reasonably large series like the 587 set out in Groups 1 and 2. But the extension of the infected process to the unprotected peritoneum, which brings the patients into Group 3, immediately introduces new factors which have a very serious bearing on the outlook. The involvement of the peritoneum in the pelvis, on the flank, or both, creates a new infective focus which may not readily subside as the result of removal of the appendix, with or without drainage. It is this group that furnishes a large proportion of the complications which provide such serious problems for treatment. These factors are reflected in the mortality, which in this group approaches 10 per cent. In these cases the infected fluid is free in the peritoneal cavity, and they might quite fairly be classed as examples of unlimited peritonitis, many of which are potentially general. But even accepting these considerations, if we add these cases to those in Groups 1 and 2 we get a series of 817, with a mortality of 3.18 per cent. The object of the classification, however, is to include all the cases so that we get a true picture of the mortality. If we do this and only exclude the cases operated upon in a quiescent interval we get a series of 1,443 cases, including that unhappy group where there are primary complications, with a mortality of not quite 6 per cent. But my chief point is that as a profession we must never be satisfied until we can manage to get

the great majority of cases treated by surgical means while they yet belong to Groups 1 and 2. If that could be done the experience of very many surgeons the world over shows that the mortality need not be more than 1 per cent. If this happy state can be brought about appendicitis might then be looked upon as the comparatively simple disease which it now is in the eyes of so many of the public. After all, the public look to us for guidance, and if it were universally insisted that very much better results would follow earlier intervention they would readily agree. To get the best results the co-operation of the public and of the profession is necessary.

In this matter of emergency surgery I do want to say what a great opportunity is presented in our large hospitals, or groups of hospitals like those under public authority control such as the L.C.C. or the Middlesex County Council. If agreement could be reached on a general classification which might be uniformly employed these hospitals could, in a few years, accumulate such a mass of statistics as would, let us hope, be useful in settling a good many problems which still remain unsolved. In this one respect we might take a lesson from Russia; I think it might be worth while. In their large emergency hospitals in Moscow they are trying out various methods of treatment checked by careful statistical records. It is a mass experiment which is extremely interesting, and may provide valuable guidance for the surgery of the immediate future.

Stage at which to Operate

In suggesting that the main consideration is the stage at which the operation is carried out, one can find a useful, though not entirely parallel, comparison in the treatment of ruptured peptic ulcer, for in that condition nothing makes so much difference as the time which elapses between perforation and the intervention. Here again may I just trouble you to look at some figures bearing on the matter and which speak for themselves.

TABLE III.—*Perforated Gastric and Duodenal Ulcers (Combined Figures of Mr. Grey Turner and Mr. Norman Hodgson to End of 1929)*

| No. of Hours of Perforation in 6-Hour Periods | No. of Cases | Recoveries | Deaths |
|---|--------------|------------|-------------|
| Up to 6 | 119 | 115 | 4 (3.36%) |
| 7 to 12 | 148 | 129 | 19 (12.83%) |
| 13 to 18 | 40 | 33 | 7 (17.5%) |
| 19 to 24 | 21 | 15 | 6 (28.57%) |
| Over 24 | 37 | 18 | 19 (51.35%) |
| Total | 365 | 310 | 55 (15.06%) |

All cases operated upon within twelve hours : 267 with 23 deaths (8.61%)

Why is it that so often surgery is not invoked while the disease is still limited to the appendix? I do not believe that the delay is so much due to mistaken diagnosis as it is to the expectation that the patient will get well without operative intervention. We all know that many sufferers do get well spontaneously, but at the same time I think we must admit that once the appendix has given trouble it is likely to do so again, and that it may be the cause of other troubles and is much better removed. Nevertheless, with the knowledge that many cases get well, it is perfectly reasonable that some patients, and often for the most excellent reasons, should wish to take the chance. But how are we to know that improvement is really taking place—what simple rule will guide us?

One of my former colleagues, the late Mr. W. G. Richardson of Newcastle-on-Tyne, to whom I am much indebted for many valuable lessons in emergency surgery, used to teach that in appendicitis it is unwise to conclude that natural recovery is taking place unless *all* the symptoms are improving. I have long been convinced of the great wisdom of this rule, and if it were always observed many a life would be saved and many a long illness prevented. It is not enough that pain is diminishing if the pulse is going up, or that the pulse remains unaltered if pain is becoming diffuse or the temperature is rising. The progress of the case is only sure if all the symptoms are simultaneously improving.

Early Diagnosis

How are we to make the early diagnosis which will justify the prompt surgical intervention which is so important? Well, there are easy cases and difficult cases, and nobody is more ready to admit that I have often been confronted with problems in diagnosis which only an operation has solved. In the easy cases—and they are in the great majority—the cardinal symptoms, as set out by Murphy, will always be found, and they are so important that I make no apology for referring to them once again. These are pain in the abdomen, which may be sudden and severe but is rarely overwhelming; nausea or vomiting or some gastric disturbance with disinclination for food; general abdominal sensitiveness, sooner or later more marked over the right side; and elevation of temperature. Murphy insisted that the symptoms occurred in that order, and was accustomed to say, "When that order varies I always question the diagnosis." But every case must be carefully considered, and I would say without hesitation that it is often indiscriminate diagnosis rather than hasty operation which brings early intervention into discredit.

The history of the onset is important; it may be sudden and severe, or more gradual. In the former case the patient may look very ill, and I have always attached importance to the testimony of those who know the patient and who can say that the aspect is altered. The rise in temperature may be slight, and Murphy used to point out that it may sometimes only be detected per rectum; but none the less I agree that it is never absent. It must surely be universally realized that the pain may be entirely epigastric or just around the umbilicus; but, wherever the pain, the tenderness is found only at the site of the appendix, and that is usually in the region of the right iliac fossa. In the presence of an acute appendicitis the pulse may be little affected; but as the condition develops it invariably quickens, and a steadily rising pulse is a valuable collateral sign. The condition of the tongue is seldom mentioned; yet it is invariably slightly altered even in the early stages, and, though difficult to describe, there is something about it that seems to me characteristic when associated with the abdominal sequence on which Murphy so much relied.

It was my friend Arthur Burgess who first impressed on me that it is not necessary to wait for rigidity before making the diagnosis. The mere difference in resistance as compared with some other part of the abdominal wall is enough to guide the experienced observer. This is especially valuable in the pelvic and retrocaecal cases, where the appendix is hidden away from the abdominal wall.

I would also emphasize that in appendicitis the tenderness is easily evoked by light palpation, and I am always gravely suspicious of the diagnosis in those cases in which it requires a deep and perhaps rather heavy palpation to elicit this sign. Murphy used to be very bitter about the

use of morphine in the treatment of suspected cases of appendicitis, and I well remember the cynical look on his face as he told his audience that patients so treated would recover in time to make excellent arrangements for their funeral! Rutherford Morison was equally emphatic, and used to tell us that if an abdominal pain was so severe as to require morphine for its relief then the case was one for operation. But in this matter my sympathies are entirely with the practitioner, for I know how insistent are the demands of the patient or the friends for relief. A single minimal dose of morphine may not mask the symptoms for too long, and as it wears off the return of pain is a certain sign of some grave condition, but the repeated small dose of morphine is fraught with great danger, and should never be employed when an abdominal emergency is in question.

It would go beyond the object I have in view to discuss the question of differential diagnosis, but there is one diagnosis that has certainly been responsible for many fatalities, and that is a diagnosis of abdominal influenza. I very much doubt if there is any such condition, and believe that it is usually only a handy explanation for some obscure inflammatory abdominal trouble, which in most instances has its origin in the appendix. From infancy to the age of 23 I myself suffered from numerous attacks which were confidently and repeatedly diagnosed as abdominal influenza but which were arrested for all time by the removal of a pathological appendix. But all cases have not so happy a sequel, and I could recount many tragedies due to this unfortunate diagnosis.

What can we do to help the young practitioner to recognize appendicitis at an early stage when operation is so insistent and so successful? Let us make more use of these common emergencies for teaching purposes. How often are we told on ward rounds that such and such a case is "only an appendix." These emergencies should be demonstrated to our students in all their aspects whenever the opportunity arises, and they should see the operations, watch the after-progress, and keep records of what are now looked upon as such ordinary conditions as to be scarcely worthy of notice.

Treatment in Early Cases

The treatment of the cases in this comparatively early stage is very simple, for all that is necessary is to remove the appendix and when in doubt to put in a small rubber tube to act as a drain.

"The state is best governed as you cook little fish, without much busyness."—Laotze.

It is perfectly true that there is often nothing to drain; but a small tube provides a track to the surface, and if the organisms do regain their activity after the removal of the offending organ such a track may mean an external discharge rather than an internal spread. At all events, I believe that a small tube properly placed often does good and never harm; but it should not be removed too soon, and I am accustomed to leave such tubes *in situ* for a week. If by that time there is no discharge they may safely be discarded. To the young surgeon I would most emphatically declare, when in doubt drain.

Complications of Peritonitis and Abscess

While, however, it is our plain duty as a profession to do everything possible to make an early diagnosis and to act upon it by prompt surgical intervention, one must admit that many patients are not seen until there are complications like peritonitis and abscess. Even in these circumstances I am convinced that they should be

regarded in terms of what relief may be provided by operation. But here I think we must be wise and recognize that some little delay may be an essential part of the management of the case and may be to the great advantage of the patient. For instance, in peritonitis where the abdomen is grossly distended, there is frequent vomiting, the pulse is quick, and there is obvious toxæmia it is essential to keep the case under observation for a few hours. During this time certain measures should be employed which may help the patient towards recovery by localization or so far improve matters that the necessary intervention may be carried out with more chance of success.

The stomach should be emptied by tube and the rectum by glycerin enema, while toxins are diluted by giving water by the bowel or intravenously. It usually greatly adds to the comfort of these patients, and I think may do some good, to apply heat to the abdomen, and during this period of preparation, the diagnosis having been made, a small dose of morphine may be extremely valuable. If, as sometimes happens, there is great improvement in the course of a few hours it may be wise to wait; but again the dictum of W. G. Richardson is to be the guide, and, unless all symptoms improve, then it is much wiser to make a small incision merely with the idea of giving exit to peritoneal exudate. In these circumstances a small incision or incisions under local anaesthesia, with the insertion of a tube, is all that is justified. The question of the removal of the appendix must be left to a later date. If, on the other hand, the patient arrives with clear indications of a localized abscess, convalescence will be aided and recovery helped by the evacuation of pus.

I have twice in my life seen patients with such an abscess die suddenly from rupture of the collection into the peritoneal cavity while waiting for absorption to occur, and many times I have seen the inflammation gradually spread and convert a local process into a diffuse peritonitis. In many cases of localized abscess it is possible to do a complete operation in the sense that the appendix is removed, but whether that is advisable or not must depend a good deal on the judgment, and especially the experience, of the operator. The life-saving measure is the evacuation of the pus, and for that a small incision with the insertion of a drainage tube is all that is necessary. The stage at which to re-intervene for removal of the appendix is a matter worthy of comment; but I do not want to go into that now, because it will sidetrack our discussion from its essentials. It is significant that in the large series of cases of appendicitis which I have quoted from London and from Newcastle-on-Tyne the localized abscesses (604) were attended with a mortality of something over 8 per cent. More difficult cases are that type in which the patient arrives with a very hard, localized, scarcely tender swelling in the iliac fossa. In such cases it usually means that the pus has already safely found its way into the bowel, which is a much more common event than its mere absorption, as I have repeatedly been able to demonstrate. If all is going well then, of course, it may be wiser to wait and to deal with the removal of the appendix as an interval operation; but again, unless all the symptoms are improving, I would have no hesitation in urging intervention.

The Late Stage

When can a case of appendicitis be said to be in a late stage? I have the greatest distrust of any rule in treatment which suggests that after a lapse of a certain

number of hours operation is inadvisable. I can never understand the rationale of such a dictum unless supported by an enormous mass of the most accurate statistical evidence. It rather suggests the Gilbertian situation that whereas at a quarter to twelve on one day the case ought to be operated upon, when that hour has struck it is already too late and the patient will have a better chance if treated by other means! Pathological processes do not attend on the clock, and whereas in one case diffusion of infection will have taken place within a few hours, in another this event may be delayed for days or may never occur.

Causes of Mortality

In endeavouring to evaluate the causes of the mortality I have been helped by my former assistant, Mr. A. Elliot-Smith, who has gone carefully into this matter in a considerable series of cases. His investigations tally with my own, to the effect that much of the mortality is due to complications. The main causes of death are undoubtedly an unarrested peritoneal infection, the formation of undetected abscesses in situations like the pelvis and the subdiaphragmatic areas, intestinal obstruction of various forms, cellulitis of the abdominal wall, and pulmonary infections. It is often suggested that the results of operations for appendicitis are largely influenced by the technique of the operator. This may have some bearing, but it is of very minor importance compared with the stage at which intervention is carried out. For instance, one operator, with certainly most excellent results, attributes a large part of his success to the fact that he never buries the stump of the appendix. I have always endeavoured to bury the stump, and I am equally satisfied that nothing but advantage has ever accrued to any of my patients from this step. I have lived too long in surgery to be influenced by the suggestion that any small detail of technique will alone make much difference in the mass results. All these things are of great interest, but I am equally certain that they are not essentials, and they must not be allowed to distract our attention from things that are.

I should be disloyal to my old school, however, if I did not once again urge the advantages of the oblique muscle-cutting incision of Rutherford Morison. For the early cases almost any type of incision will suffice, but for the later cases, and especially those presenting a lump, the oblique incision directly over the site of the mischief is much superior to any other. It has been a great satisfaction to me to find how readily my new associates at Hammersmith, who have all been trained in Southern schools, have appreciated the advantages of this approach. May I stress the importance of the careful closure of this incision in layers and with interrupted sutures of reliable stout catgut.

Treatment in Special Circumstances

There are certain circumstances in which acute appendicitis occurs which introduce special features that may have a bearing on its treatment. First of all in children, it is universally admitted that there are many pitfalls in diagnosis and that the disease may progress with alarming rapidity. To my mind this knowledge emphasizes the extreme importance of care in diagnosis in these little people. I want particularly to insist on the equal importance of following up a diagnosis of probable acute appendicitis by operation. Although we are all aware that diagnosis in children is difficult, in Newcastle-on-Tyne I was impressed by the great frequency with which

appendicitis was ultimately proved in cases in which our contributing doctors had sent the patients into the hospital with that diagnosis. In children the symptoms may vary rapidly, and many such cases appeared to have little the matter by the time they reached hospital, but when operated upon I nearly always found the appendix grossly and unmistakably diseased. Often the child will appear to be quite well and to have nothing but a little remaining tenderness over the appendix, and yet the appendix may be perforated and surrounded by pus.

In old people the peritoneum seems to lose its powers of natural resistance, and I am again satisfied that we should not postpone an operation because a patient probably suffering from appendicitis is aged. We should rather say that advancing age is a factor which prompts early operation. No one with any experience will overlook the fact that in the aged there are special difficulties in diagnosis: bowel growths, diverticulitis, and even prostatic mischief have not infrequently misled.

When appendicitis is a complication of pregnancy it demands early operation. The course of the pregnancy will seldom be interrupted by such intervention, and, in any event, whatever the risk so far as that is concerned, it is probably much less than the risk of a recrudescence of the disease nearer term, during labour, or immediately after. In my own experience I have only once had a patient abort, and I feel sure that was due to delayed intervention rather than to the actual intervention itself. The same applies to patients with heart disease, asthma, and pulmonary infections. In such cases local anaesthesia will often enable us to carry out life-saving operations with little anxiety.

I think we must admit that there may be a variation in the virulence of appendicitis, not only at different ages and in varying circumstances, but from time to time, depending perhaps on the seasonal variation in the organismal invasions of the gastro-intestinal tract. I was persuaded that in Northumberland there was some difference as between the country people leading a healthy open-air life and the town-dwellers, and I am quite prepared to hear that these differences are met with in other parts of the country. But these possibilities do not affect the general rule as to the necessity of prompt operative intervention.

The difficulty about all the plans which countenance delay in the surgical treatment of appendicitis is that they are apt to be abused, for the public and a certain section of the profession are only too ready to find an excuse for adopting any treatment other than operation. It is for this reason that I am afraid of any attempt at differentiation as between the cases which ought to be treated immediately by operation and those which may be left to a more convenient season.

Murphy used to deplore what he called "epidemics of so-called conservatism" in dealing with appendicitis, and I have myself often pointed out that the recurring advocacy of a waiting policy or delayed operation has almost invariably been followed by a wave of increased mortality.

Conclusion

Irrespective of interesting academic problems, I think it is essential that we should recognize that any acute condition of the appendix ought to be treated by operation without delay. I do hope that as the result of this discussion the message may once again go forth to the profession with no uncertain voice that appendicitis means operation, and that the earlier the operation the better the chance for the patient.

CARBOHYDRATE METABOLISM IN ANAESTHESIA: A REVIEW *

BY

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The production of surgical anaesthesia by the administration of ether or chloroform is accompanied by various metabolic changes, among which may be mentioned a rise of blood cholesterol (Reicher, 1908; Duceeseli, 1919; Mahler, 1926), a rise of blood fat (Bloor, 1914), increased blood phosphate (Marenzi and Gerschman, 1934), a diminution of blood potassium (Marenzi and Gerschman, 1932), interference with water metabolism, leading to dehydration of the bodies of nerve cells (Barbour, 1931), and disturbance of the acid-base ratio of the blood (Stehle and Bourne, 1924). More than all these, however, certain aspects of the alterations in carbohydrate metabolism have received attention from clinicians and from experimental investigators. Of such changes the most striking and the most widely discussed is the hyperglycaemia fairly constantly produced by some forms of anaesthesia.

Changes in the Blood Sugar.

That the administration of ether produces in the dog both hyperglycaemia and glycosuria was shown by Seelig (1905, 1906). Macleod (1913) stated that anaesthesia induced but slight changes in the blood glucose, and two years later Macleod and Pearee (1915) reported that ether actually produces a fall in blood sugar during the first half hour of ether narcosis. Ross and McGuigan (1915), however, measured the hyperglycaemia produced by ether and chloroform and, later, Ross and Davis (1921) attempted to distinguish between the mechanism whereby blood sugar is raised by the two drugs. Since then it seems to have been universally accepted that ether causes hyperglycaemia. Some observers—for example, Mahler (1926), Mackay (1928), Mackay and Dyke (1928), Minnitt (1932), and Hospers (1933)—have recorded considerable increases in the blood sugar level, sometimes to more than 200 mg. per 100 c.cm.; others, such as Nakamura (1935) and Hasaura (1935), have not detected such large hyperglycaemic responses; whilst Pratt (1938) found that the effect of ether upon the blood sugar level may vary considerably from case to case, generally producing a moderate increase, sometimes not influencing it, and occasionally even producing a fall.

Much less information is available as to the hyperglycaemic potencies of the newer or less common anaesthetic agents. Acetylene (Fuss and Deura, 1932), ethylene (Hospers, 1933), and nitrous oxide (Minnitt, 1932; Hospers, 1933) all raise the blood sugar level, but not to the same extent as does ether. According to Prasad and Sen (1936) sodium cvipan given intraperitoneally in the rabbit raises the blood sugar to a moderate degree, but the barbiturates, generally speaking (Heller and Nathan, 1933; Nakamura, 1935; Hasaura, 1935; Hrubetz and

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Blackberg, 1938), and avertin (Widenhorn, 1931; Nakamura, 1935) are thought to have little or no hyperglycaemic effect. It should be remembered, however, that the level of the blood sugar represents a dynamic equilibrium in which those factors tending to deplete it are balanced against those tending to replenish it, and that therefore the blood sugar level alone is not necessarily a simple or exact index of carbohydrate metabolism.

Action of Adrenaline

A good deal of experimental investigation has been directed towards discovering the mechanism of the production of hyperglycaemia by anaesthetic agents, and so many explanations have been offered that the subject has become confused rather than clarified. Shaffer (1914), for example, concluded that the partial asphyxia commonly produced during attempts to hurry induction was responsible, although King, Moyle, and Haupt (1912) had already shown that this could not be a complete explanation, because ether given intravenously also produces some degree of hyperglycaemia under conditions in which asphyxia is avoided. It is well known that asphyxia does cause hyperglycaemia—for example, Hospers (1933)—but it does not follow that hyperglycaemia must be due to asphyxia.

A more acceptable hypothesis which has gained some currency is that anaesthetic agents bring about the release of adrenaline into the blood stream from the suprarenal glands at an augmented rate, and that this increased concentration of adrenaline in turn accelerates the disintegration of liver glycogen, so mobilizing glucose. This is no doubt partly true (Browne and Evans, 1933; Vidal, 1933; Banerji and Reid, 1933), at any rate during the early stages of anaesthesia when excitation of the autonomic nervous system may be expected to occur. Nevertheless, Mekie (1931) found that in the rabbit the hyperglycaemia due to ether anaesthesia is not prevented by adrenalectomy or by the administration of ergotoxine or atropine. He concluded that the autonomic nervous system cannot be implicated and that the hyperglycaemia cannot be due to the mobilization of adrenaline. The evidence is, perhaps, not altogether conclusive, for atropine and ergotoxine do not entirely abolish all activity of the autonomic nervous system, and adrenaline may be mobilized elsewhere than in the suprarenal glands, but it is sufficient to emphasize the unproven nature of the hypothesis that anaesthetic hyperglycaemia is due in the first instance chiefly or altogether to the liberation of adrenaline.

Mobilization of Glucose from the Liver

The suggestion that anaesthetic agents mobilize glucose by a direct action on the liver has also been investigated experimentally. Linkoz (1926), for example, showed that various narcotics when perfused in moderate concentrations through the isolated frog's liver liberated glucose from that organ, and Fuss (1930) found that in the dog hepatic venous blood contains more glucose than portal venous blood during ether anaesthesia. Here again, however, matters cannot be regarded as settled. Ether and chloroform do not mobilize glucose from the isolated perfused liver of the dog (Ross, 1920) even when its glycogen content is normal. It has been claimed (Hrubetz and Blackberg, 1938) that the glycogenolytic power of the rabbit's liver is actually depressed by chloroform and various barbiturates, so that the hyperglycaemic effect of injected adrenaline is diminished. Mellanby (1919) concluded that since ether does not produce hyperglycaemia or glycosuria in the spinal animal its action

cannot be directly on the liver, but is in fact on the bulb. According to Tuckett (1910) ether produces an acceleration of glycogenolysis not necessarily confined to the liver.

Influence on the Action of Insulin

The question of the influence of anaesthetic drugs upon the action of insulin in the body has also been considered. Ross and Davis (1920) came to the conclusion that in the dog ether produces hyperglycaemia by hampering the action of insulin, but it has been shown (Chambers, Deuel, and Milhorat, 1927) that in the dog under amylal anaesthesia insulin has its usual hypoglycaemic effect, raising the respiratory quotient and increasing carbohydrate utilization as in the unanaesthetized animal. On the other hand, Aubertin and Trinquier (1933) concluded that chloralose actually enhances the effect of insulin in the dog. It may be stated that there is no indisputable evidence that anaesthetic agents interfere with the activity of insulin in the organism. The question as to whether anaesthetic drugs directly depress the pancreas and so diminish its output of insulin has not been adequately studied.

Depressant Action of Anaesthetic Agents

It is fairly well established that most anaesthetic agents diminish the uptake of glucose by the tissues, although whether this of itself could be responsible for the observed hyperglycaemia is very doubtful. This depressant action has been demonstrated by measuring the uptake of glucose from the surrounding solution by the unicellular organism *paramoecium* in the presence and absence of ether or chloroform (Estes and Burge, 1928). A similar effect may be shown indirectly for mammalian tissue: Amytal does not raise the blood sugar, but the glycosuria and hyperglycaemia produced by continuous intravenous transfusion of glucose in the dog are greater when amylal is given than in the unanaesthetized animal (Hines, Boyd, and Leese, 1926; Wierzechowski and Gadomska, 1927). This is good evidence that the ability of the tissues to utilize glucose is depressed even by amylal, although Lambie (1926), using the cat, concluded that ether and chloroform anaesthesia does not alter the rate of glucose uptake if the liver is excluded from the circulation. Hines, Leese, and Barer (1928) further showed that the increase of muscle glycogen produced by continuous intravenous transfusion of glucose is not affected by amylal, but that the increase in liver glycogen under these circumstances is halved by amylal anaesthesia. Fuss (1930) has also supplied evidence bearing on the relation of tissue glucose utilization to the hyperglycaemia of anaesthesia. He showed that in the phloridzinized dog ether does not raise the blood sugar, and deduced that the hyperglycaemia of ether anaesthesia is due to mobilization of glucose from the liver (rendered impossible, in phloridzin poisoning, by depleting the liver of glycogen) and not to any diminished utilization of glucose by the other tissues. Sansum and Woodyatt (1915) recorded a fall of blood sugar in phloridzinized dogs, brought about by ether and chloroform anaesthesia. Moreover, it has been shown that ether may not produce its customary rise of blood sugar in patients with hepatic disease (Canterow and Gehret, 1931).

Breakdown of Carbohydrate

The careful work of Uchida (1926), using the rat, demonstrated that various anaesthetics, including ether and chloroform, diminish the free carbohydrate in the brain to some extent and the total glycogen of the brain

to a much larger extent. Liver glycogen is certainly diminished during anaesthesia. The actual depletion has been measured in nitrous oxide anaesthesia (Browne and Evans, 1933), in amylal narcosis (Evans, Tsai, and Young, 1931), and in ether anaesthesia (Macleod and Pearce, 1910). Ether also diminishes the glycogen of the muscles (Major and Bollman, 1932).

There is thus good evidence that ether and at least some other anaesthetic agents accelerate the breakdown of glycogen in the brain, the liver, the muscles, and, no doubt, in all the tissues of the body. The mechanism whereby this universal glycogenolysis is set in motion is imperfectly understood, but it is probably safe to assert that the central nervous system is involved, and that any direct toxic peripheral action of the anaesthetic drug is prominent only in overdosage and is in any case a late effect. It has been suggested (Pratt, 1938) that the partial breakdown of carbohydrate metabolism may be due to some extent to interference not so much with glycogen itself as with some phosphorylated derivative such as hexose phosphate. This is supported by the observation of Stehle and Bourne (1924) that the acidosis of ether anaesthesia is due to the discharge of phosphoric acid from the tissues, where normally it is concerned with carbohydrate metabolism, into the blood stream. It may be that the hyperglycaemia of some forms of anaesthesia is a compensatory mechanism designed to minimize the effects of anoxia upon nervous tissue. It is known that the sensitivity of the central nervous system to anoxia is greatly increased by hypoglycaemia (Gellhorn, 1938), and that hypoglycaemia as well as anoxia depresses the rate of oxidation in the central nervous system. It is interesting to note that the intravenous injection of glucose in the dog may shorten the period of barbitol (veronal) anaesthesia by as much as 50 per cent. (Johnson, Luckhardt, and Lighthill, 1930). Although this effect was ascribed to diuresis, with an increased rate of elimination of the drug, some more specific action may be involved.

Effect on Metabolism

According to Inami (1931) the degree of metabolic disturbance in anaesthesia is proportional to the depth of anaesthesia. This has been confirmed (Pratt, 1938) as far as the hyperglycaemia of ether anaesthesia is concerned.

Anaesthetic agents have an even more intimate and probably much more important influence upon carbohydrate metabolism than any yet touched upon. It is generally agreed that the only oxidative metabolism carried on by nervous tissue is carbohydrate oxidation (Himwich and Nahum, 1932), and this peculiarity clearly renders nervous tissue specially susceptible to any agent which interferes with intermediate carbohydrate metabolism. Indeed, the opinion is steadily gaining ground that anaesthetic drugs may exert their specific effect by inhibiting some phase of the series of reactions involved in the oxidation of carbohydrate in nerve cells. Jowett (1938), using brain slices, has shown that various anaesthetics reversibly inhibit these reactions, and he has proposed to explain narcosis on that basis.

Conclusion

It may be permissible, in conclusion, in a paper that records so much of doubt and so little of certainty, to indulge in one further speculation. According to Mann, Tennenbaum and Quastel (1938), a precursor of acetylcholine exists in brain tissue. This "acetylcholine precursor" is synthesized when carbohydrate oxidation is

occurring, but is not formed under anaerobic conditions. Similarly, MacIntosh (1938) has recently shown that the production of acetylcholine and the transmission of impulses by the superior cervical ganglion is dependent, at least in part, upon the presence of glucose. It is an attractive hypothesis that anaesthetic drugs produce anaesthesia by diminishing the amount of available acetylcholine as a result of cessation or diminution of carbohydrate oxidation, and so preventing the transmission of impulses at synapses in the central nervous system. If this or some such mechanism should prove to be the case it would mean that at last we should have arrived at a theory of anaesthesia capable of being stated in current physiological terminology.

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USE OF THE BACTERIOPHAGE IN AN
OUTBREAK OF INSTITUTIONAL
DYSENTERY

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Dysenteric infections in homes and hospitals for sick-children are common and very hard to control. These difficulties were accentuated in the outbreak here described, as it happened in a home for blind babies. It was inadvisable to close the home, and impossible, as will be explained, to secure effective isolation. In these circumstances treatment with bacteriophage was assiduously carried out in the hope that the infectivity of those affected might be reduced by some alteration in the bacteria, such as is supposed to be produced by the action of the bacteriophage upon micro-organisms. So successful does this appear to have been that the experience seems worthy of record.

The home had thirty-two blind children aged from a few months to 7 years. It is managed by a devoted matron, with a staff of eight skilled nurses, three teaching staff, and five domestics. All are under the regular medical supervision of an experienced local medical practitioner, with ready access to consultant advice. The medical officer is a regular visitor to the home.

The Cases

The first patient, on February 20, 1937, was hardly ill at all, although there was a little blood in the stools. This child was not suspected of having dysentery, and after a few days' segregation was allowed to join the other children freely. Whether there was a connexion between

this case and the epidemic that followed six weeks later is uncertain, but the child was again ill on April 22. On the latter occasion the first stool to be examined showed no dysentery bacilli, but on April 25 *B. dysenteriae* Sonne was obtained (Table I, Case 4).

Following this presumed first case, on February 20, there were three cases on April 4 and 5. Of these, two were mild and one moderately severe. The last-mentioned case passed blood and mucus, and from a specimen of the stool Dr. Selous isolated *B. dysenteriae* Sonne (Table I, Case 1). After an interval of four days there were four more cases on April 10 and 11. From the stools of two of these *B. dysenteriae* Sonne were obtained (Table I, Cases 2 and 3), and from the other two "atypical" dysentery bacilli—that is, Gram-negative, non-motile, non-lactose-fermenting bacteria, which fermented mannitol with the production of acid only, but did not, however, conform to any of the recognized dysentery strains: they failed to agglutinate with standard Oxford sera for the Sonne, Shiga, or Flexner groups. Three of these four cases were febrile and toxic, and a tendency to cyanosis was a feature of their condition.

A week later, April 18, another febrile case of dysentery occurred, and from this also *B. dysenteriae* Sonne were obtained (Table I, Case 3). On the 22nd the first case was again reported ill. This was a mild attack. The first stool examined gave a negative result, but from a stool on April 25 *B. dysenteriae* Sonne were obtained (Table I, Case 4). It is possible that this patient may have harboured *B. sonnei* from February 20 and thus have been the source of the other infections. Whence her infection came in the first instance could not be ascertained. On April 25 three more cases occurred (Table I, Cases 7, 9, 10). Two of these patients were nurses (Table I, Cases 9, 10), only slightly indisposed, but from them "atypical" dysentery bacilli were obtained. The accompanying chart conveys a clear idea of the pattern of the epidemic.

TABLE I.—Cases from which *B. dysenteriae* Sonne and/or "Atypical" Bacilli were Obtained

| Case No. | Date | Result of Stool Examination | Examined by |
|----------|---------|-----------------------------|-------------|
| 1 | 5/4/37 | Sonne present | Dr. Selous |
| | 2/5/37 | " | D.H. |
| | 7/5/37 | " | D.H. |
| | 20/5/37 | "Atypical" bacilli present | D.H. |
| | 27/5/37 | Negative for dysenteries | |
| 2 | 12/4/37 | Sonne present | Dr. Selous |
| | 25/4/37 | "Atypical" bacilli present | D.H. |
| | 7/5/37 | Sonne present | D.H. |
| | 24/6/37 | "Atypical" bacilli present | D.H. |
| | 7/7/37 | Negative for dysenteries | |
| 3 | 18/4/37 | Sonne present | Dr. Selous |
| | 4/5/37 | " | D.H. |
| | 19/5/37 | Negative | D.H. |
| 4 | 22/4/37 | Negative | Dr. Selous |
| | 25/4/37 | Sonne present | D.H. |
| | 14/5/37 | Negative | D.H. |
| 5 | 25/4/37 | Sonne present | D.H. |
| | 6/5/37 | Negative | D.H. |
| 6 | 25/4/37 | Negative | D.H. |
| | 6/5/37 | "Atypical" bacilli present | D.H. |
| | 7/7/37 | Negative | |
| 7 | 25/4/37 | "Atypical" bacilli present | D.H. |
| | 24/5/37 | " | D.H. |
| | 3/6/37 | " | D.H. |
| | 7/7/37 | Negative | |
| 8 | 25/4/37 | Sonne present | D.H. |
| | 10/5/37 | Negative | D.H. |
| 9 | 25/4/37 | "Atypical" bacilli present | D.H. |
| | 6/5/37 | Negative | D.H. |
| 10 | 25/4/37 | "Atypical" bacilli present | D.H. |
| | 6/5/37 | Negative | D.H. |
| 11 | 27/4/37 | Sonne present | D.H. |
| | 27/5/37 | Negative | |

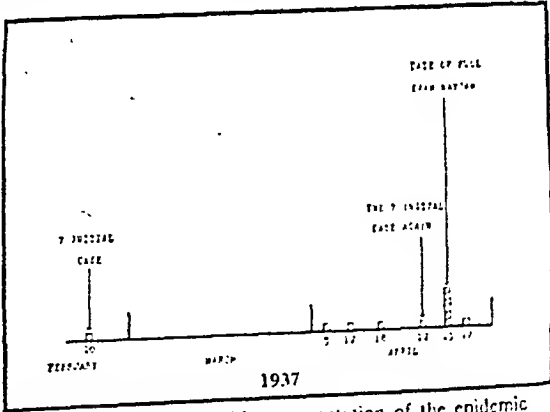


Chart showing a graphic representation of the epidemic

The Investigation

On April 25 I was consulted by Dr. Eric Pritchard, and was asked to investigate and to suggest a way of dealing with the outbreak. The home is situated in a very commodious and well-converted mansion, standing in its own extensive and attractive grounds. The appended sketch-plans of the two lower floors show the internal arrangements, and it will be seen how difficult was the problem of effective isolation in this epidemic. The water supply was from the town mains. There was no evidence of any epidemic in the rest of the area supplied. The milk was from local farms. It was not pasteurized, but was sterilized by boiling when received at the home.

These blind children are encouraged to lead as normal a life as possible. Vision, of course, plays a major part in the education of children; but in blind children this is perforce replaced by stimuli from touching, tasting, smelling, and hearing. It is desirable that they handle everything, and inevitable that they taste many things. Hence the control of an epidemic of a highly infective disease offers even more difficulties than those met with in institutions for more normal children.

Owing to the peculiar nature of the home there is no ward for the treatment and efficient isolation of cases of sporadic disease, and great reliance has to be placed upon "bed-isolation" (always a matter of difficulty, but more so in an institution of this kind).

Cases 9 and 10 were nurses, and were at no time really ill; they harboured "atypical" bacilli, and would never have been found had it not been possible to examine the stools of all the inmates and staff. Every case discovered at this time, with the exception of Case 11, was of the minor or carrier type, and in the ordinary course of events such cases would certainly have been overlooked.

There were then, on April 27, seven cases either known to have had dysentery or found on that date to harbour dysentery bacilli; one child negative on culture who subsequently developed the disease (Table I, Case 11); and two nurses (Cases 9, 10), who were shown to harbour "atypical" dysentery bacilli. The remainder of the children (twenty-two) were hitherto unaffected and presumably healthy. There were also seventeen nursing, teaching, and domestic staff. Efficient isolation seemed impossible without upsetting the routine of the home and thus nullifying much of the laborious and excellent work of the devoted staff, who were doing all that seemed possible to segregate the sick. It was

very undesirable to close the home and disperse the children to isolation hospitals.

Treatment

Accordingly I recommended that those who had been sick, those unaffected and therefore presumably at risk, and all the staff should receive one dose of a reliable anti-dysentery bacteriophage three times daily for a fortnight, and thereafter one dose daily. All those in bed and upon

bed-isolation received one dose of the bacteriophage three times daily until the stools were reported "free from *B. dysenteriae* Sonne, and from 'atypical' dysentery bacilli."

An examination of the stools of all the inmates and staff was begun. In the first batch of stools examined on April 25, 1937, there were thirty-six specimens—eighteen from child inmates and eighteen from the adult staff. Of this batch three were positive for *B. dysenteriae* Sonne and two showed "atypical" dysentery bacilli (these were the two nurses). The rest did not show dysentery organisms. On May 4 four more specimens were examined: of these only one showed *B. dysenteriae* Sonne. On May 7 eight more stools were examined and two showed *B. dysenteriae* Sonne. The examinations were continued at varying intervals until, at the end of the epidemic on July 7 a total of

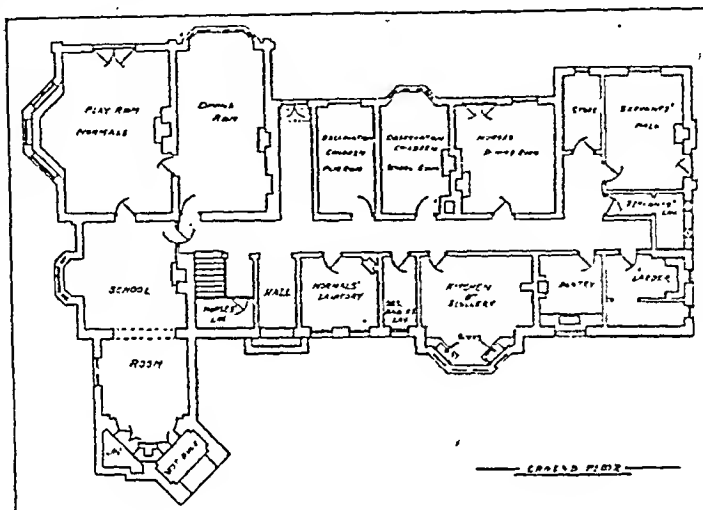


FIG. A.

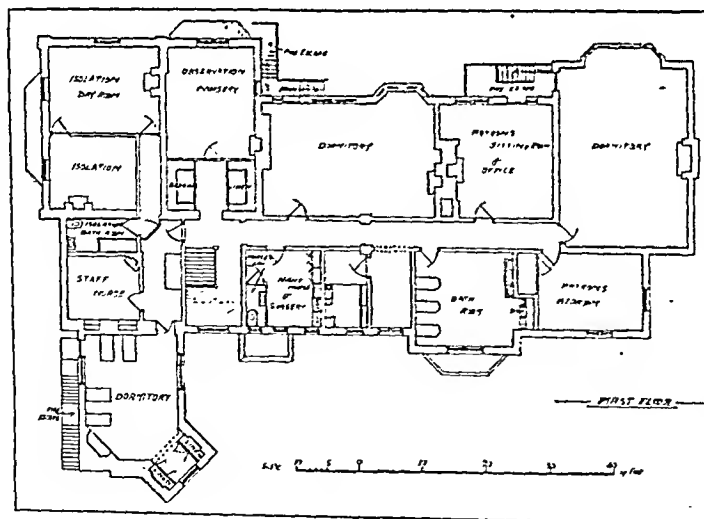


FIG. B.

sixty-six stools had been examined.

Bacteriophage treatment of the sick was started on April 25 and was extended to the whole institution on April 27. On the latter day, the second day after treatment was begun, one further case occurred. This was the last; and now, over a year later, there has been no fresh case.

This sudden cessation of the epidemic may have been a coincidence; but there was nothing to suggest that the cases between April 4 and 27 were being infected from

outside the home. The repeated findings of *B. dysenteriae* Sonne suggested that this infection was being spread. The "dropping" cases during the three weeks were what might be expected in an outbreak spread by contact infection; and even though the separation of the healthy from the sick was tightened up, the activity of these children, unbelievably quick in touching, smelling, and putting things into their mouths, made the transfer of infection probable.

The treatment aimed at the bacillus causing the disease: it sought by the action of the bacteriophage to modify the bacillus, and thus render it less capable of giving rise to dysenteric infection. Some modification did apparently occur, as towards the end of the epidemic there were more "atypical" bacilli and steadily fewer typical dysentery bacilli isolated. There was no change in the technique used, so it appears that the modification was truly in and of the bacilli. (It is open to argument whether "atypical" dysentery bacilli can be produced from pure strains of known dysentery organisms, but there is some evidence in the authorities which appears to support the proposition.) No medicinal treatment other than bacteriophage was administered. No case was removed from the home. Inquiries at the home at the end of April, 1938, elicited that no further case had occurred.

The bacteriophage was prepared at the Usher Institute of Public Health, Edinburgh. In its preparation races of bacteriophage active against strains of dysentery occurring in this country are largely used, and these include *B. dysenteriae* Sonne from a variety of sources.

I should like to express my thanks to Dr. Eric Pritchard for consulting me about this outbreak, for allowing me to use the bacteriophage treatment, and for his never-failing help and consideration in this and other matters; to Lieutenant-Colonel J. Morison, to whom I am indebted for the supply of bacteriophage, and much kindly help, advice, and friendly criticism; to Dr. W. E. Wallis, medical officer at the home, for his courteous assistance, for the efficient supervision of the outbreak, and for placing his records at my disposal; to the National Institute for the Blind for allowing the publication of this paper and for so readily supplying plans, documents, etc., relevant to this work; and, finally, to Mr. H. Clouston, my senior technician, for invaluable help in the isolation of the dysentery bacilli, and to the other members of my staff for their technical assistance.

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"Problems of the Nations" will be discussed in a series of talks to be held in the Halls of City Livery Companies in aid of King Edward's Hospital Fund for London. The subjects will be "China" on October 6 in the Hall of the Vintners' Company; "Russia" on October 26 in the Hall of the Goldsmiths' Company; "Eire" on November 10 in the Hall of the Clothworkers' Company; and "Czechoslovakia" on November 24 in the Hall of the Drapers' Company. Ticket holders will be given an opportunity of seeing the premises and historical relics before the talks, which begin at 5.30 p.m. Further information and tickets (price 3s. 6d.) can be obtained from the Secretary, King Edward's Hospital Fund for London, 10, Old Jewry, E.C.2.

OBSERVATIONS ON THE POTENCY AND STABILITY OF DICK TEST TOXINS

BY

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The Dick test is less reliable than the Schick test, and is therefore employed much less in clinical work. From time to time questions are asked about the possibility of improving the Dick toxin used clinically in many hospitals in this country. Is it of optimum potency at the time of preparation, and does the diluent ensure that undesirable deterioration does not occur before use?

We have recently been able to compare the potency of two toxins, one of which, Toxin A, was diluted in boric acid borate buffer solution (B.B.S.), and the other, Toxin B, in 0.4 per cent. phenol saline and in B.B.S. The former toxin is the preparation now used clinically by many workers in this country. We have taken the opportunity to inquire into the stability of the various reagents and also to endeavour to assess the error of the skin method of comparing two toxins in human subjects.

Reagents and Technical Details

The following toxin dilutions were available for injection:

1. Toxin A, diluted in B.B.S. 2 to 3 days previously
2. " " " " " 1 month
3. " B, " " " phenol saline 2 to 3 days previously
4. " " " " " 1 month
5. " " " " " B.B.S. 2 to 3 days previously
6. " " " " " 1 month

Dilutions 1, 3, and 5 were posted on the day of preparation, and dilutions 2, 4, and 6 had been kept at 4° C. for four weeks and were sent by post at the same time as dilutions 1, 3, and 5. The tests were made on the anterior surfaces of the forearms of Dick-positive individuals, separate syringes being used for each dilution. The sites of injection varied in different patients; thus a dilution might be injected on the forearm near the elbow in one patient and near the wrist in another. Readings were made after sixteen to twenty-four hours, the key to the order of injections being unknown to the persons making the readings. Throughout the investigation the greatest care was taken to exclude conscious and unconscious bias. The dimensions of the reactions were recorded in millimetres and notes made of their intensity.

Results

An analysis of the comparisons made at the different hospitals is shown in the table.

The following conclusions may be drawn:

1. Toxin A is considerably stronger than Toxin B.
2. Toxin A deteriorates slightly after four weeks in cold storage followed by two to three days at room temperature.
3. Toxin A which has been kept for one month is still considerably stronger than Toxin B freshly prepared.
4. Toxin B deteriorates slightly after four weeks in cold storage followed by two to three days at room temperature.

5. B.B.S. is a more suitable diluent than phenol saline for Toxin B. It ensures less deterioration after (a) two to three days at room temperature, and also after (b) four weeks at 4° C. followed by two to three days at room temperature.

Comparison of two Dick toxins, A and B, diluted in B.B.S. or 0.4 per cent. phenol saline (a) two to three days before injection, and (b) one month before injection

| | | Observers | | |
|---------------------|-----------------------|-----------|------------|----|
| | | M.L. | McG and K. | R. |
| A (B.B.S.) 2-3 days | > B (phenol) 2-3 days | 11 | 14 | 16 |
| " " " " | " " " " | 0 | 0 | 0 |
| " " " " | " " " " | 2 | 0 | 0 |
| A (B.B.S.) 2-3 days | > A (B.B.S.) 1 month | 2 | 12 | 4 |
| " " " " | " " " " | 4 | 2 | 2 |
| " " " " | " " " " | 7 | 4 | 10 |
| A (B.B.S.) 1 month | > B (phenol) 2-3 days | 11 | 18 | 16 |
| " " " " | " " " " | 0 | 0 | 0 |
| " " " " | " " " " | 2 | 0 | 0 |
| B (phenol) 2-3 days | > B (phenol) 1 month | 6 | 7 | 1 |
| " " " " | " " " " | 2 | 3 | 3 |
| " " " " | " " " " | 5 | 2 | 12 |
| B (phenol) 2-3 days | > B (B.B.S.) 2-3 days | 4 | 1 | 0 |
| " " " " | " " " " | 4 | 9 | 10 |
| " " " " | " " " " | 5 | 0 | 6 |
| B (phenol) 1 month | > B (B.B.S.) 1 month | 1 | 2 | 1 |
| " " " " | " " " " | 5 | 6 | 8 |
| " " " " | " " " " | 7 | 0 | 7 |

The toxins were supplied to the various hospitals in sealed glass phials and in rubber-stoppered bottles. There did not appear to be any significant difference between the results obtained with toxins from the two types of container, which were disregarded when the above table was compiled.

Discussion

From the combined research it is obvious that one has to use large numbers of persons in comparing the dilutions which were supplied of Dick toxins A and B. Discrepancies are apparent in an analysis of the data from different hospitals, and indicate the need for care in the interpretation of comparisons based on small groups. At the same time undue emphasis must not be placed on the discrepancies reported by different workers. Many of these were explained by a difference in measurement of a very few millimetres, as was evident from the original protocols (unpublished).

The influence of the diluents is also of interest. Boric acid borate buffer solution, which is now used in Great Britain, is a better stabilizing agent than phenol saline. A similar conclusion was reached by O'Brien, Okell, and Parish (1928), although in their early work a slightly higher concentration of phenol was used and a more rapid deterioration of toxin was observed. It is now well known that phenol is an unsuitable antiseptic for various other toxins—for example, diphtheria and tetanus—and for such immunizing agents as diphtheria prophylactic, A.P.T., which may lose its antigenicity rapidly in the presence of phenol.

A comparison of various Dick toxins has also been made by Ker (1937), who commented on the stability of the material used in his tests. His work emphasizes, too, the necessity for tests on a large group of persons in any investigation of this type.

With regard to the strength of Dick toxin used normally in our clinical work, the dramatic reduction of scarlet fever among nursing staffs after the introduction of the Dick test and active immunization indicates clearly that a

Dick-negative staff of nurses has a high degree of protection against infection; but we have seen a small number of relapses to Dick-positive and a few cases of scarlet fever among nurses who had formerly, or recently, been Dick-negative. On reviewing all the evidence, however, the results of immunization indicate that the Dick toxin used is of satisfactory potency.

Summary

1. In comparing two different samples of Dick toxin, tests on small groups of persons may be misleading. We would emphasize the need for making a considerable number of tests if an accurate result is required.

2. Boric acid borate buffer solution is a preferable diluent to 0.4 per cent. phenol saline, since it ensures greater stability.

3. The Dick toxin A, used normally in our clinical work, is of satisfactory potency and stability. Negative reactions with this toxin indicate a high degree of protection, although we have observed a few cases of scarlet fever in Dick-negative nurses.

We are indebted to Dr. R. A. O'Brien and Dr. H. J. Parish of the Wellcome Physiological Research Laboratories for the Dick toxins and diluents used for the tests.

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A NOTE ON DIPHTHERIA IMMUNIZATION IN LONDON

BY

MAX SORSBY, L.M.S.S.A.

The increasing attention that is being paid by public health authorities to the immunization of children against diphtheria and the satisfactory results that have been obtained by various authorities in the reduction of the incidence of the disease by this procedure have led to the present study of the extent of diphtheria immunization in the child population of London. Diphtheria is a problem of no mean order in the metropolis. For the decennial period 1926-35 the following yearly averages for the County of London show the extent of morbidity and mortality.

| | |
|---|---------------------------------------|
| Approximate population (0-15 years) | 1,000,190 |
| Diphtheria cases | 9,047 (Attack rate of 9.04 per 1,000) |
| Deaths | 357 (Death rate of 3.65 per 10,000) |
| Case mortality, per cent. .. | 4.05 |

Immunization is carried out in the County of London mainly by the authorities of the different metropolitan boroughs. Holborn has provided facilities since 1922, and it was some years before other authorities followed: even now Bethnal Green has no local facilities, but makes arrangements for applicants to be immunized elsewhere. By reason of this lack of uniformity a much larger number of children are immunized in some parts of London than in others. Taking all the London boroughs together, by the end of 1935 there were 29,616 children potentially protected against diphtheria, either because of a natural immunity or as a result of immunity acquired by inoculation. The proportion of naturally immune children is not insignificant, for of nearly 30,000 no fewer than 4,698 were found Schick-negative at the primary test. On this basis something like 20

per cent. of the child population in London is naturally immune. It is generally agreed that for the diphtheria mortality rate to be tangibly affected at least 50 per cent. of the child population must be immune. There is therefore a wide gap to be bridged—one of at least 30 per cent. Thus, taking the figures up to 1935, it would appear that only a very small proportion of the child population has so far been artificially protected—actually not more than 2.3 per cent.

Recent Increase in Rate of Immunization

Since 1935 diphtheria immunization has been practised on an ever-increasing scale, so that this small percentage is no longer valid. In 1936 about 3,000 more children were protected, and whilst the figures for 1937 are not yet available, there can be no question that this number has been surpassed. As emphasizing the increasing rate at which immunization is being practised, it is worth pointing out that whilst in 1930 there were about 9,000 protected children, by the end of 1935 this figure was nearly trebled, and in the two years 1936-7 as many children were protected as in the preceding five years.

The L.C.C. has carried out immunization among the inmates of its institutions since 1932, and by the end of 1936 approximately 10,000 children had been successfully immunized. Adding these figures together, it would appear that at the present moment about 55,000 to 60,000 children in the London area have been actively protected, representing approximately 5 to 6 per cent. of the child population. If the 20 per cent. or so of the naturally immune children are added to this there remain about three-quarters of the child population not protected. In view of the risk run by the unprotected, an intensive effort towards popularizing immunization seems to be called for. The experience of Dublin, where, in the second half of 1935, 25,000 children were immunized, including 4,500 under school age, illustrates what can be achieved. In Chester about 45 per cent. of the child population and in Birmingham about 35 per cent. have been immunized. There does not appear to be any reason why other local authorities cannot do as well or even better.

The following table gives a detailed analysis of the extent of diphtheria immunization undertaken by the

COUNTY OF LONDON

Diphtheria Immunization. Totals to end of 1935

| Local Sanitary Authority | Approx. Average Population 0-15 Years 1926-35 | Date of Commencement of Immunization | Numbers Schick-negative at Primary Test | Numbers Given Full Course of Prophylactic | Numbers Fully Inoculated and Subsequently Schick-negative | Cases of Diphtheria Reported among Immunized | Diphtheria Attack Rate per 1,000 Immunized | Deaths from Diphtheria among Immunized Children | Total Known to be Protected (Immunized or Schick-negative at Primary Test) | Percentage of Known Protected to Total Population (0-15 Years to End of 1935) | Number Potentially Protected |
|--------------------------|---|--------------------------------------|---|---|---|--|--|---|--|---|------------------------------|
| City of London .. | 1,400 | 1935 | None tested | 26 | 24 | 0 | — | — | 24 | 1.71 | 26 |
| Battersea | 37,700 | 1927 | 230 | 1,297 | 1,027 | 4 | 3.89 | — | 1,257 | 3.33 | 1,527 |
| Bermondsey | 31,500 | 1929 | 91 | 295 | 295 | 1 | 3.39 | — | 386 | 1.23 | 386 |
| Bethnal Green* .. | 30,500 | | | | | | | | | | |
| Camberwell | 59,000 | 1926 | 361 | 1,369 | 1,028 | 4 | 3.89 | — | 1,389 | 2.35 | 1,730 |
| Chelsea | 9,800 | 1934 | 22 | 215 | 184 | 0 | — | — | 206 | 2.10 | 237 |
| Deptford | 26,300 | 1927 | 316 | 950 | 384 | 0 | — | — | 700 | 2.66 | 1,266 |
| Finsbury | 19,130 | {1928-31 1934} | 24 | 143 | 96 | 0 | — | — | 120 | 0.63 | 167 |
| Fulham | 33,230 | 1934 | 219 | 757 | 619 | 0 | — | — | 838 | 2.52 | 976 |
| Greenwich | 26,300 | 1936 | — | — | — | — | — | — | — | — | — |
| Hackney | 49,670 | 1928 | 1,043 | 4,510 | 3,817 | 6 | 1.57 | — | 4,860 | 9.78 | 5,553 |
| Hammersmith | 30,500 | 1935 | 22 | 1,170 | 546 | 0 | — | — | 568 | 1.86 | 1,192 |
| Hampstead | 13,300 | 1933 | — | 603 | 218 | 0 | — | — | 218 | 1.63 | 603 |
| Holborn | 6,160 | 1922 | 364 | 1,542 | 1,170 | 4 | 3.42 | — | 1,554 | 25.2 | 1,926 |
| Islington | 75,150 | 1936 | — | — | — | — | — | — | — | — | — |
| Kensington | 32,000 | 1934 | 102 | 2,318 | 1,657 | 1 | 0.60 | — | 1,759 | 5.5 | 2,420 |
| Lambeth | 67,650 | 1928 | 849 | 2,164 | 1,970 | 0 | — | — | 2,819 | 4.16 | 3,013 |
| Lewisham | 53,300 | 1935 (June) | 36 | 236 | 235 | 0 | — | — | 271 | 0.5 | 272 |
| Paddington | 25,300 | 1933 | 322 | 664 | 627 | 4 | 6.37 | — | 949 | 3.75 | 986 |
| Poplar | 45,000 | {1928-30 1933-35} | 58 | 215 | 202 | 0 | — | — | 260 | 0.57 | 273 |
| St. Marylebone .. | 15,400 | 1928 | 107 | 2,132 | 1,451 | 3 | 2.07 | — | 1,558 | 10.12 | 2,239 |
| St. Pancras | 41,800 | 1936 | — | — | — | — | — | — | — | — | — |
| Shoreditch | 28,650 | 1933 | 262 | 588 | 197 | 1 | 5.10 | — | 459 | 1.60 | 850 |
| Southwark | 45,800 | 1929 | 315 | 1,726 | 1,232 | 2 | 1.62 | — | 1,547 | 3.37 | 2,041 |
| Stepney | 61,100 | 1936 | — | — | — | — | — | — | — | — | — |
| Stoke Newington .. | 10,000 | 1927 | 68 | 537 | 512 | 0 | — | — | 580 | 5.80 | 605 |
| Wandsworth | 71,700 | 1928 | 1,258 | 5,362 | 4,013 | 9 | 2.24 | — | 5,271 | 7.35 | 6,620 |
| Westminster, City of | 16,400 | 1926 | 327 | 1,619 | 833 | 2 | 2.40 | — | 1,070 | 6.53 | 1,856 |
| Woolwich | 36,450 | 1934 | 172 | 1,135 | 781 | 0 | — | — | 953 | 2.61 | 1,307 |
| | 1,000,190 | 1922-35 | 6,588 | 31,573 | 23,118 | 41 | 1.77 | — | 29,616 | 2.96 | 38,071 |

* No facilities for immunization yet in Bethnal Green. Applicants are referred to the Hospital for Sick Children, Great Ormond Street.

metropolitan boroughs up to 1935. It will be seen that in comparison with the general child population the incidence of diphtheria among immunized children is distinctly low (an attack rate of 1.77 per 1,000 immunized against 9.04 for the general child population) and that there has not been a single death from diphtheria in the forty-one cases occurring in the immunized group.

I am indebted to the Special Hospitals Department of the London County Council for the information contained in the table, and to Dr. G. H. Dart, medical officer of health for Hackney, for much helpful advice.

VASOMOTOR RHINORRHOEA, WITH ASTHMA, ASSOCIATED WITH MENSTRUATION

BY

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The relation between nasal disorders and activity of the sexual organs, both in the male and in the female, was recognized by Hippocrates, Celsus, and Aristotle, and also in the Ayurveda, the ancient Hindu medical classic. J. N. Mackenzie (1884), an ear, nose, and throat surgeon of Baltimore, was the first writer of more modern times to make a systematic clinical study of this subject and to survey the literature. He observed in a certain number of women, whose nasal organs were otherwise healthy, that the nasal erectile tissue became congested at the time of the period, and even when the period was expected but happened temporarily to be suppressed. He said that his own experience was not great enough for him to say whether these changes also took place during pregnancy; but they have now, in fact, been seen to occur (Mortimer, Wright, and Collip, 1936a, 1936b, 1937). Moreover, the change is a steadily progressive one, with exacerbations when the periods would have been expected to be due but for the pregnancy. Mackenzie was of the opinion that nasal congestion was not confined only to women at the time of the periods, but that it might also occur during or after sexual activity in both sexes.

For fifty years the significance of Mackenzie's and other similar work has passed unnoticed and unexplained, but these clinical observations have now acquired a fresh significance in the light of recent advances in endocrinology, and are supported by a large body of experimental evidence, obtained mostly from work on monkeys (Mortimer *et al.*, 1936a, 1936b, 1937).

Hormonic Action on the Nasal Mucosa

Nasal turgescence is one of the "specific skin responses" to increase of circulating sex hormone occurring at oestrus. It can be provoked by injection of the appropriate oestrogenic hormones into male and female monkeys, including, as controls, those which are immature or castrate. Specific skin reactivity can be shown by simple transplantation experiments, where, for example, a piece of specific skin transplanted into a non-specific area still shows the specific response, and vice versa. Thus, non-specific skin transplanted into the perineal area of a monkey stands out as a "pale island

of skin in brilliantly coloured surroundings" (Bachman, Collip, and Selye, 1936).

This specific action of oestrogenic hormones on the nasal mucosa has been investigated and put to a therapeutic purpose by Collip and his co-workers in cases of atrophic rhinitis and ozaena. They observed much improvement after a course of local application of the hormones (oestrone or oestradiol in an oily solution). Incidentally, this series of cases showed an unusually high percentage of deafness and otosclerosis, which in a few cases responded to treatment, although otosclerosis is generally considered to be a most intractable cause of deafness.

The nasal congestion which is such a feature in the oestrous cycle of the higher primates has to a very large extent been lost in human phylogenetic development. None the less, it seems that the majority of women have some degree of nasal turgescence during menstruation and pregnancy. The bleeding of "vicarious menstruation" has been observed to come not from Kiesselbach's septal triangle, as is usually the case, but from the congested middle and inferior turbinates (Mortimer *et al.*, 1936b).

Many women complain that their noses are "stuffed up" or "run" immediately before or during their periods. In an unlucky few the turgescence may give rise to even more severe symptoms. In some women the nasal congestion may result in an attack of vasomotor rhinorrhoea; this is not an allergic reaction, but an exaggeration of a normal physiological response. Why this should be so one cannot explain; cellular pathology is even less understood than cellular physiology. "The reactivity of the tissues . . . is an important factor in determining the effects of hormone secretion" (Levy Simpson, 1938).

This type of vasomotor rhinorrhoea which occurs in association with the menstrual function might be termed "oestrogenic rhinorrhoea"; but this does not mean to say that an allergic factor is necessarily excluded. It usually occurs regularly about two days before the onset of the menstrual period, during which an attack of asthma may develop. The asthma is often slow in termination because, as frequently happens, a catarrhal bronchitis of bacterial origin may supervene. The whole illness is likely to take some time to resolve, only to recur with the next menstrual cycle. As this syndrome often first appears in children of school age who are taking their higher examinations, the resultant disability is serious. The patients are seen for treatment usually on account of their asthma only; the preceding rhinorrhoea, which is much less spectacular and disabling than the asthma, is either disregarded or self-diagnosed as a "cold in the nose." If this self-diagnosis is accepted as such and the asthma treated symptomatically, then the general prognosis as regards future attacks of asthma is not hopeful. But a careful questioning will reveal the true nature of the "cold"—that is, typical vasomotor rhinorrhoea, with no malaise or fever—and the prognosis is then materially altered.

Nasogenic Asthma

Asthma produced in this manner, by a nasal affection, is termed "nasogenic asthma," and its mechanism is reflex through the naso-pulmonary reflex arc. The control of bronchial calibre and the influence upon it of nasal stimulation has been studied with the bronchoscope in experimental animals and the reflex-paths worked out

(Maxwell Ellis, 1938). The existence of a similar control and influence in human beings is largely inferential from clinical observation, but there is also a certain amount of experimental support (Myers, 1929). The nasal element as the cause of an attack of asthma is not necessarily very obvious; the asthma may be preceded simply by a few sneezes or trivial nasal irritation, or running from the nose or eyes, the latter being a reflex via the sphenopalatine ganglion. In doubtful cases, when the patient is seen at the beginning of an attack of asthma, one may help to establish the diagnosis by spraying the interior of the nose with 2 per cent. cocaine solution, which may abort the attack by interrupting the naso-pulmonary reflex arc.

The simplest and most effective means of maintaining an interruption in the naso-pulmonary reflex arc is by the method of intranasal zinc ionization; this acts in much the same way as does the diagnostic cocaine spray. It is a non-specific method of rendering the nasal mucous membrane less sensitive to whatever may happen to be the sensitizing agents, and thus of interrupting unduly sensitive reflex arcs. The rationale and technique of intranasal zinc ionization has been dealt with fully and adequately by Shields (1936, 1937). He points out that the technique literally is an *intranasal* one, and that there are many possible sources of error. In some cases the sensitive areas may be high up in the nose and not entirely accessible by the ordinary gauze-packing technique. Ionization may then be carried out by continuous irrigation, as described by Shields (1937). Naturally it is essential to look for and attend to nasal or dental sepsis, or other well-recognized factors in the causation of asthma. In many cases also there may be easily detectable factors such as pollen or food susceptibility (Kennedy, 1936; Maxwell, 1936). Vasomotor rhinorrhoea is the outward sign of many possible inward disturbances, the nose being as it were a common denominator or "final common path."

Two Illustrative Cases

The following are two illustrative cases of menstrual asthma preceded by vasomotor rhinorrhoea which were sent to me as cases of simple asthma and which had previously been treated as such. It was decided to treat the apparent nasal origin of the asthma by the method of intranasal zinc ionization on the ground that it is effective in other cases of asthma caused by vasomotor rhinorrhoea, whether the latter is seasonal (hay-fever) or non-seasonal.

CASE I

A girl aged 14 was sent to see me on November 12, 1937. She was apparently normal physically, including the nasal mucosa. She had had a severe attack of asthma during her first period, and again with her second and third. Questioning elicited the fact that she had had a "cold" two days before each period, and further questioning made it obvious that the so-called cold was an attack of vasomotor rhinorrhoea. A first treatment by intranasal zinc ionization was given. She was seen again on November 19, and was menstruating, the period having come on a week earlier than was anticipated. She had had an attack of sneezing, with slight rhinorrhoea, on November 16, and the period had begun the following day, but there was no asthma. She was given second and third treatments on November 26 and December 10. The mother reported on January 3, 1938, that the girl had had no further symptoms. She again reported on May 20 that the patient was continuing well, and "had not had to stay away from school," but that there had been an insignificant running from the nose premenstrually. This latter observation may be

taken as reassuring from the point of view of the effects of the treatment, as it indicates that the nasal erectile tissue has not been destroyed and has not lost its capacity for responding to circulating oestrogenic hormones. If the mucosa returns to its previous more than normal responsiveness, then the treatment can be repeated. But this no more detracts from the value of the treatment as a method of controlling symptoms than does the necessity for repetition of injections in diabetes or pernicious anaemia.

CASE II

This is a rather more complex case, there being obvious dietary factors as well. A girl aged 16 was first seen by me on April 7, 1937. She had had asthma, preceded by "running colds," for two years since she had come to live by the sea. Inland she was well, except on one or two occasions. As a child she used to have severe urticaria after eating eggs or chocolate; when seen by me she was "upset" by milk and eggs during the attacks of asthma, but not in between. Her history showed that her asthma coincided with her periods and was preceded by vasomotor rhinorrhoea. On physical examination she was found to be normal with the exception of the turbinates, which were of a pale blue colour. The irregular rhythm of her asthma and the history of food susceptibility showed that there was more than one (oestrogenic) factor, but as the nose was the "final common path," and as she had had the usual treatment for asthma, it was decided to treat the nose. After a course of treatment by intranasal zinc ionization she had no more rhinorrhoea and consequently no more asthma. When last heard of, on May 31, 1938, she was still well.

One cannot disregard the possibility that this form of vasomotor rhinorrhoea, with or without asthma, may have some psychological basis, associated as it is with sexual manifestations. But in Case I the vasomotor rhinorrhoea preceded the patient's first period, the onset of which she obviously could not have anticipated. Further, in the two cases quoted the patients considered their "colds" as of no great inconvenience or disability; it is a universally recognized principle in psychology that the significance of a psychological symptom is in direct proportion to its value to the patient, and therefore this cannot be great if the owner of the symptom treats it as of not much importance.

I am greatly indebted to Professor Sir Walter Langdon-Brown and Professor Samson Wright for help and advice in the preparing of this communication and in the tracing of references.

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The Autumn Exhibition of the Royal Institute of British Architects is to deal with the subject of the ordinary small house. It is to be opened jointly by Miss Ellen Wilkinson, M.P., and Mr. J. B. Priestley on Thursday, October 13. The object of the exhibition is to show ways in which the architects think the small house, provided for people of moderate means, might be improved. The exhibition will be open to the public, admission free, from October 14 to 29 at the R.I.B.A., 66, Portland Place, London, W.1. It will then, like all R.I.B.A. exhibitions, go on a tour of provincial centres and London suburbs for a period of two years.

Clinical Memoranda

Parental Whole Blood in the Prophylaxis of Measles

Reference to the literature shows that of the methods at present available for the prophylaxis of measles the injection of whole adult blood has been much less often employed than the alternatives: (a) convalescent serum, (b) pooled adult serum, (c) immune globulin prepared from placental extracts. This fact is greatly to be deprecated, because the use of parental blood at once commends itself as the most generally applicable, useful, convenient, and inexpensive method. The vast majority of cases in this country are treated at home by their family doctors, and for employment in these circumstances alternatives (a) and (b) are rarely available, while (c) is impracticable in most instances owing to its cost, and is not unlikely to meet with aesthetic objection from parents who may inquire into its source.

On the advice of the local medical officer of health, it was decided during an epidemic period, January to March, 1938, to adopt as a prophylactic method the injection of parents' whole blood into susceptible child contacts in the respective families, with a view to modifying the attack and avoiding complications in the secondary cases without sacrificing the permanent immunity to be derived from the attack. In domiciliary practice this is the obvious aim rather than complete prevention, which for various reasons may be greatly desired when measles is introduced to the children's ward of a hospital or into an institution. This method is particularly suitable to private medical practice, and affords an excellent opportunity for practitioners to make a real contribution to preventive medicine—an opportunity which should be seized before local authorities under pressure of public opinion are impelled to undertake measles prophylaxis during an epidemic.

TREATMENT

A series of twenty contacts were treated by injections of parental blood. The average quantity given was 10 c.c.m., which would be considered too little by most workers. A comparison of symptoms and signs both in these twenty secondary cases and in the eighteen original cases, which were familial, was made in detail. Contact was intimate in all cases, and the primary cases could therefore be taken to represent as nearly as possible a series of eighteen controls. The difficulties in the way of collecting a large series of cases appear obvious, but if the method were widely adopted valuable data would soon accumulate. The results in the present series were so gratifying that it is earnestly hoped that others will work on similar lines and publish theirs. The method is simplicity itself, the blood being withdrawn, with the usual precautions, from the father's (or mother's) arm and injected intramuscularly into the child's buttock. In no case was permission refused to carry out this procedure when the principle of the method was made clear; in fact the parents were delighted to co-operate in the treatment and were entirely satisfied with the results. In no case was there the slightest reaction to the injection, which caused little inconvenience. The use of parental blood, given intramuscularly, obviates the necessity for any special examination of it except in the case of parents suspected to be suffering from communicable disease, and eliminates reactions.

The epidemic was a mild one, the primary cases occurring chiefly among children 5 to 7 years old attending various

schools in Stretford. It is therefore considered that the infection in the control cases was fairly uniform; clinically the attacks certainly were, and it is felt that the primary cases may be compared to the treated cases, though, strictly speaking, they are not scientifically comparable in every respect. Such factors as time and intensity of infection are so uncertain as to render it impossible to obtain absolutely parallel control cases. Only one child contact in the practice was not treated by this method, and this child developed bronchopneumonia, from which she recovered. There were no complications either in the twenty controls (or untreated cases) or in the twenty treated cases. This was presumably due to the mildness of the epidemic.

The difficulty of estimating the exact day of exposure, and consequently the period after infection at which the blood was given, is obvious. Assuming that the rash shows on the fourth day after onset, it seems desirable to give the blood on the day following the appearance of the rash in the primary case.

In the present series the injections were given in six cases on the fifth day after first exposure (counting the day of the rash in primary cases as the fourth day of exposure of contacts); on the sixth day in four cases, on the seventh day in eight cases, and on the tenth day in two cases.

The amount of parent's blood injected was in two cases 5 c.c.m., in one case 7 c.c.m., in eleven cases 10 c.c.m., in one case 12 c.c.m., in two cases 15 c.c.m., and in three cases 20 c.c.m. It is considered that 20 c.c.m. of blood is a reasonable quantity to inject if circumstances permit.

RESULTS

Of the twenty contacts treated, four were completely protected, fourteen developed modified measles, and two were unaffected. One of the four who failed to develop measles was a boy aged 12, who may possibly have already acquired immunity, though there was no history of a previous attack. The two "failures" were: (1) a child of 12 who received only 5 c.c.m. of mother's blood, a totally inadequate quantity; and (2) a child aged 8 months who was teething and already had bronchitis before his measles began—he received 10 c.c.m. on the seventh day after exposure. The youngest patient, a baby of 3 months, gave one of the best results.

It is of interest to note that in two cases the parents were positive that they had never had measles, in one of these being supported by the contention of the grandmother. In two other cases the parents were doubtful as to their own history in relation to measles. As the results in these cases were good it may be supposed that a subclinical or undetected or undiagnosed attack had conferred immunity on the parents. In sixteen cases the blood was taken from parents with a definite history of measles in early life.

The eighteen primary cases were typical unmodified attacks of uncomplicated measles, with lacrimation, cough, rash, increased temperature and pulse, and bronchial catarrh. The fourteen contacts who developed modified attacks showed definitely less severe symptoms than the primary cases. Bronchial catarrh was entirely absent in every case, lacrimation appeared in only five cases, temperature and pulse were raised in nine cases, and slight cough was present in eleven cases. The rash in all fourteen cases was distinctly modified; in several cases only a few discrete blotches were discernible.

My thanks are due to Dr. A. W. Davison of Stretford for permission to publish this series of cases, and to Dr. E. H. Walker, medical officer of health for the borough of Stretford, for helpful guidance and advice on the public health aspects of the subject.

Manchester.

T. D. CULBERT, M.B., Ch.B.

The population of Japan in October, 1937, was 71,252,800. Of the 50,000 medical practitioners in Japan 2,000 are women, who were all educated at the Tokyo medical school founded in 1920. Only about ten possess the degree of doctor of medicine, which was first granted them in 1929.

Reviews

THE CHRONIC RHEUMATIC DISEASES

Chronic Rheumatic Diseases. Being the fourth annual report of the British Committee on Chronic Rheumatic Diseases, appointed by the Royal College of Physicians. Number Four. Edited by C. W. Buckley, M.D., F.R.C.P. (Pp. 160; illustrations; 5 plates. 10s. 6d. net.) London: H. K. Lewis and Co. 1938.

We welcome the fourth annual report of the British Committee on Chronic Rheumatic Diseases, which incidentally will be the last in its present form, since it has been decided to continue the reports in a biennial journal under the same editorship.

The present volume opens with a plea by Professor Stanley Davidson for Governmental organization to cope with the problem of chronic rheumatic disease, since in his view it is too big to be tackled by the voluntary hospitals of the country. Professor Hench gives us another review of the year's work in America. Gout is becoming more widely recognized, and even fibrositis, hitherto not held in much regard in the United States, is coming into its own. Hyperthermal treatment of gonorrhoeal rheumatism is proving more and more useful. Rheumatoid arthritis is still the centre of interest, if only because it is so very difficult to be definite about it. The magnitude of the problem—3,000,000 sufferers from arthritis—is at last beginning to stir the imagination of the American people.

Three chapters on sciatica are interesting chiefly because they show how the specialist tends to view a disease syndrome through his own tinted spectacles. The neurologist thinks only in terms of interstitial neuritis, the orthopaedist only in terms of strains, unbalance, and faulty posture involving muscles, ligaments, and joints. Dr. Kersley's chapter is the best as taking the most comprehensive view, but even he is inclined to be led away into the displaced nucleus pulposus, a clever invention of the surgeon to justify laminectomy, though it is difficult to see how constant pressure on a nerve fibre can help leading to early atrophy, and so a rapid cure of the symptom of pain by degeneration of the pain fibres. Sciatica will be better treated when patient and doctor are prepared to submit to those very difficult disciplines, patience and rest.

Mr. Mitchell contributes an interesting chapter on rheumatism in the horse, reminding us that we may learn much from comparative pathology. A note by Dr. Kersley on bone drilling in arthritis suggests that this is only likely to be useful in osteo-arthritis, and that further experience is necessary before it can be recommended. Thorium X as an example of radio-active substances has proved to be of no use in acute stages, but may be useful in the late chronic stages of rheumatoid cases. The evidence of virus infection in rheumatism is reviewed, but no conclusion can yet be reached. An interesting critical review of vaccine treatment is given by Dr. Warren. He concludes that vaccine therapy is valueless in acute rheumatic fever. In rheumatoid arthritis large doses are not useful but small doses may be helpful; further work with adequate controls is needed. There is no evidence that vaccine therapy is of any use in osteo-arthritis. Observations on the platelet counts during gold therapy are described, showing how easily these may reach a dangerously low level. At the St. John Clinic sixty cases divided into three groups were given large doses of gold, small doses of gold, and sterile oil as a control respectively. The first group showed the best clinical results, but there

were considerable toxic effects, means to avoid which must be discovered. Finally, Sir Leonard Hill describes the physiological action of some methods of physical treatment, showing how unfounded are some of the claims advanced, but also how useful some of these treatments may be.

All the contributions to this volume are interesting and valuable, but when published between stiff covers it may be that some readers will be inclined to regard them as more authoritative and final than they actually profess to be. Hence we commend the wisdom of the editorial committee in deciding to publish the essays in future as a journal. We wish this journal all success, and believe that it will be as valuable as the four annual volumes that have preceded it.

ANATOMY OF THE LIVING SUBJECT

Surface and Radiological Anatomy for Students and General Practitioners. By Arthur B. Appleton, M.A., M.D., William J. Hamilton, M.D., B.Ch., D.Sc., F.R.S.E., and Ivan C. C. Tchaperoff, M.A., M.D., B.Ch. D.M.R.E. (Pp. 311; 338 figures, including many in colour. 15s. net.) Cambridge: W. Heffer and Sons. 1938.

The authors of this book have reached out beyond the bounds of the descriptive anatomy of the dead "to the study of features that are accessible to examination in the living subject," which have become available by radiographic and other modern methods. They have attempted to fill a definite field and to bridge the gap in certain regions between the anatomy of the dissecting room and that of the living subject that has existed too long. There is a strong clinical flavour to this book—an obvious attempt to bring anatomy into closer association with the work of the clinician. The authors show how percussion, auscultation, the use of the laryngoscope, bronchoscope, gastroscope, and other instruments of clinical medicine may be employed to great advantage on fellow-students in the routine work of an anatomy department. The course of the nerves may be marked out by electrical stimulation, a method that can be employed also in the analysis of muscle action. In short, wherever possible, the authors have turned aside from the cadaver to the study of the living subject.

Concise orderliness is observed, descriptions are brief but adequate, and clearly the authors have restrained each other, with results that have made it possible to convey a vast amount of information in a volume of only 300 pages. It would, however, have been an advantage if references had been given, especially when it was obviously impossible for a subject to be adequately dealt with or receive more than passing mention. Throughout, the work is profusely illustrated by carefully selected radiographs, drawings, some of them in colour, and diagrams. Particularly successful are the photographs of various parts of the surface anatomy with parallel drawings of the underlying muscles, showing very clearly the nature and cause of the surface markings. We should imagine that artists would find these illustrations of great value, if indeed there are artists in these days who wish to represent what we ordinary mortals believe that we see. The standard of the reproduction of the radiographs is noteworthy, particularly in a volume that is turned out at so low a price.

The introductory section covers a wide range of subjects that are dealt with briefly, but on the whole satisfactorily. It is packed with useful information, much of which, though not definitely anatomical, is of interest and importance in the study of anatomy. We read of the possible variations that make the human being an individual and not a standard production. This aspect is stressed in a way that we have not noted in most works

on anatomy. Emphasis is laid on the group action of muscles and on their co-ordinated and antagonistic action—anatomy slides off into physiology. A brief outline is also included of all that it is necessary for the student to know of x rays in order to understand something of radiographic interpretation. A slight error is made when the authors state that "x rays are not perceived by the eye." X rays do affect the retina, but it was only the very early workers who tested this. To-day he would be a foolish person who subjected his eyes to a sufficient intensity of radiation to make this observation, which was at one time common knowledge. Nowadays protective measures are so adequate that practically no radiation comes to the observer.

The book is not divided into chapters but into sections that cover the usual subdivisions of "parts" that are dealt with in the dissecting room. Each section opens with a detailed description of the surface anatomy and works inwards towards the skeletal structures—the arrangement of the material is orderly and logical. In the past many have found difficulty in correlating the knowledge they acquired in the dissecting room with the conditions they met with in clinical medicine. To-day new methods are applied in the teaching of anatomy, and every attempt is made to "make the dead bones live." This volume, used in conjunction with the standard textbooks, will be of great assistance to students, and will appeal to all who have not had the advantage of learning their anatomy in schools where radiology and other accessory methods are employed.

HERNIA

Hernia: Anatomy, Etiology, Symptoms, Diagnosis, Differential Diagnosis, Prognosis and the Operative and Injection Treatment. By Leigh F. Watson, M.D. Second edition. (Pp. 591; 281 figures. 31s. 6d. net.) London: Henry Kimpton, 1938.

Dr. Leigh Watson tells us in the preface to a second edition of his book that the revision has been necessitated by the adoption by many surgeons of the treatment of hernia by injection, a procedure of the value of which he is convinced. In the fourteen years which have elapsed, however, since the first edition appeared there have been other changes in outlook and practice, and the work has been brought up to date to conform with these. The author states that at the present time the generally accepted cause of inguinal and femoral hernia is a pre-formed or congenital sac. We doubt, however, whether this would be conceded by many in regard to femoral hernia, but to support his contention he says that R. W. Murray made post-mortem examinations on 100 subjects who had no hernia during life and found twenty-one potential or empty sacs, all of which with one exception were of the femoral variety.

Each chapter is followed by a short bibliography, and a future edition would be improved by an index of authors in addition to the general index. No fewer than eight chapters of this edition are devoted to the injection treatment, which is considered in much detail. The work is well illustrated throughout. Dr. Watson apparently has not much faith in the inguinal sphincter, because even in children he reinforces the inguinal canal by a Bassini type of operation. Many who believe that even in young healthy adults suturing of the conjoined tendon destroys the action of the sphincter and that removal of the sac is all that is necessary or desirable would not be in agreement with him here. The rarer forms of hernia, such as sciatic, pudendal, and hernia through Petit's triangle, are described and illustrated, and there is a good account of intraperitoneal herniae. Left duodenal, as pointed out by

Lord Moynihan, is apparently commoner than right duodenal herniation and takes place into the para-duodenal fossa of Landzert, while right herniation occurs into the fossa of Waldeyer.

This continues to be a comprehensive and valuable work of reference, and, although the final chapter on medico-legal aspects will be chiefly of value to American surgeons, it contains much that will interest the reader in this country.

CLINICAL LECTURES ON PSYCHO-ANALYSIS

Clinical Aspects of Psycho-analysis. By Dr. René Laforgue. Translated from the French by Joan Hall. The International Psycho-analytical Library, edited by Ernest Jones. No. 31. (Pp. 300. 15s. net.) London: Hogarth Press, 1938.

This book consists of fourteen clinical lectures delivered to students of psycho-analysis. As such it cannot be and is not a systematic textbook for the beginner. But for those already acquainted with the teachings of the psycho-analytic school it contains many interesting discussions of difficult problems illustrated by case histories. There are chapters on the cure and completion of treatment illustrating the unwillingness of some patients to admit that they are cured and do not need to continue their visits to the analyst indefinitely. Again, on "active" treatment and the necessity to stimulate a desire to be cured the author is informative and interesting. In a chapter on the family neurosis he describes how neurotic parents may inevitably implant neuroses in their children and how these children react to the family situation. Finally the limitations of analytic treatment are discussed, and it is pointed out that the lives of some patients may be so utterly dependent on their illness, which serves them as a necessary protection or as a means of self-punishment for an overwhelming sense of guilt, that existence is insupportable without it. It is wiser, in the author's opinion, to leave such people alone.

The book has been well translated by Joan Hall, and is to be recommended to all those who are interested in mental mechanisms as interpreted by the pupils of Freud.

THE BROMPTON REPORTS

Brompton Hospital Reports. A collection of papers recently published from the Hospital. Volume VI. 1937. (Pp. 183; illustrated. 2s. 6d., postage 6d.) London: Research Department, Brompton Hospital.

Most of the papers contained in the sixth volume of these reports have already been published elsewhere by present or past members of the staff of the Brompton Hospital. To the following two papers special attention may be drawn. In "Pulmonary Tuberculosis in Young Adults: Significance of Contact History" W. E. Lloyd and Margaret Macpherson conclude that contact is an important factor in the aetiology of pulmonary tuberculosis in young adults and therefore that it should be possible to detect the disease in its early stages in many instances by examination of all those with a history of such contact. But the evidence they produce is, in the reviewer's opinion, not sufficient for concluding that it "stresses the value of continuing the observation of contacts for at least five years after they were known to be last exposed to infection." In "Chronic Diffuse Bronchopneumonia" J. G. Seadding describes a condition which he believes may be a recognizable clinical entity. He has since published further papers on this subject.

Three papers contained in this volume have not previously been published. F. H. Young and N. C. Oswald give an account of eleven cases of multiple cystic disease

of the lung. R. H. R. Besley gives a short study of the relationship of post-lobectomy atelectasis to bronchography, and W. D. W. Brooks and F. P. Lee Lander write on senile phthisis, the article being based on 364 cases, admitted between 1929 and 1935 to the Brompton Hospital, in which pulmonary tuberculosis apparently first produced symptoms after the patient had attained the age of fifty.

The volume concludes with the usual statistical hospital tables. The total number of thoraeoplasties performed (a thoraeoplasty in more than one stage is reckoned as the same number of operations) was 297. No fewer than forty-five lobectomies and ten pneumonectomies were carried out; and thirty-two operations for lung abscess. In the report of the pathological department we note with some surprise that, although a total of 1,064 examinations of the sputum for tubercle bacilli were carried out, there were only thirty-three examinations by concentration methods and only sixteen by culture. There is no record of examination of the gastric contents for tubercle bacilli.

Notes on Books

The third edition of E. T. BELL'S *Textbook of Pathology* (Henry Kimpton, 42s.) is larger than its predecessor by more than a hundred pages and contains many new illustrations. This work excels in terseness of statement, which enables a full description to be given in a small compass. The teaching is sound throughout and the sections on cardiac, arterial, and renal disease, which embody the statistical and other fruits of the author's own extensive studies, are particularly valuable. The arrangement is conventional, except that silicosis figures as a disturbance of pigment metabolism and deficiency diseases receive no separate consideration (in some cases none at all). Much recent work finds brief mention, but there is little discussion of controversial matters—perhaps a wise policy in a work intended primarily for the student.

Twelve teachers from medical schools in the Southern States of the U.S.A. have collaborated in writing Kracke's *Textbook of Clinical Pathology* (Baillière, Tindall and Cox, 27s.). This form of authorship, though suited to advanced treatises, is apt to lead in a textbook to lack of co-ordination. Of this there is evidence here both in repetition and omission: the chapter on the examination of faeces, for instance, is devoted almost exclusively to protozoa and parasites, and does not describe the test for occult blood or methods of bacterial cultivation. Methods of bacteriological diagnosis also receive scant attention in the chapters on urine and cerebrospinal fluid, and in that on sputum they are described only for the tubercle bacillus and the pneumococcus. Nearly half the book is devoted to methods of examining blood, and other subjects treated fully are the laboratory diagnosis of pregnancy, syphilis, and rabies. Most books such as this have their useful points in the form of new practical details or better illustrations, and with the latter this one is lavishly supplied. Most such books, and this is no exception, fail to cover so wide a field completely, and their practical use needs to be supplemented by reference to works on the individual branches of pathology whose application to diagnosis they describe.

In the section of Dr. Jurgens's symposium on rheumatism dealing with Bechterew's disease (*Die Bechterewsche Krankheit*) known to us as spondylitis ankylopoietica, Dr. WALTER KREBS considers that there is a primary weakness of the mesoderm, but that an infection entering by teeth or tonsils forms a metastatic focus which is responsible

for the actual syndrome, and that this is not influenced by subsequent treatment of the portals of entry. Occupation involving strain to the back may determine the incidence of the disease in a large number of cases. So far as diagnosis and treatment is concerned there is nothing particularly original, a survey of the usual methods being given. Dr. Wurm contributes a section on the pathological appearances in this disease. The book is published at Dresden and Leipzig by Theodor Steinkopff at RM.6.

Preparations and Appliances

HYSTERO-SALPINGOGRAPHY WITH A SELF-RETAINING INSTRUMENT

Dr. EDWARD ELKAN (London, W.1) writes:

The number of instruments invented for the performance of Rubin's test suggests that there is still room for improvement in their construction. The disadvantages of the available instruments are these:

The cone of the cannula has to be pressed firmly against the cervix, but where a spring is employed strong enough to prevent the reflux of the oil the procedure becomes too painful to be carried out without the aid of an anaesthetic. Where no spring is employed sufficient pressure cannot be exerted to prevent the reflux of most of the injection into the vagina. The cone itself, when round, does not fit well into the split external os of a multipara. A cone with an oval cross-section would not fit a multipara. Different cones are needed for both types of cases. The length of the uterine end of the cannula from the top of the cone to the end of the instrument is, in these instruments, unchangeable. The actual length of the cervical canal, however, plus the length of the cavum uteri is not the same in any two patients. The position of the cone on the cannula therefore should be made changeable, for it is important that the instrument should pass the internal os but not get in touch with the opposite wall of the cavum uteri. Where the cannula has a hole at the very end this can easily get obstructed. These holes should always be situated at the side of the tip of the cannula. To prevent the reflux of air in Rubin's test or that of oil in a salpingography, a vulsella is usually fixed to one side of the cervix. One vulsella can only exert an unequal pressure and cannot prevent the injection from escaping along the other side of the cervical canal. Furthermore, with an arrangement of this kind the oil can flow back freely as soon as the surgeon releases his hold on the instruments. If after an interval, during which the first radiographs are developed and viewed, the surgeon wishes to make a further injection, he will find the uterine cavity empty and the cannula out of position.

The instrument shown in Fig. 1 was evolved with the shortcomings of the available cannulas in mind. It has proved

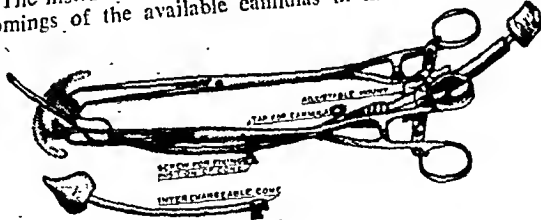


Fig. 1.

useful to me and others and does not, at present, seem to need further improvement.

No spring is employed. The cervix is pressed against the cone by two vulsella forceps which are hooked on to the distal end of the cannula by means of an adaptable mount which carries the hooks. Each side is adaptable independently of the other. Two cones of different shape are supplied. They are interchangeable according to the shape of the cervix. The cone can be fixed anywhere on the cannula and the length of

the uterine end of the instrument is thus adaptable according to the length of the cervical canal and cavum uteri. The cannula is closed and blunt at the tip, the holes being situated a short distance from the end at the side of the instrument.

For the performance of either insufflation or salpingography the patient needs no preparation nor—with very rare exceptions—an anaesthetic. If an electric headlamp and a self-retaining vaginal speculum are employed the gynaecological



FIG. 2.—Case 2972. Tube and ampulla well filled on both sides.



FIG. 3.—Case 3107. Right tube normal; left tube blocked.

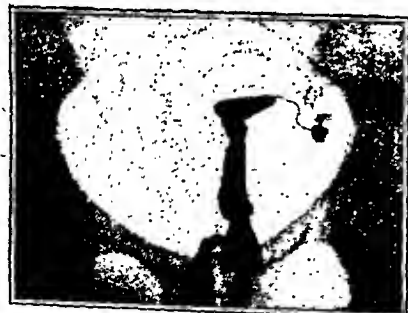


FIG. 4.—Case 3373. Right tube blocked. Oil escaping from abdominal os of left tube in small droplets.

part of the operation can be done without assistance. The steps of the procedure then are the following:

- Exposure of external os uteri with self-retaining speculum.
- Choice of cone according to the shape of the cervix.
- Insertion of vulsellum on right side of cervix.
- Sounding of width, depth, and direction of cervical canal and cavum uteri.
- Adjusting uterine end of cannula according to these findings.
- Insertion of second vulsellum opposite to first.
- Insertion of cannula.
- Passing the loops of both vulsella off the hooks of the slider.
- Adjusting the position of the slider on both sides so that sufficient pressure is maintained.
- Removing vaginal speculum.
- Supporting cannula and vulsella forceps with sandbags.

All this is done in a few minutes. We have now inserted a self-retaining uterine cannula which cannot change its position even if it is not held in place by anybody. The pressure applied to the cervix is evenly distributed to both sides. If narrowness of the vagina makes manipulation with two vulsella forceps difficult, one can be used. In this case the pressure applied to the cervix is, however, unevenly distributed and the cannula is not as well balanced as might seem desirable.

The opposite wall of the cavum uteri can neither be touched nor injured as the length of the intra-uterine end of the cannula was specially adapted for the particular case. The vaginal speculum, which causes two-thirds of the discomfort to the patient, is no longer needed after the cannula is in position, and can be removed. The presence of the remaining instruments is hardly felt by the patient, who can now slide back into any position suitable for the taking of the radiographs.

The patient can easily be screened while the opaque oil is injected, and the most suitable moment for the taking of the films can in this way be chosen. The oily base of the injection should not be too viscid. I find neo-hydriol more comfortable to inject than lipiodol, which, even if heated to body temperature, maintains a higher degree of viscosity. After the first one or two radiographs have been taken the tap of the cannula is closed and the syringe temporarily disconnected. The self-retaining instrument needs no further attention, and the patient can be left in the care of the nurse until the films have been viewed and a decision has been made as to the need of further pictures. Should these be found necessary more oil can be injected without delay: the patient experiences no discomfort through repeated adjustments and manipulations. After the last radiographs have been taken the instruments can be removed without reinsertion of the vaginal speculum. The patient all the time remains in the supine position.

I have to thank Dr. J. V. Sparks for his kind permission to publish these radiographs produced with the aid of the new instrument. The instrument itself was made for me by John Bell and Croyden, Wigmore Street, W.1.

HEPARIN

We have received samples of this physiological anticoagulant prepared for clinical use, both from British Drug Houses Ltd. and from Roche Products Ltd. The substance is prepared from liver, and its activity is measured biologically. The unit is the quantity required to prevent coagulation of 1 c.c.m. of blood, and the purified products contain 400–500 units per milligramme. Heparin is the most reliable anticoagulant to employ when taking blood samples, and it is probably superior to other anticoagulants for use in blood transfusions. Various workers have also reported favourably on the use of heparin in the prevention and the checking of the progress of venous thrombosis. The preparations have, therefore, a wide field of clinical use. British Drug Houses Ltd. supply sterile tubes for collection of blood which contain sufficient heparin to prevent coagulation. These will be a great convenience to practitioners.

ADRENALINE PREPARATION FOR ASTHMA

Vaporole solution of adrenaline (1 per cent.), issued by Burroughs Wellcome and Co., is intended for the symptomatic treatment of mild to moderate attacks of asthma. Graesser and Rowe (1935) showed that oral inhalation of a 1 in 100 solution of adrenaline produced in many cases a more rapid effect than did hypodermic injection of a 1 in 1,000 solution. The value of a technique which spares patients the inconvenience of hypodermic injections is obvious. In view of the potent action of adrenaline it is obviously important that the vaporole solution should not be confused with the usual 1 in 1,000 solution used for hypodermic injection. The bottles of vaporole solution and their containers are labelled "Caution—Not for injection," but we would suggest the advantage of making this warning somewhat more prominent.

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THE PROFESSION AND THE EMERGENCY

Once again—and within twenty-five years—the members of the medical profession have had to share with all thoughtful fellow-citizens the anxiety of a worsening international situation and a menace of general European war. This time the black clouds have been longer gathering and the efforts to dispel them more protracted and persistent. With the causes of the crisis medical men and women as such are not directly concerned, save to deplore racial animosities that lie at the root of the trouble and to recognize some of the psychological factors in the background of political movements. Medicine knows no frontiers; so far from bearing any responsibility for international strife the medical profession has worked for harmony and appeasement between nations as between individuals. During these past weeks and days of growing apprehension doctors have gone about their daily tasks and steadied the nerve of others. If crisis should lead to catastrophe—and at the time of writing the issue of peace or war is still in the balance—they will continue at their accustomed duties, adding others to these as the national need demands. Their response to the call may be taken for granted, and those who have best prepared themselves beforehand will be of most service to the State. The British Medical Association long since co-operated with the Government in preparing a classified index of the members of the profession, for use in case of national emergency. The experience of 1914-19 proved that the medical profession can be trusted to organize itself efficiently in time of trial by machinery which interlocks with that of public administration both civil and military.

Let us hope and pray that medicine will not now have to mobilize for war; but the time has certainly come for bringing into action a strong and representative co-ordinating committee to give advice to the Ministry of Health and other Government Departments on the professional aspects of problems that would immediately arise if the worst happened. Among other questions that each individual doctor will ask is: "Where am I to go, and what am I expected to do in such and such circumstances?" The Central Emergency Committee, which was appointed by the British Medical Association at the behest of the Ministry of Health, already has definite functions. It has prepared a voluntary national register of medical

practitioners. It has been given the enormous task of advising the Government on the allocation and distribution of medical personnel. In this way round pegs will go into round holes. But that is not enough. There is need for a representative medical body which will undertake the larger task of advising the central and local authorities on the medical aspects of the many and complex problems that would immediately arise in the event of war. It needs little imagination to perceive that under present-day-war conditions practical steps will have to be taken, on behalf of the civilian community, which cannot prove effective without expert guidance from those whose duty it will be to give their service to the bodies and minds of the public.

Immediately the state of emergency arises, the Central Emergency Committee, with additions, becomes a Central Medical War Committee. As such it will deal with medical man-power. It could be given further powers and responsibility and become a body of a wide advisory and consultative nature. The Head Office of the British Medical Association has already issued to the secretaries of its units throughout the country a model scheme for the protection of practices of absentee general practitioners and a plan for setting up Emergency Medical Committees in every area. These bodies, at need, would function immediately as Local Medical War Committees in direct co-operation with the Central Medical War Committee for the general provision and allocation of medical personnel to the Defence Forces and for meeting all civilian medical requirements in the event of hostilities. Meanwhile the Ministry of Health has issued an announcement on the immediate duty of doctors and nurses, which will be found at page 719, with other information about measures to meet emergency.

ELECTRICAL INJURIES

The clinical and pathological pictures presented by cases of severe electrical injury are often so complicated that it has become imperative to reduce them; if possible, to their essentials from the point of view of the medical man faced with the problems of how to act in a given case. The characteristic electrical burn requires no special consideration other than that incident to the treatment of all severe burns. Much care is, however, necessary in deciding on a course of action in a case of apparent death from electrical shock, and for this some knowledge of the physiological and pathological effects of such shock is essential. In a recent publication Alexander¹ gives a critical review of the

¹ *J. Industr. Hyg.*, 1938, 20, 191.

literature on the clinical and pathological aspects. The minimum fatal current for human beings is from 70 to 80 milliamperes. If contact is sufficiently good and the duration of the current long enough 25 volts may be fatal. The resistance of the human body varies from 50,000 to 218 ohms according to the perfection of contact, duration of current, etc. In legal electrocution the contact is so perfected and the flow of current is so prolonged that the manifestations are not comparable to those found in accidental electrocution, where the contact is short in time and usually imperfect. Animal experiments have contributed much important information on the pathology of electrocution. It is found that in animals currents of low tension and intensity kill by producing ventricular fibrillation—closing the current inhibits the heart; opening the current is followed by fibrillation—and currents of high tension and intensity kill by paralyzing the bulbar respiratory centre. Direct experiment showed that cardiac inhibition is produced by electric shock (applied to the head) through stimulation of the vagus centre (cardio-inhibitory centre); cessation of the current is followed by a complete block at the vagus centre. Similar effects are demonstrable on the vasomotor centre; the current first produces a stimulation of the centre and then follows a temporary paralysis on cessation of the current—that is, intense vasoconstriction is followed by generalized vasodilatation, a state of affairs leading to stagnation of blood in the peripheral vessels on the venous side. The sequence of stimulation and later paralysis applies also to the respiratory centre. It was also found with animals that artificial respiration led to recovery in all cases in which no gross damage to the brain or spinal cord had been produced by heat effects.

Clinically, shock by currents of high amperage may produce unconsciousness for hours or days, beginning immediately after the shock; often there follows severe motor irritation (hyperkinesis or convulsions) associated with delirium and confusional states; the patient may be pallid or cyanosed; symptoms of raised intracranial pressure and cerebral oedema may supervene. It is not necessary for the production of these symptoms that the current shall have passed directly through the brain. Thus in a case in which the current passed from the right hand through the legs to the ground there was unconsciousness in a short time after the shock, and on recovery of consciousness there was vomiting, headache, monoplegia, and hyperaesthesia on the right side and the right disk was choked; the signs and symptoms cleared up in thirty-three days, and the neurologist in charge attributed the clinical picture to cerebral oedema.

Permanent disturbance of the central nervous system is not common, and when it occurs the symptoms resemble those of multiple sclerosis. Phenomena such as hemi-choreo-athetosis, myoclonus of the face, oculomotor and vestibular disorders, retrograde amnesia, atypical Parkinsonism, pupillary disturbances have all been described after severe electric shock. On the pathological side the principal changes found in the brains of patients dying in the acute stage of electrical injury are oedema and small perivascular haemorrhages. Where the current has passed through the head (as in legal electrocution) definite changes are found in the ganglion cells. In a fatal case described by Kawamura (quoted by Alexander) a young man of 26 sustained an accidental shock (A.C. 48 cycles, 220 volts) from his left hand to his left foot. The sequence of events was: the patient was first paralysed, then cried for help, and slid to the floor on being freed from contact; the pulse slowed and respiration gradually ceased, urine being voided. Post-mortem examination forty-six hours later showed meningeal and cerebral hyperaemia, pulmonary oedema, hepatic and renal congestion, perivascular haemorrhages, and congestion of cortex, pons, and medulla, and the blood in some congested vessels was homogenized (? hyaline thrombus). The question in this and in other similar cases is how to regard the brain lesions. The view of Jellinek is supported by Alexander that these lesions are secondary to the circulatory and respiratory inhibition, and that death is due to internal suffocation.

Emphasis must be placed on the fact that death from electric shock is not immediate but delayed and slow; the paralysis of the vital medullary centres is not permanent, and provided efforts to supply these centres with oxygen are successful, there is every probability of recovery. Alexander cites the remarkable series of cases published by MacLachlan in which of 479 cases of severe electric shock 323 were successfully resuscitated by the application of artificial respiration in a short time after the accident. Here it must be remembered that artificial respiration must be carried on, if necessary, eight to twelve hours by shifts of trained men until either spontaneous respiration is established or livid patches and rigor mortis appear. The importance of this procedure cannot be too strongly stressed, since post-mortem examination has shown that persons have "lived" after the accident for periods much greater than has been suspected. Intracardial injection of atropine and adrenaline is a valuable aid, and if after recovery there is evidence of raised intracardial pressure lumbar puncture should be carried out and repeated if necessary.

PROGRESS IN RADIUM THERAPY

The Annual Report of the Radium Institute for 1937, which has just been published, is the last which will appear under that title. The amalgamation of the Institute with the Mount Vernon Hospital has now been completed, and in future the work of the two institutions will be performed by a single body—the Radium Institute and Mount Vernon Hospital. During the past year research into radium beam therapy has been continued; in addition to providing accommodation for the two five-gramme units the Institute also supplies some of the necessary staff, maintains thirteen beds reserved for patients undergoing this form of treatment, and bears the cost of overhead charges. The importance of research into the treatment of cancer by massive units is great from the point both of exploring therapeutic possibilities and of investigating the best conditions of safe working for patients and operators. In the general medical part of the report, contributed by Dr. Roy Ward and Dr. Durden Smith, one of the questions considered is that of the possible invasion of the urinary bladder in cancer of the cervix uteri. Subsequent experience has confirmed the view expressed in 1935 that micturition symptoms and bimanual examination are insufficient and unreliable as affording evidence of involvement of the bladder. It was suggested then that gross vascular dilatation and petechiae shown by cystoscopy at the base of the bladder might be of prognostic significance. The suggestion was made on the ground that two patients with early cervical carcinoma in whom these signs were present died with extensive neoplastic infiltration of the bladder in the second year after treatment. Routine cystoscopic examinations of a further hundred cases have, however, demonstrated that no such special significance can be attached to these appearances. It had also been regarded as probable that when cystoscopy showed definite invasion of the bladder treatment should only be local and palliative; it is now considered advisable that the full treatment should be given. Recurrences after Wertheim's operation have shown that of eighty patients given radiation therapy between 1925 and 1932 ten survived five years and over; of the remainder twelve were untraced and one died from other causes. Since 1932 five more patients—of whom three are still alive—were treated either by vaginal irradiation alone or by vaginal irradiation combined with interstitial radium to a recurrent mass, carried out per vaginam. There is an interesting note on "pitch warts," which are common in those who work with gas-tar and the various oils derived from the destructive distillation of coal. With the exception of the scrotum, these warts occur on exposed parts of the body—the face, neck, scalp, forearms, and hands. Many workers, however, who have been employed in these industries for fifteen years or more show no signs of developing any such lesion. It is, nevertheless, evident that in many cases the process begins long before there are any clinical manifestations, since pitch warts are seen in patients who have discontinued working with coal-tar and its products

for several months or even years. There are two main clinical types. The one is soft, villous, and easily bleeding; while the other, and commoner, type is hard, smooth, and rounded and can be detected on palpation before any lesion is visible. In their later stages they appear as conical warts with the superficial layers of the skin stretched over them, and ulceration, if it occurs, affects only the apex. Their importance lies in the fact that if neglected they are very likely to become carcinomatous. Fortunately, they are extremely radiosensitive: treatment is by unscreened radium plaques placed in contact with the wart for periods of from one hour and twenty minutes to one hour and forty minutes, and they nearly always disappear in from four to five weeks. Increased care by employers and improved education of workers have considerably diminished their frequency in recent years. The report includes an account of twenty-eight cases of limbal tumours—growths arising from the junction of the cornea and conjunctiva—most of which were squamous-celled epitheliomata. These were treated by unscreened radium plaques placed in contact with the growth, and no instance of cataract was recorded. In all but two cases, in which enucleation was subsequently performed, the results were completely satisfactory. It is to be hoped that these cases will be kept under careful observation, as they afford excellent material for observing any possible subsequent effects of radiation upon the retina. The statement is frequently repeated that nerve cells of all kinds are practically immune from injury by radiation, but recent investigations have shown marked histological changes. The Radium Institute has here a valuable series of cases treated under identical conditions in which periodical ophthalmic examination may give information of practical as well as of scientific interest.

THE PRAGUE SERA REACTIONS FOR CANCER

Professor Heyrovsky has recently summarized¹ investigations carried out in the Charles University of Prague on the diagnosis of cancer by his polarographic method, a more detailed account of which was published earlier by Brdicka.² The method consists in measuring the direct current passing at increasing voltages through a fluid between electrodes of special type. The apparatus used records the current-voltage curve photographically. For the diagnostic test 0.2 c.cm., or even less of serum, is subjected to a short and simple chemical treatment and then examined by the polarograph. A positive reaction is shown by a characteristic change in the current-voltage curve. Brdicka reports tests on sera from 187 individuals. The polarographic diagnosis was correct in 113 out of 120 patients with malignant disease, while among thirty-eight normal sera only one gave a positive reaction. Nevertheless, the test is not specific for cancer since positive reactions are obtained in febrile and inflammatory conditions. Tests made in Copenhagen by Bergh, Henriques, and Shousboe³ gave similar

¹ *Nature*, 1938, August 20, 317.

² *Act. Unio Internat. Canc.*, 1938, 1, 13.

³ *Nature*, 1938, April 23, 751.

results, though positive reactions were recorded for patients with hepatic disorders. The Danish workers state that the difference between non-cancer and cancer sera is unquestionable, but they are not yet prepared to assess the diagnostic value of the reactions or to decide what constituent of serum is responsible for them.¹ Brdicka ascribes them to an increase in protein cleavage products due to the abnormal proteolysis of albumins. Investigations are in progress to determine whether the cleavage products are the same in cancer patients as in febrile patients; if not, an important refinement of the test will be possible. Some indications that the reactions vary quantitatively with the stage of cancer development are also under examination. Diagnostic tests for cancer have a poor record. Dr. P. N. Pantoni² reported unfavourably on several and found an important cause of exaggerated claims in the inadequacy of clinical control. But, as he says, the problems of early diagnosis and treatment are so important that claims to solve them cannot be rejected out of hand because the underlying theories are improbable. It is reasonable, therefore, to withhold judgment on the Prague reactions but to admit that they deserve rigorously controlled investigation. They have received a measure of independent confirmation which seems to justify the claim that the results are perfectly reproducible, and it is noteworthy that the chemical treatment is simple and that the reactions are registered automatically. Thus there are grounds for hope that this test, unlike some others, will not be dependent on the meticulous performance of ill-defined but involved technical procedures nor upon uncommon skill and ingenuity on the part of the investigator.

A CONVENTION ON OPIUM PRODUCTION

The Advisory Committee of the League of Nations has now formulated, and submitted to the Governments concerned for their observations, the main principles on which a new opium convention might be based. The objectives defined are (1) to suppress the abuse of narcotic drugs, (2) to supplement the Hague Convention of 1912, the Geneva Convention of 1925, and the Narcotics Limitation Convention of 1931. To these ends the production of raw opium is to be limited to recognized world requirements, and a definite quantitative limit is to be fixed annually. An international controlling authority is to allocate to each country, on the basis of estimates furnished by them, the quantities annually to be produced, exported, or imported, as the case may be. Stocks of raw opium are to be regulated alike in producing and in consuming countries. National control will also have to be provided for in harmony with the international scheme. The substances to be covered by the future convention on production are:—(a) Subject to limitation: (1) poppy cultivated for the production of raw opium; (2) raw opium. (b) Subject to certain measures of control: (1) poppy plant, if and when used as raw material for extraction of opium alkaloids;

(2) opium poppy cultivated for other purposes. The amount to which production of raw opium is to be limited is to include, besides that for medical and scientific needs, what is required for making "prepared opium" for smoking so long as its suppression is unachieved, and for "non-medical internal consumption at present authorized in certain countries." This last reservation is presumably intended to cover the case of India, where it has been officially contended that the non-medical consumption—for example, eating—of opium or its employment as a household remedy will be provided for. Much discussion took place over the use of the poppy plant as raw material for the extraction of opium alkaloids, notably as practised in Hungary and Poland. It is stated that in 1936 some 1,400 kilogrammes of morphine were extracted from poppy straw. The question of how to deal with this problem—whether under the Limitation Convention of 1931 or in the same way as it is proposed to deal with raw opium under the new convention—appears to have been left an open question. Another matter which remains at present undetermined is as to whether there should be limitation of the area to be cultivated under the poppy as well as the limitation of the actual production of raw opium. Finally, it was pointed out that the future convention could not operate successfully unless it received practically world-wide application. The representatives of Turkey and Yugoslavia declared that their Governments would be unable to adhere to a convention which was not ratified by all the principal producing countries.

INTRAVENOUS SEDATIVES IN PEPTIC ULCER

Efforts to find additional aids to the treatment of chronic peptic ulcer in the form of parenteral injections continue to be made. One such attempt recently reported by Daprà and Silvani¹ utilizes an old and well-tried friend in treatment—namely, sodium bromide. Their method, which was tried in eight cases, seems to be based on that described some twelve months ago by Landau and Hejman.² It consists of a series of intravenous injections of 10 c.cm. of a 10 per cent. solution of sodium bromide, together with 1 mg. of atropine sulphate. Atropine in sufficient dosage has a depressant effect upon vagus excitability and reduces the gastric acid secretion; it has long been used either orally or subcutaneously, and holds a definite place in the treatment of ulcer. Sedatives acting mainly upon the higher centres appear to have been less widely tried, though there can be no doubt as to the importance of emotional and nervous factors in the natural history of peptic ulcer. At the same time the experience of most observers has been that orally such simple sedatives as the bromides or the barbitones are often ineffective in relieving symptoms unless they are given in large doses; where relief of symptoms demand a sedative opium or one of its alkaloids is more usually needed and for short periods is often of the greatest assistance. On

¹ *Nature*, 1938, July 30, 212.

² *Lancet*, 1937, 1, 793.

¹ *Minerva Med.*, 1938, 29, 41.

² *Presse méd.*, 1937, 45, 1468.

a priori grounds it would therefore seem unlikely that some 15 grains of bromide injected intravenously would act very differently in aiding the healing of peptic ulcer from an effective dose of, say, morphine given subcutaneously. The exponents of this form of treatment suggest that the depression of the central nervous system by the bromide and of the vagus by the atropine breaks a "vicious circle," so that the "equilibrium of the vegetative nervous system is restored" and healing may begin. Such a rationale and such a form of treatment demands an extensive and adequately prolonged study of a number of cases before it can be judged, in the words of Landau and Hejman, as "certainly marking a progress in the conservative treatment" of ulcer. These authors report three cases of chronic peptic ulcer, in one of which there was practically complete disappearance of an ulcer niche radiographically—after forty-nine injections! In all three patients symptoms quickly or gradually subsided, the observation periods being of some weeks' or months' duration. Conditions such as peptic ulcer in which periodic relapse and remission is the rule require prolonged periods of observation before the effect of treatment can be assessed. In few diseases can the *post hoc propter hoc* argument be less fairly applied.

CERTIFICATION OF THE CAUSE OF DEATH

Dr. A. Hardisty Sellers of the Department of Health for Ontario has recently published an excellent paper¹ on the physician's statement of cause of death. The most interesting part of the paper is an account of a confidential inquiry in which the certifiers who had mentioned diabetes on a death certificate during a twelve months' period in Ontario were invited to state how far in their opinion diabetes had contributed to the fatal issue. The point of the inquiry was, of course, that under most rules of selection diabetes has so high a preference that if a rigid rule is enforced, then, in a tabulation by single causes it will usually be selected. In fact in this sample the rule would have assigned four-fifths of the deaths to diabetes. In the opinion of the certifiers only two-fifths should have been so assigned. In one-third of the cases which would under rule have gone to diabetes the disease had been present and recognized for ten years or more. As Dr. Sellers remarks: "Present methods tend to make statistics of causes of death a measure of the incidence of such diseases among the population at death, under-stating certain others as a result." For many years the policy of the English General Register Office has been to try to secure for tabulation the real opinion of the certifier and to render office rules obsolete. As the late Dr. T. H. C. Stevenson used to say, it is absurd to suppose that somebody in an office knows better than the practitioner who attended the patient what was the cause of death. Yet the adoption of office rules was due not to a double dose of original sin in "bureaucrats" but to a lack of precision in certification, and there are still countries in which the level of education or standard of duty of practitioners

may compel the application of rules of selection. Indeed, in any country some certificates must always be so treated. There is good reason to believe that here the standard of certification is steadily rising.

"PERITONEOSCOPY"

Direct examination of the abdominal cavity by an endoscopic instrument is not a new procedure, and from time to time observations upon this method of diagnosis were made some years before the war. In a recent review E. B. Benedict² of Boston reports forty-eight personal examinations under the title "peritoneoscopy." Among some fifteen authors whose experiences of laparoscopy or peritoneoscopy he quotes the most extensive are those of Ruddock, who has examined over 500 cases and reports an accuracy of diagnosis in 91.7 per cent. The instrument he has devised is not unlike a cystoscope, consisting of a trocar (for putting air into the peritoneum) and a sheath into which a telescope, forceps, or diathermy connexion can be inserted. Only a local anaesthetic is required, and as a rule the abdomen is punctured just below the umbilicus in the mid-line. Air is forced in with an ordinary hand bulb, and according to Benedict the secret of successful visualization lies in having a large peritoneal air space. When free fluid is present this must presumably be tapped first. The dangers of the examination lie in the possibility of perforating the bowel, and Ruddock reports eight punctures in 500 cases, all without fatality. Other risks are those of causing haemorrhage and of spreading infection. It would seem to carry an undue risk in inflammatory conditions of the abdomen, especially when many adhesions are likely to be present and in any condition where the air distension of the abdomen might be dangerous—as, for example, severe cardiac disease. Benedict has found the investigation satisfactory, safe, and helpful in a number of conditions, of which carcinoma and cirrhosis of the liver, tuberculous peritonitis, and pelvic tumours may be mentioned. The relatively slight operation of peritoneoscopy may save the more serious laparotomy by demonstrating the presence of metastases in carcinoma of the stomach. Peritoneoscopy may be useful in the diagnosis of ascites of doubtful nature; but it must be admitted that it is in just such cases that visualization may be most difficult. Modern progress in endoscopic methods suggests that a renewed interest in direct abdominal examination may give better results in diagnosis of obscure abdominal conditions, and perhaps save some at least of those surgical explorations which reveal either an inoperable or a non-surgical state at operation. It must be confessed, however, that hitherto in this country little work appears to have been done on these lines, and only Short's³ paper of 1925 is mentioned by Benedict. Certainly with the improved technique of endoscopic instruments further observations are likely to be recorded.

¹ *New Engl. J. Med.*, 1938, 218, 713.
² *British Medical Journal*, 1925, 2, 254.

³ *Amer. J. publ. Hlth.*, 1938, 28, 430

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

INFECTIONS OF THE HAND AND FINGERS—I

BY

NORMAN C. LAKE, D.Sc., M.D., M.S., F.R.C.S.

There is no need to emphasize that the disabilities which follow in neglected cases of infections of the hand and fingers are of the gravest economic importance. It is usually considered that the loss of an eye is one of the most serious results of any injury, but there can be little doubt that the loss of the right hand is a more severe, if less dramatic, sequel. Similarly, the patient who has lost both hands is obviously more helpless than the patient who has lost his sight completely.

In this connexion it is of some interest to note that at the Ford factory in Detroit a survey has recently been made to see what percentage of the different jobs could be carried out by disabled men. It was found that of a total of 7,882 kinds of jobs, 2,637 could be done by one-legged men and only 715 by one-armed men. It must be remembered, however, that these figures refer to the peculiarly mechanical repetition work done in mass-production factories, and they also involve an expression of great good will and helpful intention on the part of the employer. In the open labour market the one-armed man's chances are obviously much smaller than these figures indicate.

It follows, therefore, that the treatment of cases of this type deserves the most careful attention. There is possibly no part of the body in which a knowledge of anatomical features is of greater importance, for rational and efficient surgical treatment depends as much upon anatomical as upon pathological knowledge in these cases. A review of the main anatomical points must therefore form an indispensable preliminary to any considerations of treatment.

Skin and Fascia

The skin of the palmar aspect of the fingers is thick and tough, and in the vicinity of the joints it is held down to the digital extensions of the palmar fascia to form characteristic creases. The interphalangeal creases lie slightly proximal to the level of the corresponding joints, but the metacarpophalangeal crease at the base of the digits lies about half an inch distal to the knuckle-joint. Over the palm also the skin is intimately attached to the underlying palmar fascia. The creases here form the characteristic "lines" of the palmist, but have little surgical significance. A small amount of fat intervenes between skin and fascia, and is divided into a large number of small loculi by fibrous septa. Over the proximal and intermediate phalanges, too, a similar arrangement holds, while in the pulp of the distal segment the arrangement is so characteristic and important as to deserve special consideration. The object of these attachments of skin to deeper structures is clearly to prevent excessive movement of the skin during prehension, otherwise the facility with which objects are held would be considerably diminished. In the pulp of the fingers and thumb the fibrous septa are particularly well marked, and

the amount of fat is, of course, greater than in the other segments of the digit. These fibrous septa, extending from the skin to the periosteum of the terminal phalanx, divide the fat into a series of loculi disposed with their long axes vertical to the surface. The pulp is thus divided into a large number of spaces arranged rather like the cells of a honeycomb (Fig. 1).

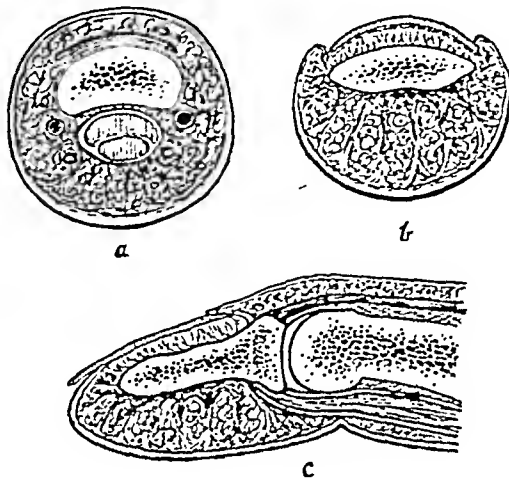


FIG. 1.—a and b, transverse sections through proximal and distal phalanges of finger. c, longitudinal section through termination of finger. Note the loculation of the fat, especially in the terminal phalanx, and the relation of the long tendons to the epiphyseal line.

In the presence of infection, inflammatory exudations are therefore unable to spread widely, as they can do elsewhere, but are retained in the loculi, producing an extreme degree of tension which is frequently sufficient to interfere with the blood supply. This arrangement, too, provides many channels by which superficial infection of the skin can be conveyed directly down to the underlying bone. Under the skin creases there is very little subcutaneous fat, and here the tendon sheaths closely approach the surface, so that minor penetrating wounds may carry infection into them.

On the dorsal aspect of both fingers and hand the skin is much looser, to permit of flexion; this produces the characteristic creases over the backs of the fingers. These lie roughly at the same level as the corresponding joints. The dorsal subcutaneous tissue is also loose and areolar; it thus accommodates large quantities of inflammatory exudation, and is indeed the position in which such exudations tend to collect even when the causative infection is on the palmar aspect of the hand. The bed of the nail is fairly firmly attached to the underlying periosteum; the nail itself thus affords good counter-pressure to forces applied to the finger-tips, and in this way helps prehension. Only the slightest amount of to-and-fro movement can normally be detected in the nails; the range is increased and the movement becomes painful in affections underlying the nail, in its bed or in the bone.

The palmar fascia forms a dense fibrous barrier which usually prevents deep-seated pus from reaching the surface

of the palm. In the proximal half of the hand it forms a fairly continuous ensheathing layer, but in the distal half its digital prolongations separate from one another, and in the intervals the digital nerves and vessels become more superficial. At the sides the dense palmar fascia is continued as a thinner sheath covering the muscles of the thenar and hypothenar eminences (Fig. 2).

Under cover of the fascia, in an arcular interval, lie the superficial palmar vascular arch with its digital

tendons proximally. This large sheath extends upwards under the anterior annular ligament of the wrist into the forearm, terminating about two fingerbreadths proximal to the ligament. The long flexor of the thumb has a sheath of its own which extends from the base of the terminal phalanx up under the annular ligament and ends



FIG. 2.—Diagram of the palmar fascia.

branches and the digital branches from the ulnar and median nerves. At first the nerves lie deep to the vessels, but as the roots of the fingers are approached the nerves come to occupy an anterior position and run along the digits on the lateral aspects of the flexor sheaths (Fig. 3).

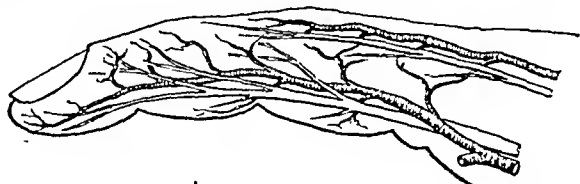


FIG. 3.—Lateral view of finger showing the relative positions of digital vessels and nerves.

Tendon Sheaths

Deep to the vessels and nerves lie the tendons in their sheaths. The latter afford a ready means for the spread of infection, so that special attention must be paid to their arrangement. This is subject to a little variation, but in general it may be accepted that the sheaths of the flexor tendons of the second, third, and fourth fingers extend from the base of the terminal phalanx to the distal skin crease of the palm. In the case of the little finger the theca usually extends up through the palm and becomes continuous with the large palmar bursa (common flexor sheath), which surrounds the profundus and sublimis

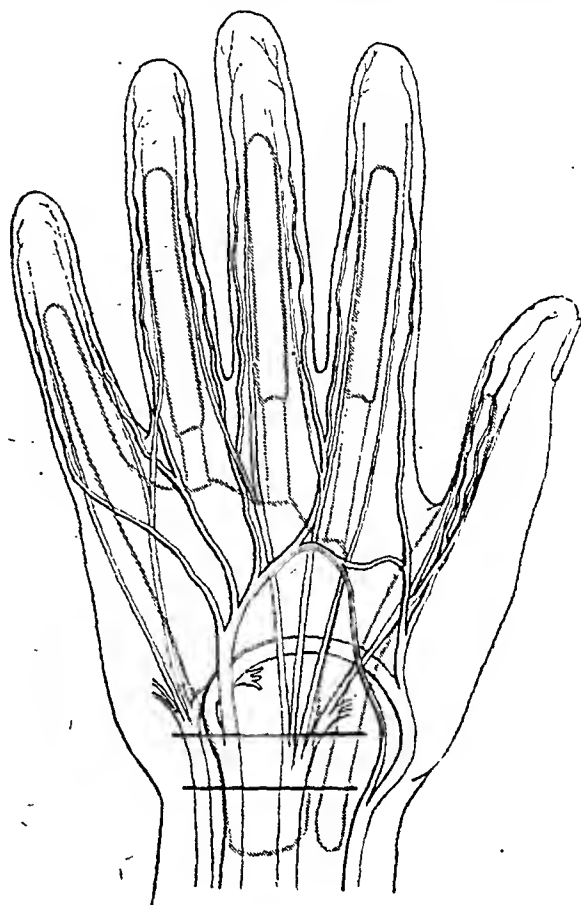


FIG. 4.—Transparency showing the relation of the tendon sheaths to the chief overlying structures. The horizontal lines represent the limits of the anterior annular ligament.

at the same level as the palmar bursa (Fig. 4). All the digital synovial sheaths are contained within fibro-osseous canals, formed on the deep aspect by the periosteum of the phalanges and over the joints by the glenoid ligaments thereof, on the palmar and lateral aspects by a transversely fibred arch with which the digital extension of the palmar fascia is blended. These sheaths are especially thickened where they lie over the proximal and intermediate phalanges, but opposite the joints they are thinner and more lax. Cruciate bands are usually present at the junction of these sections. Even when the sheath is distended by inflammatory exudations the tendon remains a fairly tight fit at the restricted points, and it is here that localizing adhesions may form to limit the spread of infection.

Initially during development a tendon running in a sheath has a complete mesotendon bearing the same relation to it as the mesentery does to the intestine. This special arrangement of the flexor tendons of the fingers by which the superficial one splits to permit the passage of the deep tendon does not, however, allow of the persistence of this early arrangement. Most of the mesotendon therefore disappears, but the remains can be recognized as the vincula tendinum. This small point is of special importance because the blood supply of a tendon

reaches it, at least in part, through the mesotendon. In the fingers, therefore, the vascular supply will be derived chiefly from the ends of the synovial sheath, and will receive but little reinforcement along the length of the tendon. Small vessels extend along the tendon in the synovial covering, and from them the substance of the tendon receives its nutritive supplies, mainly by transudation. It will thus be seen that the nutritive supply of the digital flexor tendons is particularly precarious. It is true that passive structures such as tendons require very little nutrition in normal circumstances, but any slight increase in tension within the theca will be sufficient to cut off the blood supply entirely, and this, of course, will lead to necrosis followed by invasion of the tendinous tissue by the organisms.

Fascial Spaces

Kanavel has described the routes by which infection spreads in the hand. By the injection of opaque materials into various regions of the palm he was able to demonstrate, both radiographically and by dissection, that the spread of these substances tended to be restricted to certain compartments, and upon this basis he was able to establish rational methods of surgical drainage. Valuable as Kanavel's work was from the anatomical point of view, we must not forget that the barriers which limited the spread of his injected materials would not, of necessity, have more than a temporary retarding effect upon the spread of organisms. As a basis for our studies, therefore, his ideas will be admirable, but in practical application we must be prepared to find that infection is only rarely limited to any one particular space or structure.

We have seen that only the thinnest layer of fibro-fatty tissue intervenes between the skin and the palmar fascia, and so loculated is this tissue that infection in the superficial layer is unable to spread beyond a short distance before the skin is perforated and spontaneous drainage stops further extension. On the dorsal aspect of the hand there are two loose areolar spaces, one between the skin and the extensor aponeurosis (the dorsal subcutaneous space) and one between the aponeurosis and the bones (the dorsal subaponeurotic space). These are the spaces in which oedema is chiefly seen in infections involving the palmar spaces, the great density of the palmar fascia preventing anything more than an undue fullness of the "cup" of the palm when deep-seated infection is present.

Deep to the palmar fascia the areolar intervals are divided into two main sections by the fascia covering the adductor transversus muscle. The palmar (mid-palmar) space is an extensive and important area lying deep to the profundus tendon and anterior to the third, fourth, and fifth metacarpal bones, with their corresponding interossei (Fig. 5). It is bounded on the inner and outer sides by partitions passing from the deep aspect of the palmar fascia to the third and fifth metacarpals respectively; the former is strong, and separates this space from the thenar space. Proximally the palmar space extends, by a narrow passage, to the deep space of the forearm, while distally it is continuous with the third and fourth web spaces and, by prolongation along the lumbrical tendons, with the dorsal subaponeurotic space. The thenar space lies between the palmar fascia and the adductor muscle, extending around the distal border of that muscle on to its dorsal aspect. It is separated from the palmar space by the fascia already mentioned; this corresponds superficially with the skin crease running along the inner aspect of the thenar eminence. Externally it extends deep to the thumb muscles as far as the first metacarpal bone,

and distally it communicates with the web spaces of the index and thumb, and, via the first lumbrical canal, with the dorsum of the hand. It has no extension to the deep spaces of the forearm.

The web spaces lie between the heads of the metacarpals and are continuations of the palmar and thenar spaces to the dorsal aspect of the bases of the fingers; there they communicate with the subcutaneous spaces of

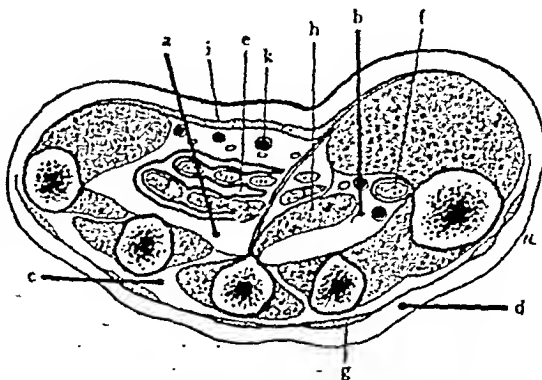


FIG. 5.—Diagrammatic transverse section of the palm showing disposition of the various spaces, (a) The palmar space, (b) thenar space, (c) dorsal subaponeurotic space, (d) dorsal subcutaneous space, (e) common flexor sheath (ulnar bursa), (f) tendon of extensor longus pollicis, (g) extensor tendons, (h) adductor pollicis, (i) palmar fascia, (k) digital vessels and nerves.

the dorsum of the hand. The deep fascial space of the forearm lies under the profundus tendons and superficial to the pronator quadratus. It continues proximally, superficial to the interosseous membrane, so far as the origin of the deep muscles from that structure.

It must be realized that the common flexor sheath lies immediately superficial to the palmar space, while the sheath of the flexor longus pollicis is surrounded by the thenar space; infections therefore extend with ease from one structure to the other.

Joints

The interphalangeal and metacarpo-phalangeal joints are all in fairly intimate relation to the tendon sheaths, and it has already been mentioned that their volar (glenoid) ligaments form part of the thecal canal. The phalanges themselves have, before the age of about 20, an epiphysis at their proximal end, and the same applies to the first metacarpal. The other metacarpals have an epiphysis at the head. The blood supply to that part of the bone derived from the epiphysis reaches it largely along the capsule of the joint, through the section of the digit immediately proximal (see Fig. 1). This is important in the case of the terminal phalanx, for when the pressure of exudation in the terminal segment cuts off the blood supply to the bone its base is still able to derive a supply in this way, and so bony necrosis rarely extends beyond the level of the epiphyseal line (even when this is completely ossified in the adult), and infection of the interphalangeal joint is thus prevented; the insertions of both flexor and extensor tendons remain intact and the theca is not involved.

The main palmar bursa (common flexor sheath) is considerably restricted as it passes deep to the anterior annular ligaments; at this point, therefore, the spread of infection may be at least temporarily arrested. For the same reason any subsequent adhesions are always densest

at this level. Since the theca of the little finger is continuous with the main bursa it is obvious that the nervous and vascular supplies of the ulnar border of that finger must cross the sheath. The vascular and nervous supplies of the radial side of the index finger cross the proximal end of the theca of that finger deep to the palmar crease in this situation. The thumb sheath is deeply buried as it passes between the muscles of the thenar eminence. It is important to note that this sheath is crossed superficially by the branches from the median nerve which supply these muscles.

(To be continued)

A COMPARISON OF PHYSICAL STANDARDS IN TWO GROUPS OF NEWCASTLE CHILDREN

BY

H. G. MILLER, M.B., B.S.

House-physician to the Royal Victoria Infirmary,
Newcastle-upon-Tyne

Investigations into the physical standards of sample groups of school children of various social classes have shown in most instances that the children of the upper classes are taller and heavier and have blood richer in haemoglobin than children of the poorer type; while Spence has shown that in Newcastle there was a wide difference between the health and development of the infants in his sample group of "city children" and the similar group of "professional class children" which he examined.

The present investigation was carried out in an endeavour to assess the result of an improvement in environment at an early age on one of two groups of children of strictly comparable heredity. The most hopeful approach seemed to be in comparing, by the same individual technique as that used by Spence, a group of slum children with children living in the physically favourable environment of an orphan institution, the latter having a heredity comparable to, and certainly no more favourable than, the former. The group chosen were the seventy-five children between the ages of 5 and 14 years residing in the Newcastle Education Committee's Ponteland Children's Home—the "Ponteland children"—and a similar number of children of identical age and sex distribution attending the Jubilee Street Council School, situated in a poor part of Newcastle—the "Jubilee children."

The difference in environment may be inferred from the fact that the Ponteland children were living in a pleasantly situated self-contained village some miles from Newcastle, eating a diet costing an average of just over four shillings and sixpence a head per week (and purchased *en bloc*), which was properly balanced and included meat at least once a day and an average of just under one pint of fresh milk daily. The parents of 50 per cent. of the Jubilee children were unemployed, and these children were presumably eating a diet costing at any rate not more than three shillings per week which the Unemployed Assistance Board provides for all the necessities of life; with, in addition in certain cases, free milk daily and in a very few cases (not 5 per cent.) free meals. On inquiry not more than 10 per cent. of the Jubilee children had eaten protein of any kind at their midday meal on the day of examination—broken biscuits appeared to be a staple article of diet.

The two groups of seventy-five children were carefully examined by me with reference to their general condition, their height, weight, and chest measurement, their teeth, and their haemoglobin indices.

The Ponteland children were not admitted to the home until the age of 3, and no accurate information was obtainable about their environment during the first three years of life. All that can be said of these early years, which are shown to exert a crucial influence on the later development of the children, is that they were spent in the large majority of cases either in a Poor Law institution or under very unfavourable conditions of life outside. It seems improbable, however, that under normal conditions any more sharply defined groups as regards environment will be obtainable.

The assessment of general condition was of course subjective, but I endeavoured to take into account colour, muscle tone and stance, skin temperature, and general alertness.

General Condition

| | Ponteland | Jubilee |
|--|-----------|---------|
| Optimum (children in every way fit) .. | 37 | 7 |
| Poor (children obviously unfit) | 1 | 9 |
| Others | 37 | 59 |

For comparisons of weights and heights optimum zones were made by weighing and measuring several hundred children in Newcastle high schools and preparatory schools, plotting their weights and heights on graphs, and constructing zones to include the large majority. Separate zones were made for boys and girls, but for convenience of reference the results are here grouped together:

| | Heights | | Weights | |
|-----------------------------|-----------|---------|-----------|---------|
| | Ponteland | Jubilee | Ponteland | Jubilee |
| Children above optimum zone | 0 | 0 | 0 | 1 |
| Within | 24 | 19 | 10 | 15 |
| Below optimum zone | 51 | 56 | 65 | 59 |

As will be seen, the children of both groups fall almost completely below the optimum zones of the "high-school" children. When the zones used were based on the figures of the British Association's Anthropometric Committee (1875-83), employing the committee's average as an upper limit and a line 10 per cent. below this as the lower limit of the zone, the Ponteland and Jubilee children are seen to fall very well within these limits and show no significant discrepancy—that is to say, the difference between the weights and heights of the high school and the Ponteland children is of the same order as that between the high school and the Jubilee children.

| | Heights | | Weights | |
|----------------------------|-----------|---------|-----------|---------|
| | Ponteland | Jubilee | Ponteland | Jubilee |
| Above B.A. average zone .. | 12 | 17 | 20 | 13 |
| Within | 61 | 57 | 40 | 46 |
| Below | 2 | 1 | 15 | 11 |

It is of interest to note that when the weights and heights of the high school group were plotted against these B.A. zones the following results were obtained.

| | Heights | | Weights | |
|--------------------------|--------------|----|--------------|----|
| | 93 per cent. | | 84 per cent. | |
| Above average zone | 7 | .. | 16 | .. |
| Within | 0 | .. | 0 | .. |
| Below | .. | .. | .. | .. |

¹ Spence, J. C. (1934): *Investigation into the Health and Nutrition of Certain of the Children of Newcastle, Newcastle.*

Quite evidently the British Association Anthropometric Committee's averages, assessed as they were from the measurement of children preponderantly of the poorer classes, should be taken not as normal weights and heights but rather as depressed averages.

The chest circumference measurements, taken in full inspiration, were recorded on the case-sheets, but in my opinion they depend so much on the enthusiasm of the examinee as to be valueless.

Examination of the teeth revealed what I believe to be significant differences.

| | Ponteland | Jubilee |
|---|-----------|---------|
| Perfect dentition: No caries or history of caries | 8 | 2 |
| Hypoplasia, with no gross caries or history of caries | 15 | 3 |
| Gross caries or history of caries | 52 | 70 |

These figures show that twenty-three of the Ponteland children were free from caries, as against only five of the Jubilee children. In addition, active extensive caries (four teeth or more involved) was present in six of the seventy-five Ponteland children, as opposed to twenty of the seventy-five Jubilee children. The most significant differences, however, appeared in the haemoglobin indices (estimated by the Sahli haemoglobinometer—standard = 14 grammes per 100 c.cm.).

| Hb percentage | Ponteland | Jubilee |
|--|-----------|---------|
| Above 85 per cent. | 13 | 1 |
| 70 to 85 per cent. | 55 | 47 |
| Below 70 per cent. | 4 | 27 |
| Below 65 per cent. (also showing clinical anaemia) | 0 | 6 |

Conclusions as to the significance of the differences recorded in dealing with such small groups of subjects must of necessity be tentative. Briefly, while the weights and heights of the two groups showed no appreciable difference, both being distinctly suboptimum, the general condition, the teeth, and the haemoglobin indices of the slum children were distinctly inferior to those of the children's home group.

These facts suggest that although improvement in environment after the age of 3 had led to distinct improvement in general condition, teeth, and blood, it was without effect on subsequent growth. It would appear that such growth was decisively affected by conditions during the first three years of life, and that subsequent improvement in environment did little to modify this. But the improved conditions of the Ponteland children in other respects did seem to be accompanied by a heightened resistance to disease, and as a community the children's home appears to have a suggestively low incidence of illness. On these and other grounds weight and height *per se* seem to be falling into increasing discredit as indices of health.

Summary

A comparison of a group of school children from a poor part of Newcastle with a similar group from a children's home revealed that although the weights and heights of the two groups showed no appreciable difference and were both suboptimum, the general condition, the teeth, and the haemoglobin indices of the children's home group were distinctly superior to those of the slum children.

I wish to thank the various education authorities and individuals who so kindly facilitated the collection of the data used; and Dr. J. C. Spence for his constant stimulation and advice.

THE MEDICAL PROFESSION AND NATIONAL DEFENCE

DUTIES OF DOCTORS AND NURSES

The following announcement was made by the Ministry of Health on Tuesday night:

The Ministry of Health is receiving inquiries from doctors and nurses asking what they would be expected to do in the event of hostilities. Some already have commitments to the Forces or to the A.R.P. or other public services. Those who are not committed in this way but are attached to hospitals would no doubt be required there, and should in any case keep in touch with their hospitals.

Doctors and nurses in private practice may be able to afford valuable assistance in local air raid precautions schemes, and if they are willing to help in this way they should get into touch with the medical officer of health. They may also be required for treating casualties in their own homes.

The British Medical Association, at the request of the Government, has compiled a register of doctors who are prepared to serve in various capacities, and use will be made of this register for importing doctors into a district where there is urgent need of additional medical assistance. Any doctor who has not yet responded to the inquiries from the British Medical Association should do so without delay, and if he does so he will, when need arises, be told where and in what capacity his services are required.

Until similar machinery is instituted for the nursing profession, any nurses who are willing to offer their services but are not in touch with hospitals should enrol with the local branch or head office of the College of Nursing, whether they are members or not. This applies only to State-registered or certificated nurses, including those who have given up practice.

There is no need for doctors or nurses to offer their services directly to the Ministry.

HOSPITAL ACCOMMODATION FOR AIR RAID CASUALTIES

The following statement on hospital accommodation for air raid casualties was issued by the Ministry of Health on September 22.

The Ministry of Health has made rapid progress in organizing the hospital system to meet any emergency that may arise, and it is now possible to give a general picture of the proposals.

Hospital authorities were told by the Ministry in August that they would be expected, if an emergency actually occurred, to empty as many beds as possible by sending home those patients who are fit to go. It is estimated that most hospitals would be able to clear between 30 per cent. and 50 per cent. of their beds in this way. No hospital is expected to take any step of this kind until asked to do so by the Ministry, and it is unnecessary to say that no such request has yet been made. The majority of patients going home would be sitting or walking cases, and hospitals have been asked to arrange for transport of their cases themselves by means of voluntary effort. The Women's Voluntary Organization would help in this work. Once at home discharged patients would, of course, come under any general arrangements for evacuation for their districts.

Simultaneously with sending patients home, certain hospitals, for the most part the larger general ones in the more congested areas, would "decant" patients fit to be moved, though not yet fit to go home, to other institutions which are fully capable of continuing the

necessary treatment, but which would be less useful for receiving air raid casualties. In the London area thirty-four hospitals have already been designated for "decanting," and detailed plans prepared for removing between 3,000 and 4,000 patients by ambulance trains to towns 50 miles or more from London. The patients would be conveyed to the railway stations by motor coaches converted to carry stretchers. The necessary stretchers are available and held centrally for distribution if and when required. Fittings for the coaches have been made, and 300 can be converted into ambulances at twelve to twenty-four hours' notice. The owners of the coaches know exactly where they would report, and what journeys they would be required to make. The necessary arrangements have also been made with the railway companies. Other hospitals in the London area would "decant" patients a shorter distance in order to empty beds, and these would make the whole journey by bus.

The Ministry has been in close touch with the London County Council throughout. As already announced, one of the senior medical officers of the County Council is acting as hospital officer for the London district. The Ministry has also conferred with representatives of all the voluntary hospitals involved in the "decanting" scheme, and explained the proposals to them in detail; and before the end of the week conferences will have been held with representatives of all the other voluntary hospitals in the district. Conferences have also been held with all the medical officers of health of the counties and county boroughs in the Home Counties, and of the towns receiving the patients decanted from London. Arrangements are being made in these towns for meeting the ambulance trains and conveying the patients to designated hospitals. It may be added that the London County Council has been authorized to provide surgical equipment at some of the larger hospitals not at present used for surgical cases, so that these, which have a good deal of available ward room, would be fully equipped for dealing with casualties if necessary.

Plans for clearing hospital beds by "decanting" patients have similarly been worked out in the provinces by the Ministry's hospital officers. These officers are in touch with the local hospital authorities, and in addition conferences have been held in Whitehall with the medical officers of health of the large cities.

So far the plans made have been concerned principally with the utilization of existing accommodation and equipment. The Ministry has, however, taken steps for the acquisition of additional equipment which will be distributed when available to different centres. Meanwhile, information has been collected as to the stocks of bedsteads, bedding, and other necessary equipment held by the trade in various towns, and, if necessary, arrangements would be made to supplement existing stocks from these sources.

While the Ministry has now conferred directly with a great many hospital authorities, both municipal and voluntary, it has not yet been possible to do so with all of them. It is intended very shortly to arrange a further series of local conferences at which Dr. Hebb, the Principal Medical Officer advising the Minister on the emergency hospitals organization, will discuss details of the schemes with the authorities.

In a later communication the Ministry urges private owners of cars which are not already earmarked for transporting patients and which are not being used for any other essential purpose to assist in this evacuation by getting into touch with their local hospital and offering to send their cars (with drivers) to the hospital for use if required as conveyances for the patients.

L.C.C. Emergency Measures

The London County Council has taken prompt and energetic steps to make available the greatest possible

number of beds in the event of outbreak of war, and we understand that the arrangements that have been made in conjunction with the Ministry of Health will put at the disposal of the public between 20,000 and 25,000 beds for emergency treatment in the County of London. In addition to that arrangements have been made by the Ministry to transfer between 3,000 and 4,000 patients from voluntary and municipal hospitals to hospitals in towns situated some fifty to sixty miles outside London. In addition to plans for the evacuation of cases all available extra beds and mattresses have been put up throughout the whole of the L.C.C. hospital service.

The medical superintendents of L.C.C. hospitals have been advised to evacuate patients who would be fit to be discharged a day or two earlier than would otherwise have been the case, and to select other patients who could be discharged without hardship to themselves immediately on the outbreak of war. They have been advised, too, in co-operation with the general practitioners in the areas of the hospitals, to defer the admission of patients who are not in urgent need of treatment—for example, patients with hernia, varicose veins, etc. Similarly, in the tuberculosis hospitals the admission of non-urgent cases has been postponed. Fever hospitals have been instructed not to admit cases of such mild infectious diseases as chicken-pox and mumps. These hospitals have been "up-graded" by the supply of additional surgical equipment and dressings so that they will be able to take their place as acute casualty hospitals. Where it has been possible each fever hospital has been divided into two parts: (1) for the admission of fever cases, and (2) for the treatment of air raid casualties.

The L.C.C. hospitals are also being provided with an extra stock of fuel, the equivalent to one month's extra stock of drugs, dressings, etc., and an extra stock of food-stuff equivalent to approximately one month's supply. The hospitals are also actively engaged in making arrangements for the blacking out of their buildings in accordance with the police regulations and for introducing such other emergency measures as are dictated by circumstances.

Local News

FRANCE

[FROM OUR CORRESPONDENT IN PARIS]

Professor Clovis Vincent

Dr. Vincent's work as a surgeon in Paris has proved of such value that the Assistance Publique, which is responsible for the administration of this city's public hospitals, created some time ago a special hospital service under his direction. He has now been appointed a professor at the Faculty of Medicine, with clinical neurosurgery as his specialty. The creation of this new chair has been made possible by a donation from the Rockefeller Foundation in recognition of Vincent's pioneer work.

Fiftieth Anniversary of the Pasteur Institute

On October 26 the fiftieth anniversary of the Pasteur Institute will be celebrated in the Grand Amphithéâtre of this institution in the presence of M. Lebrun, President of the Republic, the Minister of Public Health, and many others. This celebration will coincide with the first International Congress of French-speaking Microbiologists, all the delegates to which have been invited by the Director of the Pasteur Institute to be present at the celebration. Inquiries with regard to the congress should be addressed to the secretary of the Association des Microbiologistes de Langue Française, Institut Pasteur, 28, Rue du Dr. Roux, Paris, XV.

AUSTRALIA

Poliomyelitis in Victoria

The Director of the Walter and Eliza Hall Institute of Research in Pathology and Medicine, Dr. Charles H. Kellaway, has just presented his annual report for the year 1937-8. In Victoria, during the epidemic of poliomyelitis which only came to an end in February of this year, no difficulty was experienced in transferring the poliomyelitis virus to monkeys; four strains are now available for future work. Monkeys recovering from the inoculation of the local virus, however, showed only partial immunity to the regularly fatal "M.V." strain. During the epidemic there were collected for subsequent investigation many samples of serum from cases early in the febrile period and from contacts, at the time of contact and four to eight weeks later.

During the early winter of 1937 some two hundred individuals were given intranasally two inoculations of living, egg-adapted, "Melbourne" influenza virus, a strain which can be clearly differentiated antigenically from the "W.S." and "swine" strains. No epidemic of influenza occurred, so the experiment has only shown the harmlessness of the procedure and an increased antibody response after inoculation in a few of the subjects. Work on "Q" fever has continued, and other researches have been concerned with the problem of cell injury, the liberation of histamine, and with various clinical problems.

Correspondence

Convalescent Serum in Infantile Paralysis

SIR,—The case against the therapeutic value of convalescent serum was summarized in your columns by me some five years ago (December 30, 1933). The information upon which it was based is generally accessible, and to restate the case now would be a waste of your space. Professor G. R. Girdlestone (*Journal*, September 24, p. 678) is right in saying that in the past the use of serum has not always been such as to provide reliable evidence of its value, and his own use of it—upon which he formed his favourable view—was admittedly of this order. There is an increasing weight of evidence based upon adequately controlled observation that serum treatment has no value, but there is also experimental evidence even more conclusive to which Professor Girdlestone does not refer—namely, the fact, long known, that this serum does not modify the course of the disease in the inoculated monkey when given under the only conditions possible in the human subject—that is, after the onset of symptoms. Recent pathological work has shown why this must necessarily be so. Therefore the serum treatment of poliomyelitis is as lacking in rational basis as in practical justification. Nor can we reasonably hope that the future will reverse this verdict of experience in the past. Dosage has been steadily increasing since Netter in 1910 introduced this treatment, yet no one has been able to claim better results than he claimed for the use of what later workers regard as quite absurdly inadequate dosage.

It is therefore essential that Professor Girdlestone's act of faith should be recognized as such rather than as a scientific judgment based upon facts, and even more important that the hopes of the public should not be cruelly raised. The cherishing of therapeutic illusions by the distressed parents of a sufferer from acute poliomyelitis must place the family doctor, the consultant, and the local health authority in a wholly false position in which it is

not equitable that they should be placed. Two recent letters in the *Times* show how easily this may happen, and the situation is one that Professor Girdlestone cannot possibly wish to bring about.

In his first letter, with a candour I respect, he expressed himself as aware that he was venturing out of his proper sphere. Yet it is in these circumstances that acts of faith become the easy substitutes for reasoned judgment, and dangerous ones in that they bear the appearance of a medical authority they do not in fact possess.—I am, etc.,

London, W.1, Sept. 24.

F. M. R. WALSHIE.

Prognosis of Anxiety States

SIR,—In his interesting paper on prognosis of anxiety states in the *Journal* of September 24 (p. 649) Dr. Arthur Harris, speaking of follow-ups, says: "Luff and Garrod have traced their cases for three years and Ross some of his cases for five years and the rest for three years." So far as my cases are concerned this is a complete mis-statement of fact. If Dr. Harris will glance at the table on page 79 of my book, *An Enquiry into Prognosis in the Neuroses*, he will see that I had traced the after-histories of 943 patients over periods varying from three to thirteen years. If he will look at the top line, which refers to patients discharged from the Cassel Hospital in 1921, he will see that the after-histories of twenty-two out of fifty-eight patients were known at the end of thirteen years. On the next line, referring to the 1922 discharges, it will be found that another forty-three patients out of ninety-eight discharged in that year were known about at the end of twelve years, and so on. At the end of ten years 102 patients out of 254 were known about.

I must suppose that he was misled by a note printed after the 1929 discharges, which said that there were no more five-year histories after that date, a thing that is of course obvious, seeing that the inquiry ended in 1934; but the note said nothing about the years before 1929.

Dr. Harris's paper is one of great value, all the more as he recognizes the immense difficulties surrounding an inquiry of this sort. I would, however, ask him to look also through pages 37-55, with a hope that he may become less pessimistic about patients whose symptoms are of long standing.—I am, etc.,

London, W.1, Sept. 24.

T. A. ROSS.

The Nature of Viruses

SIR,—The annotation entitled "The Nature of Viruses" (*Journal*, September 24, p. 667) accepts as the "hall-mark of living things in the final issue" their possession of an "independent metabolism." Presumably these words may be held to signify that this possession differentiates "living things" from something else. The word "independent" has, however, no meaning unless that of which the affair in question is independent is stated. Is this an invitation by the writer to conceive the metabolism of "living things" to be characterized by independence of their environment? If not, in what then does the alleged independence consist?

It has proved necessary to abandon one by one the traditional distinctions drawn between "living things" and other terrestrial units; it does not seem likely that the distinction cited in the article will enjoy any better fate. It would occupy too much space to set out the evidence against its validity. I prefer to use what you will allow me for suggesting that the time has come when the conception of a fundamental difference in nature between

"living" and "non-living" should be abandoned in favour of the more comprehensive one of differences in the behaviour of different groups, arising solely out of differences in their organization.

There are broad differences between the behaviours of the atom unit, the molecule unit, and the colloid unit, all these being groups in the sense in which I am using this word. Any group belonging to any of these three classes which is stable for an appreciable period of time may conveniently be conceived and described as an *individual* for the period of its stability. The "things" which have hitherto been called "living" are otherwise describable as colloid individuals, different from the atomic and molecular individuals not as to the nature of their elements but as to their organization only. The time-occupying stability of all groups (individuals) may be interpreted as a balance phenomenon, the terms of the balance being group \rightleftharpoons environment. To no group, and to no detail of the organization of any, may the term "independent," in the literal sense of this word, be properly applied. The term "parasitic" conventionally describes a peculiar relation whose essential feature is, that the immediate environment of some individual of the colloid-group class is constituted by another individual of the same class.

If the word "living" is continued in use it should be used to connote a peculiar organization and the peculiarities of behaviour that go with this. There is no longer warrant for conceiving that the elements which constitute the individual of the colloid-group type differ in nature from those which constitute the atomic and molecular individuals of the earth's surfaces.—I am, etc.,
K. W. MONSARRAT.
London, W.1, Sept. 25.

Diagnosis of Whooping-cough

SIR,—One regrets that in a five-page critical review of laboratory aids to the diagnosis of whooping-cough (*Journal*, September 17, p. 613) Dr. A. B. Donald was able to devote only four lines to agglutination tests, briefly arriving at a conclusion that such tests were unreliable and useless as a method of diagnosis.

One hesitates to accept this dogmatic statement without details of the method adopted, because it is well recognized that the *Haemophilus pertussis* has four phases of growth *in vitro*. Whereas Phases II and IV give little or no agglutination and are in fact "rough" colonies, Phases I and III are "smooth" and virulent, and are actively agglutinated by convalescent and possibly third- and fourth-week sera.—I am, etc.,
A. GORDON MOORE.
Watford, Herts, Sept. 20.

The Occipito-posterior Case

SIR,—It was with horror and dismay that I read Dr. David Price's letter (*Journal*, September 17, p. 638). Coming as it did a week after Professor Chassar Moir's excellent paper on this subject, the horror was intensified. There are a few points in the letter which cannot go unchallenged. To apply forceps before the os is fully dilated is, at the best of times, undesirable; still less so if it is made a routine. His statement that he has never regretted the use of forceps, whether the os is fully dilated or not, leaves no hope of salvation for him. Does he really diagnose the occipito-posterior position by failure to extract with forceps? I should have thought that after thirty-five years he would be aware of the value of vaginal examination with the hand and fingers. How does he diagnose a breech presentation? By applying forceps and seeing what he pulls out, in the manner of a lucky dip? Mechanical rotation seems to be the least serious of his

errors, although I had hoped that this was being abandoned. For his courage in confessing his errors in the *Journal* I have nothing but admiration. I, personally, would never have been brave enough to do it.

Finally, may I plead with Dr. Price to give Nature a chance in his next case. I venture to assert that he will be amazed at Nature's efficiency.—I am, etc.,
STANLEY WAY.
Newcastle-upon-Tyne, Sept. 19.

Medical Evidence at Inquests

SIR,—There have been two unfortunate occurrences in my experience in cases where the coroner has engaged a professional pathologist (now dead) to perform the necropsy. In the first I was invited, as an act of courtesy, to see the examination; on arriving I found it completed and a diagnosis made of death from pulmonary embolism. At my request the cervical vertebrae were examined, and there was found the fracture which had been suspected during life. The actual cause of death was the pressure on the medulla of a haematoma resulting from this injury. The other case was one of Landry's paralysis where the spinal cord was not even looked at. As the patient had been a healthy young man it does not need much imagination to understand the pathologist's difficulties.

Surely when the coroner thinks it important to employ an outside medical man—and in many cases there may be a good deal to be said for his doing so—it is very desirable that the deceased's own doctor should be invited to attend at the necropsy and should be paid for doing so.—I am, etc.,
W. M. PENNY.
Sydenham, Sept. 22.

** This correspondence is now closed.—ED., *B.M.J.*

Tuberculosis Dispensaries or Chest Clinics?

SIR,—Dr. G. Gregory Kayne (*Journal*, September 17, p. 634) introduces his solution of this question with the words "failing education of the public to recognize that disease is not a stigma. . . ." I should like to ask whether we could not help to eradicate the peculiar stigma attaching to pulmonary tuberculosis. I suggest two moves in this direction.

First, we should be less squeamish in talking about tuberculosis to patients. The present attitude is instilled into the student and stays with most doctors, who will refer to "lung weakness," "pleurisy," "Koch's bacillus infection," or even "K.B."—in fact, the disease is hedged about with almost as many polite evasions as a water-closet. Even the universal "T.B." is a stupid description for the use of laymen, especially in the common but oddly senseless form of "Smith is T.B." The evasive term is, of course, a symptom of taboo, but its continued use encourages the persistence and growth of this taboo. Moreover, the use of these evasions on certificates and elsewhere often means that the treatment of this disease is advertised by its failures and not by its successes.

Secondly, I suggest that by the use of the word "consumption" we swing from polite evasion to the opposite, and no more desirable, extreme of melodramatic exaggeration. Yet even modern textbooks use such sentences as "Most consumptives find . . ." in such a way that the patient with a small, arrested, and inactive lesion is included under a term which seems to describe a sort of walking incinerator. In spite of a certain pardonable academic snobbery in favour of the old-fashioned, is it not now time for humane as well as for scientific reasons to abandon this frock-coated phraseology?—I am, etc.,
E. P. EDMONDS.
Maidstone, Sept. 21.

Obituary

SIR ANDREW MACPHAIL, M.D., C.M., LL.D.
Late Professor of History of Medicine, McGill University,
Montreal

We much regret to announce the death in Montreal on September 23 of Sir Andrew Macphail, the distinguished Canadian who held the chair of history of medicine at McGill University for thirty-one years, and was known on both sides of the Atlantic as a writer of singular force and lucidity.

John Andrew Macphail came of Highland Scottish stock. He was born on

November 24, 1864, at Inverairnie, Prince Edward Island, where his father, William Macphail, farmed in the Orwell district among Gaelic-speaking settlers. From Prince of Wales College in Charlottetown he entered McGill University and graduated B.A., continuing his studies in the medical school and supplementing them with a course at the London Hospital, where (in his own words) he observed operative surgery under the hand of Frederick Treves, "that first of modern English surgeons, at the time when he was perfecting the operation for perityphilitis, the term by which in those days appendicitis was described." He took the M.R.C.S.Eng. in 1889 and graduated M.D., C.M. at McGill in 1891; four years later he was appointed professor of pathology at the University of Bishop's College at Lennoxville, returning soon afterwards to

Montreal as pathologist to the Western Hospital and the Protestant Hospital for the Insane. For ten years he held these posts and engaged in private practice, having meanwhile married the daughter of a wealthy citizen of Montreal.

From boyhood Andrew Macphail had had a strong literary bent, and as an impecunious medical student at McGill University he reported occasionally for the *Montreal Star*. Independent means and greater leisure allowed him to indulge further his gift for writing. In 1905-6 he published *Essays in Puritanism* and the *Vine of Sibmah*, and after his appointment as professor of history of medicine in 1906 he published further essays on political and philosophical subjects: he was also Editor of the *Canadian Medical Association Journal* for some time, and edited from Montreal a quarterly review,

The University Magazine, to which the best Canadian writers contributed.

In August, 1914, Andrew Macphail at once volunteered for duty abroad; he served first in France with the Sixth Canadian Field Ambulance, and in the latter part of the war he was with the medical headquarters staff in London. For his services he received the honour of knighthood in 1918 and the O.B.E. soon afterwards. During the war he had compiled an anthology, *The Book of Sorrow*, and a memoir of his friend and colleague John McCrae, the brilliant Canadian physician, under the title of McCrae's famous poem *In Flanders Fields*. He returned to Canada to take up the duties of his chair, spending every summer on the farm in Prince Edward Island, where he delighted to entertain old friends. During the next few years he was

engaged on the *Official History of the Canadian Forces in the Great War, 1914-19: The Medical Services*. In this admirably written book he had no hesitation about entering the arena of political controversy in order to emphasize the moral to be learnt from the difficulties with which the Canadian Medical Services had to contend in the earlier years of the war. It stood out among other works of the time by reason of its literary excellence, the vigorous style of the author, and the clear-cut lessons he taught. In 1926 he gave an address on American methods in medical education at the congress of the American College of Surgeons in Montreal, and the full text of this piece of writing, remarkable alike for its style and its outspokenness, appeared in the Educational Number of the *British Medical Journal* in the following year. Not long afterwards he wrote for the *Quarterly Review* a

drastic analysis of the published diaries of Sir Henry Wilson, and this, with his essays on Colonel House and T. E. Lawrence, was republished in a book, *Three Persons*. In 1931 his last book, *The Bible in Scotland*, appeared, and the Royal Society of Canada awarded him the Lorne Pierce medal for outstanding merit in Canadian literature. For some years before then his eyesight had deteriorated and writing became more of an effort, but in 1933 he contributed to these columns an address on "The Source of Modern Medicine."

Sir Andrew Macphail among his friends was a man of great charm and a most instructive and pithy talker. Our portrait is from a copy of the painting by Alphonse Jongers in 1924, which Macphail gave to the late Editor of the *British Medical Journal*, Sir Dawson Williams, with whom he was on terms of warm friendship.



The sudden death of Dr. FREDERICK THOMAS ALEXANDER LOVEGROVE on June 24 in Perth saddened the whole of the medical profession in Western Australia. Dr. Lovegrove was universally admired and respected. He was the friend of every medical practitioner in the State, for he came into contact with all of them at frequent intervals in his capacity as Government Medical Officer. Up to within a few hours of his death he was engaged in his ordinary duties, and his sudden end was a shock to his family as well as to his colleagues. Dr. Lovegrove was born in 1875. He was educated at Merchant Taylor's School, Crosby, near Liverpool, and at University College, Liverpool, then part of Victoria University. Qualifying in 1898 with the diplomas M.R.C.S., L.R.C.P., he later took the M.B., Ch.B. He held resident posts at the Children's Hospital, Liverpool, and at the Royal Infirmary, and was Holt Scholar in Anatomy at the University. For a period he served as a ship's surgeon, and then came out in 1900 to Western Australia, where he had two uncles practising medicine, one of them being Principal Medical Officer and Commissioner of Public Health. Dr. Lovegrove entered into practice at Perth and Yarloop, but in 1902 he returned to England, where, after travelling on the Continent for some time, he went to sea again as ship's surgeon. Western Australia, however, called him back, and in 1906 he practised successively at Yarloop, Bremer Island, and Tambellup until the outbreak of the war. After four years' service, during which he attained the rank of lieutenant-colonel, he became, on his return to the State, O.C., No. 8 Australian General Hospital at Fremantle. Resuming private practice, he resided at Tambellup and Dumbleyung, until in 1928 he was appointed Government Medical Officer in connexion with the State Insurance Department. He is survived by a widow and four sons.

Mrs. HESTER DILL SMITH, who died on August 3 at Clogher, Co. Tyrone, was the daughter of the late Rev. W. A. Russell of Strabane and wife of Lieutenant-Colonel Henry Smith, C.I.E., M.D. Many old friends and fellow-students of hers in the British Isles, in India, and in the United States will remember affectionately a personality in which the stern Ulster Presbyterianism of her early environment was happily blended with innate gentleness, generosity, and courage. Hester Dill Russell decided early to become a medical missionary, and at the age of 20 began her student career at the London School of Medicine for Women and the Royal Free Hospital. She qualified M.B., B.Ch., B.A.O. in 1891, and joined the Church of Scotland Medical Mission at Poona under Dr. Letitia Barnard. Later she was transferred to Gujrat in the Punjab. There she met Captain Henry Smith of the I.M.S., who was also a native of Tyrone, and after completing her five years' service with the mission she resigned and they were married. After Captain Smith's transfer to Jullundur, and later to Amritsar, family duties did not allow Mrs. Smith to pursue a whole-time medical career. Her previous medical experience was, however, of great assistance to her husband in many ways, especially in following up the immense number of cases of cataract operated on by "Jullundur Smith." Their union was a particularly happy one, founded on mutual esteem, unity of spirit, and abiding affection.

Dr. JOHN WALKER of Paisley died recently at the age of 61. Dr. Walker was a student of St. Mungo's College, Glasgow, and qualified L.R.C.P., L.R.C.S.Ed., L.R.F.P.S. Glas. in 1903. He was in general practice in Paisley for over thirty-two years and was a member of the British Medical Association for almost as long. "A. J. D. W." writes: By the death of John Walker, Paisley has lost one of its best-known citizens. Dr. Walker built up a large practice by his devotion to his work and won the esteem and affection of his patients. He will be especially missed by the poorer section of the community, to which he was both physician and friend. For many years he had

been, on the outdoor staff of physicians of the Royal Alexandra Infirmary, Paisley. Among various organizations in which he was particularly interested were the Salvation Army and the Paisley Highlanders' Association. He took an active part in public life, having been returned for Paisley Town Council as the member for the Second Ward by an overwhelming majority in 1933—an indication of the esteem in which he was held—and he again won the seat in 1936. In December, 1937, he retired from the council owing to ill-health. Dr. Walker is survived by his wife and two sons.

The following well-known foreign medical men have recently died: Professor MAX KAPIS, director of the surgical clinic of Wurzburg University, aged 57; Professor JOHANNES LANGE, director of the nerve clinic at Breslau University and president of the Association of South Eastern German psychiatrists and neurologists; and Dr. ALPHONSE LABBÉ, honorary professor at the Nantes School of Medicine.

Universities and Colleges

UNIVERSITY OF LONDON

UNIVERSITY COLLEGE

The following lectures will be given at University College, Gower Street, W.C.1, during the first term: Four lectures by Dr. Phyllis Tookey Kerridge on "The Physiology of Hearing and Speech" on Mondays, October 10, 17, 24, and 31, at 5 p.m.; five lectures by Dr. R. J. Lythgoe on "The Physiology of Vision" on October 13, 18, 20, 25, and 27, at 5 p.m.; three lectures by Dr. J. F. Danielli on "The Permeability of Membranes" on Mondays, November 7, 14, and 21, at 5 p.m. All the above lectures are open to the public without fee or ticket.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN

The following awards of scholarships for 1937-8 are announced: *St. Dunstan's Exhibition*: Kathleen N. Berger. *Isobel Thorne Scholarship*: Josephine M. Lord. *Special A. M. Bird Entrance Scholarship*: Vera J. Cutler. *Mabel Sharman Crawford Scholarship*: Jessica Mestel. *Sir Owen Roberts Memorial Scholarship*: Barbara J. H. Broadwood and Margaret V. Teichmann. *A. M. Bird Clinical Scholarship*: Mrs. B. J. Clymo. *Alfred Langton Scholarship*: Alison D. Wells. *Ellen Walker Bursary*: Anne Stephen. *Flora Murray Bursary*: Elsie E. Whatley. *Emma Beilby Bursaries*: Jean M. Holtzmann and Mary L. Mittell. *Special Bursaries*: Marjorie K. Cole and Inez Hewitt. *A. M. Bird Postgraduate Scholarship in Pathology*: Nora F. T. Crowley, L.R.C.P., M.R.C.S. *Mabel Webb and A. M. Bird Research Scholarship*: Marjorie V. N. Suds, M.B., B.S., D.T.M. and H.

ROYAL DENTAL HOSPITAL OF LONDON (SCHOOL OF DENTAL SURGERY)

The prize distribution and conversazione of the Royal Dental Hospital of London (School of Dental Surgery) will be held at the Royal Dental Hospital on Tuesday, October 4, at 8 p.m. Mr. Herbert L. Eason will preside.

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M.D.—Eugenie C. Illingworth, N. Wood.
M.B., Ch.B.—(Part I): N. K. Barber, F. Debney, R. G. Dennis, P. A. Dobb, J. H. Foxton, A. Greenwood, A. Markey, A. Percival, J. G. W. Pickering, Helen M. Secker, W. Sheffield, Beatrice J. Stephenson, P. H. Tordoff, T. R. Wilson, D. S. Young. (Part II): J. R. Achfeld, T. E. Broadbent, D. Brook, A. B. Dick, A. T. A. Fairweather, H. T. Hardy, D. G. Huntly, E. Hyman, D. J. McCandlish, Marjorie Marquis, Kathleen V. Miller, J. Oulton, C. T. Roberts, C. R. Robson, Dorothy E. Rowling, J. F. Scannell, J. L. Sharp, A. H. Snellam, I. S. Stewart, C. L. Summerfield, A. W. Taylor, J. P. Watson, K. B. Wood.
D.P.H.—R. G. Smithson, E. H. Tomlin, Marjorie M. Wilson.
The William Hey Gold Medal and the West Riding Paed Practitioners' Prize has been awarded to W. M. H. Shaw.

The Services

HONORARY PHYSICIAN TO THE KING

Major-General P. S. Mills, C.I.E., I.M.S., has been appointed Honorary Physician to the King.

EFFICIENCY DECORATION OF THE TERRITORIAL ARMY

The King has conferred the Efficiency Decoration of the Territorial Army upon Lieutenant-Colonel and Brevet Colonel L. H. Taylor, Lieutenant-Colonel W. W. Hallchurch, Major E. E. Lightwood, Major P. Hickey, Major J. Cohen, and Major R. S. Creed.

DEATHS IN THE SERVICES

Colonel PERCY CHARLES HUTCHISON STRICKLAND, Madras Medical Service (ret.), died at Clifton, Bristol, on September 4, aged 75. He was born at Kampti, in the Central Provinces, on August 14, 1863, the son of Captain William George Malcolm Strickland of the 49th Madras Infantry. He was educated at Dulwich College and St. Bartholomew's Hospital, and took the M.R.C.S. in 1886, the L.R.C.P. Lond., and L.S.A. in 1887, and also subsequently the D.T.M. at Liverpool in 1912. Entering the Indian Medical Service as surgeon on October 1, 1887, he attained the rank of colonel on May 25, 1914, and retired on August 19, 1920. He served in the Burma Campaign in 1889, and with the Wuntho Field Force, in the Mogaung Column, in 1891. From 1917 to 1919 he was Inspector-General of Civil Hospitals in Burma. He was a member of the British Medical Association for fifty-one years.

Colonel HENRY FRANCIS CLEVELAND, C.I.E., Bombay Medical Service (ret.), died suddenly at Blackheath on September 17, aged 74. He was born on November 30, 1863, at Bombay, and was educated at University College, London, and took the M.R.C.S. Eng., L.R.C.P. Lond., and the L.S.A. in 1888. He entered the Indian Medical Service as surgeon on September 30, 1889, became brevet colonel on January 1, 1911, colonel on October 1, 1918, and retired on October 25, 1922. He served on the North-West Frontier of India in the campaigns of 1897-8; on the Malakand (medal with clasp), and in Tirah (clasp); in the China War of 1900 (medal); and in the war of 1914-19 in Afghanistan and on the North-West Frontier in 1919, when he was mentioned in despatches in the *London Gazette* of August 3, 1920. He was appointed Deputy Director-General of the Indian Medical Service on November 1, 1916, and from October, 1917, to January, 1918, he officiated as Director-General. He received the C.I.E. on January 1, 1918. He was honorary surgeon to the Viceroy of India from 1913 to 1918. His wife was Kathleen, daughter of the late G. Rodway Swinhoe of Swinton, and he had one daughter.

Lieutenant-Colonel RICHARD HARRIS HALL, R.A.M.C. (ret.), died on July 12, aged 75. He was born at Blackrock, County Cork, on May 26, 1863, was educated at Queen's College, Cork, and graduated as M.D., M.Ch., and M.A.O. in the Royal University of Ireland in 1883. Entering the Army as surgeon on May 30, 1885, he became lieutenant-colonel after twenty years' service, and retired on May 26, 1918. He served in Burma in 1887, and received the frontier medal with a clasp.

Lieutenant-Colonel MATTHEW CORRY, I.M.S. (ret.), died at Hove on September 19, aged 64. He was born on November 10, 1873, and was educated at Edinburgh University, where he graduated M.B., C.M. in 1896. He proceeded M.D. in 1911. For a time he acted as demonstrator of anatomy at St. Andrews University. He entered the Indian Medical Service as lieutenant on January 27, 1900, became lieutenant-colonel on July 27, 1919, and retired on November 10, 1928. Most of his service was spent in the Punjab in civil employ, which he entered in May, 1902, serving as plague medical officer and later as civil surgeon. From May, 1917, to August, 1920, he was on military duty, and after his return to civil work in October, 1920, he was appointed lecturer in midwifery and medical jurisprudence in the medical school at Amritsar. He had been a member of the British Medical Association for thirty years.

Medical News

We are asked by the Medical Insurance Agency to inform the profession, many of whom have made urgent inquiries during the past few days of crisis, that no insurance company will accept any risk arising from air bombardment, etc., in accordance with a decision reached many months ago by a unanimous conference of the offices. Presumably before long—possibly even before this appears in print—the Government will announce its plans (as was done in 1914) for covering these risks. Until that happens the M.I.A. has necessarily no useful information to give.

Parliament reassembled on September 28 for a special sitting to consider the European crisis. The House of Lords adjourned immediately. In the House of Commons Mr. Chamberlain reviewed recent negotiations and announced that he had been invited to meet Herr Hitler at Munich on the following day. The House then adjourned till October 3. No emergency legislation was introduced on September 28, and the only question asked concerned compensation for damage by air raids. Sir John Simon replied that the Government was considering a comprehensive scheme.

In our advertisement columns this week applications are invited by the Royal College of Surgeons of Edinburgh for the post of Conservator of the Museum and Director of Postgraduate Studies, tenable for five years with eligibility for reappointment, at an initial salary of £1,000 per annum.

The seventeenth Annual Congress of Anaesthetists, which will be held in New York from October 17 to 21 during the "Congress of Surgeons' Week," will comprise a joint session of the Associated Anaesthetists of the United States and Canada, the International Anaesthesia Research Society, the International College of Anaesthetists, the Eastern Society of Anaesthetists, and the Mid-Western Association of Anaesthetists. An address will be delivered on the life and work of Sir Frederic Hewitt, and special anaesthesia clinics and laboratory demonstrations will be arranged. One meeting will be devoted to current researches in anaesthesia and analgesia, and the newer methods in anaesthetics will be demonstrated.

The August number of *Discovery* contains a review of Professor A. J. Clark's pamphlet, *Patent Medicines*, and articles on nutrition and vitamins. In the June number there was an article by Professor J. A. Ryle on "The History of Research on Digestion and Pernicious Anaemia." *Discovery* is now edited by Mr. C. P. Snow, Ph.D., and in its new form is an attractive and interesting popular scientific periodical.

Arrangements Cancelled

The annual dinner of St. Mary's Hospital Medical School, announced to be held at Claridge's on October 1, has been cancelled; also the special postgraduate course which was to have been held from September 29 to October 2. It has been decided to cancel the arrangements made for this week end by the Charing Cross Hospital Medical School, which included the prize-giving, annual dinner, and postgraduate course. The annual dinner of St. George's Hospital Medical School arranged for October 1 has also been cancelled, and the old students' dinner of St. Thomas's Hospital Medical School, arranged for October 7.

In present circumstances it has been decided to cancel the Health Conference which was to have been held under the joint auspices of the Department of Health for Scotland and the Ministry of Health at the Empire Exhibition in Glasgow on Friday of this week. The two-day conference of the Central Council for Health Education, which was to have preceded it, has also been cancelled.

The conference of the British Health Resorts Association at Torquay, which was to have opened on Friday, has been postponed.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended September 17, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 17 | 1 | 8 | 1 | — | 10 | 3 | 4 | 1 | — | | |
| Deaths | — | — | 2 | — | — | 3 | 3 | 1 | — | — | | |
| Diphtheria | 1,213 | 159 | 143 | 54 | 28 | 1,308 | 166 | 191 | 44 | 23 | 1,148 | 173 |
| Deaths | 21 | 3 | 2 | — | — | 27 | 6 | 5 | 3 | — | | |
| Dysentery | 40 | 13 | 25 | — | — | 32 | 12 | 11 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Encephalitis lethargica, acute | 6 | 1 | — | — | — | 5 | — | — | — | — | | |
| Deaths | — | — | — | — | — | 1 | — | — | — | — | | |
| Enteric (typhoid and paratyphoid) fever | 45 | 3 | 8 | 11 | — | 39 | 5 | — | 7 | 2 | 60 | |
| Deaths | 5 | — | — | — | — | 2 | — | — | — | — | | |
| Erysipelas | — | — | 44 | 8 | 6 | — | — | 76 | 6 | 3 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Infective enteritis or diarrhoea under 2 years | 56 | 11 | 7 | 7 | 7 | 47 | 9 | 28 | 8 | 7 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Measles | 3 | 2 | 19 | — | — | 3 | 1 | 11 | — | — | | |
| Deaths | — | — | 1 | — | — | — | — | — | — | — | | |
| Ophthalmia neonatorum | 94 | 10 | 35 | — | — | 94 | 7 | 43 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Pneumonia, influenzal† | 445 | 33 | 7 | 1 | 8 | 392 | 30 | 1 | 1 | 2 | 441 | 37 |
| Deaths (from influenza) | 15 | 6 | — | — | 2 | 17 | 1 | 3 | — | — | | |
| Pneumonia, primary | — | 9 | 155 | 4 | 4 | — | 10 | 141 | 4 | 5 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Polio-encephalitis, acute | 7 | 2 | — | — | — | 2 | 1 | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Poliomyelitis, acute | 76 | 7 | 11 | — | — | 54 | 18 | 1 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Puerperal fever | 4* | 4 | 15 | 3 | — | 39 | 8 | 15 | 2 | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Puerperal pyrexia | 171 | 18 | 14 | — | — | 115 | 11 | 30 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Relapsing fever | 1,683 | 131 | 355 | 63 | 73 | 1,868 | 139 | 393 | 65 | 57 | 1,750 | 260 |
| Deaths | 2 | — | 1 | — | — | 4 | 1 | 2 | — | — | | |
| Scarlet fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Typhus fever | — | — | 117 | — | 13 | — | — | 43 | — | 1 | 4 | |
| Deaths | — | — | 4 | — | 1 | — | — | — | — | — | | |
| Whooping-cough | 8 | 1 | 48 | 23 | 9 | 12 | 5 | 67 | 30 | 18 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Deaths (0-1 year) | 289 | 46 | 48 | 23 | 9 | 277 | 39 | 67 | 30 | 18 | | |
| Infant mortality rate (per 1,000 live births) | 48 | 38 | — | — | — | 47 | 32 | — | — | — | | |
| Deaths (excluding stillbirths) | 4,100 | 786 | 510 | 154 | 119 | 3,753 | 707 | 591 | 171 | 115 | | |
| Annual death rate (per 1,000 persons living) | 10.1 | 10.0 | 10.4 | 10.4 | 10.5 | 9.3 | 8.9 | 12.1 | 11.7 | 10.2 | | |
| Live births | 6,230 | 1,118 | 763 | 387 | 209 | 6,318 | 1,217 | 884 | 290 | 215 | | |
| Annual rate per 1,000 persons living | 15.3 | 14.2 | 15.5 | 26.2 | 18.5 | 15.6 | 15.3 | 18.1 | 19.8 | 19.1 | | |
| Stillbirths | 250 | 31 | — | — | — | 253 | 40 | — | — | — | | |
| Rate per 1,000 total births (including stillborn) | 39 | 27 | — | — | — | 39 | 32 | — | — | — | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

EPIDEMIOLOGICAL NOTES

Acute Poliomyelitis

Notifications for poliomyelitis in England and Wales were 76, an increase of 3 on the previous week, and in London 7, representing an increase of 2. Notifications of more than one case were reported from: Portsmouth 4, and 2 each from Aberayron, Accrington, Braintree (Rural 1), Hull, Ipswich, Leamington, Leyton, Llandilo, Ruthin, and Veninor. The 7 London cases were distributed thus: Hackney, Hammersmith, Wandsworth, 2 each, Islington 1. During the four-week period ended September 10 the number of cases notified of poliomyelitis and polio-encephalitis was 313 compared with 221 for the previous four-week period and 167 for the corresponding period last year. In Germany during the week ended September 3, 365 cases were reported as against 319 in the previous week. The areas chiefly affected were: Cologne district 112 (89), Wiesbaden district 23 (15), Frankfurt district (Prussia) 15, Württemberg 47 (55), Bavaria 31 (18), Saxony 24 (19). In Holland a decline of poliomyelitis was observed in the week ended September 10; from 67 to 58 for the whole country, and from 37 to 31 in the Province of South Holland. Five cases were reported from the Hague district, 6 in Rotterdam district, and 4 in Waddinxveen district (South Holland).

Enteric Fever

In England and Wales notifications of enteric fever increased from 36 to 45, and deaths in the 126 Great Towns rose during the week from 4 to 5. More than one case was notified in: Coventry 10 (1), London 3 (2)—Stepney 2, Woolwich 1—and 2 each in Liverpool, Preston, and Whitstable.

Diphtheria and Scarlet Fever

Diphtheria continues to increase in prevalence in England and Wales, while a slight decline was noted in Scotland during the week. The chief centres in which increases were recorded are: London 159 (146), Birmingham 36 (31), Easington 18 (0), South Shields 16 (15), Prescott 13 (2), Cardiff 12 (8), Stoke 12 (6), Plymouth 10 (3). A small rise in notifications of scarlet fever in England and Wales, 1,683, as against 1,625, in which London has shared, 131, as against 121, has been recorded for the week. Noteworthy increases were: Sheffield 31 (19), Leeds 36 (32), Nottingham 24 (17), Cardiff 14 (9), Carlisle 13 (7), Portsmouth 13 (11), Heston and Isleworth 10 (5).

Measles and Whooping-cough

Three deaths from measles were recorded in the 126 Great Towns of England and Wales, compared with 5 in the previous week, 2 in London and 1 in Nottingham. In Scotland notifications fell from 37 to 19, the chief centres affected being Glasgow 11 (12), Dundee 4 (6), and Kirkcaldy 3 (3). Of the 8 deaths from whooping-cough in the 126 Great Towns one occurred in each of the following: London, Barnsley, Blackburn, Bradford, Gateshead, Newcastle, Sheffield, Walsall. In Scotland a considerable fall in notifications was recorded; 117 compared with 232, but 4 deaths (all in Glasgow) represented an increase of 1 over the previous week.

Cholera

A report from one of the League of Nations anti-cholera units in China states that in the Hunan Province during the first eight months of 1938 there were 4,080 cases with 1,764 deaths. During June and July 16,805 cases with 6,103 deaths were reported in Eastern Kwantung, chiefly in Chaoyang district 5,063, Lufong 4,454, and Haifong 624. The southern part of the Kwantung Province suffered less, as shown by a decline in the figures for Canton, Macao, and Hong Kong. Cholera has appeared in Inritsu, about 190 miles east of Dairen, and has spread to towns and districts to the north-east. By September 17, 35 cases with 20 deaths had been recorded. In British India the disease continues to decline. In the Central Provinces, which was the chief centre affected, there were reported for the week ended September 17 5,295 cases with 1,794 deaths, compared with 5,486 cases and 2,361 deaths in the previous week.

Plague

The incidence of plague in British India has fallen considerably compared with recent years. The fall was particularly marked in the Central Provinces (12,611 in 1936-7 to 5,477 in 1937-8), and in the United Provinces 10,684 to 5,253, which were the principal foci of the disease, representing 46 per cent. of the total for the whole of India including Burma. In Burma a small increase is recorded, 2,845 compared with 2,503, mainly due to the epidemic of January and February of this year. In Manchuria from May 1 to August 31 a total of 286 cases with 228 deaths was recorded. The areas chiefly affected and in which spread has occurred since the beginning of the autumn are: Ch'angling Prefecture, Kirin Province, 72 cases, 63 deaths; Kuorhlossu Banner, Kirin Province, 52 cases, 42 deaths; K'ai'ung Prefecture, Fengtien Province, 46 cases, 24 deaths.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Treatment of Buccal Ulcers

Dr. R. E. ISAAC (Whetstone, N.) writes: I would be grateful for suggestions for treatment in the following case. A married woman, age 32 years, has had ulcers in the mouth for two years. Blood count originally showed a very slight secondary anaemia, but is now normal after treatment with iron, campolon, and anahaemin. All teeth have been extracted. Local treatment already tried includes applications of carbolic acid, copper sulphate, silver nitrate, glycerin, tannic acid, resorcin in glycerin, and mouth washes of all types, of which dettolin gives most relief.

Regression after Psycho-analytical Treatment

"J. D." would like to hear of any experience doctors may have had with persons who have undergone Freudian psycho-analysis and in whom regression has occurred, so that they have lapsed back into their former state.

Wasp Stings

"A. H. D." writes: Can any form of inoculation be given against wasp stings? The case is that of a woman working in a fruit shop, who, if stung by a wasp anywhere, collapses immediately. I have seen her in this state, unconscious, almost pulseless, and with every sign of profound shock. As she is always liable to stings she naturally wishes to know whether anything can be done to render her immune. I would be grateful for any suggestions.

Treatment of Superficial Glossitis

Dr. C. A. HUGHES (Liverpool) writes: In answer to the query of "O. M. N." (*Journal*, September 10, p. 604) I would advise that the surface areas on the tongue or inside the mouth, wherever sore, be dabbed often during the day with pellets of cotton-wool soaked in the following: glycerin boracis, 1 oz.; tinct. myrrhae, 1 drachm; with liq. hydrarg. perchlor. to 2 oz.

Cleaning Slides for Blood Films

Dr. B. R. SANDIFORD (Cairo) writes in reply to "J. S. M." (*Journal*, August 27, p. 480): May I say that there is only one really efficient method of cleaning slides—namely, taking the slide between forceps and roasting it well in the Bunsen flame. The efficacy of this or any other method may be simply tested by observing the ease with which a loopful of water spreads on the slide.

Dr. ALISTAIR FRENCH (Greenford) writes in reply to "J. S. M." (*Journal*, August 27, p. 480): May I suggest a brisk rub with a piece of tissue paper and a spot or two of (methylated) ether. Incidentally, the uses of the latter in the surgery are manifold. (1) It is invaluable for cleaning dirty wounds, being a grease solvent, a vasodilator—thus increasing bleeding and washing dirt out of the wound—and an antiseptic. (2) As a rubber solvent it will remove rubber adhesive plaster, elastic or otherwise, without pain, and prevents dirty sticky marks being left on the skin. (3) It will dissolve the sebaceous grease on the skin, and thus facilitates the treatment of boils, etc., with elastoplast, and increases the rate of absorption of any drug given by inunction (also by its vasodilator effect). (4) It is the best skin sterilizer for use before vaccination or hypodermic injection.

Sensitivity to Sunlight

Dr. IVOR RADNOR (Birmingham) writes: I read with interest the annotation on sensitivity to sunlight in the *Journal* of August 27. Could anyone tell me of any treatment for a person who is very sensitive to solar rays and dare not be exposed to the rays of the sun in the summer?

Treatment of Pruritus Ani

"J. M." writes: I have a patient, a male, who is suffering from pruritus ani, which is quite unaffected by local applications. I have tried injections of novocain without success. I am contemplating the injection of 95 per cent. alcohol, but before undertaking this I would be grateful for any suggestions as to recent successful forms of treatment.

Control of Bulimia

Dr. NORA L. KEEVIL would be grateful for suggestions as to treatment of the following case: A man of 75 who is now in an advanced stage of paralysis agitans has, apart from the usual symptoms, developed a persistent and most distressing feeling of hunger, following an attack of shingles three months ago. Every type of antacid has been tried, as well as glucose D, charcoal, barley sugar, codeine, pilocarpine, atropine, etc., but he is still obliged to eat every carpine, atropine, etc., but he is still obliged to eat every one and a half hours throughout the day, and at least two or three times during the night.

Income Tax

Stock of Materials, Drugs, etc.

"R. B. R." explains that the inspector of taxes dealing with his firm's liability is pressing for an annual valuation of "all materials, drugs, and instruments" belonging to the firm, and asks whether such a request can be enforced.

** So far as the calculation of the year's earnings is concerned the valuation of the stock of drugs, etc., will not affect the result except to the extent to which the valuation varies from year to year. If, for instance, the valuation varies from year to year. If, for instance, the stock goes up by £100 it implies that during the past year £100 more has been deducted as an expense than was incurred in earning the profits of that year, and of course the converse must have occurred if the stock has gone down. If, therefore, our correspondent is in a position to show, or at least to affirm, that the practice stock remains more or less at a constant figure, we think that the inspector of taxes might waive his request, or, alternatively, that he would not be supported therein if "R. B. R." appealed to the Commissioners—local or special—on the point.

LETTERS, NOTES, ETC.

Medical Evidence at Inquests

Dr. J. B. ALEXANDER (London, E.17) writes: The letter of Dr. A. Lankester and Dr. I. J. Davis in the *Journal* of September 10 (p. 596) have stimulated me to record my somewhat similar experience. I had been treating a middle-aged woman for some months for extreme depression. One afternoon I received an urgent call to her house, and found the house full of gas and the patient lying on the scullery floor. The door of the gas oven was open, but the husband had turned off the gas. I sent him to fetch a policeman, opened all the windows and doors, dragged the woman into another room, and administered artificial respiration for nearly half an hour, assisted some of the time by oxygen supplied by the local fire brigade. My efforts, however, were ineffective. The next morning the coroner's officer rang me up for brief particulars of the woman's past and of the circumstances of her death. That is the last I heard of the business. The local press gave a full account of the inquest, at which the policeman took the entire credit for all the efforts at resuscitation. I was not mentioned.

Dr. MEYER J. LANGE (London, S.E.1) also writes: I was resident at a Croydon hospital over a period of two years, during which time I saw a considerable number of patients brought in dead or dying very soon after admission. In the majority of these death was obviously due to natural causes, such as cardiac failure, cerebral haemorrhage, etc. In these cases the house officer concerned, who examined the case and certified death and in addition notified the coroner, was never even requested to attend the inquest. Often the body was removed to a neighbouring institution, where the necropsy was performed by an "outside" medical man. Subsequent information was gleaned from the local newspaper. The only occasions when the house officer was asked to perform the post-mortem examination or attend the inquest were in connexion with accident cases, where death was due to multiple injuries. Night I add that a competent full-time pathologist was attached to the hospital, who was always most willing to give advice and assistance in the post-mortem room.

Blood Transfusion Service

The annual report of the Blood Transfusion Service, 1937, records a considerable increase in the number of calls during the last four months of the year. During this period there were 2,018 calls, comparing with 1,683 for the corresponding months of 1936. An analysis of the net cost per case is of interest. The total figure of eight shillings per case is made up as follows: donors' expenses, 10d.; and sixpence is made up as follows: donors' expenses, 10d.; and salaries and insurance, 2s. 7d.; office rent, lighting, and heating, 4d.; printing, postage, telephones, and telegrams, 1s. 5d.; research work, 2s.; cost of sera, bandages, propyls, and miscellaneous, 1s. 3d. An International Congress, attended by representatives of twenty-two nations, was held at Paris in September-October. Useful contacts were made with foreign delegates, and in several cases an interchange of forms and publications was arranged. Problems of blood transfusion and storage aroused especial interest, but it is stated that little practical information was obtained. The method in vogue in the U.S.S.R. of extracting blood from freshly deceased cadavers was described to the congress; also the technique of extraction from living donors in Spain, where it is the practice to mingle the blood of six different persons in order to "average out" minor individual incompatibilities. The report deprecates the sensational manner in which the subject of blood transfusion is treated by a large section of the lay press. This is said not only to impede recruiting of donors but also to deter friends and relatives of patients from giving consent to the operation. Among captions quoted are "Curate gives health for child," "Blood donor dies in poverty," "Policemen become anaemic through giving blood," and "Saved life—lost job."

Faecal Impaction

"ROBERTO" writes with reference to recent letters on faecal accumulation in the rectum: The injection of an ounce of 10 vol. peroxide of hydrogen, by disintegrating the scybala and by rapid increase in gaseous volume, gives sometimes wondrous relief. *Experto crede.*

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Bulletin of the Johns Hopkins Hospital

Baltimore vol. 62 June, 1938

*Observations concerning Toxicity, Absorption, and Therapeutic Effect of Sulphanilamide and Certain Related Organic Sulphur-containing Compounds in Experimental Infections in Mice. W. H. Feinstein, E. A. Bliss, E. Ott, and P. H. Long.—p. 565.

*Occurrence of Pharyngeal Infections in Exophthalmic Goitre. John T. King.—p. 593.

Researches on Tetanus: VIII. At what Point in Course of Tetanus does Anti-tetanic Serum save Life? J. J. Abel and W. Chalian.—p. 610.

Sulphanilamide and Related Compounds.—As the result of their experiments the authors of this article conclude that sulphanilamide is from all points of view the most suitable compound for the treatment of haemolytic streptococcal and meningococcal infections in human beings. It is of doubtful value in pneumococcal and staphylococcal infections.

Pharyngeal Infections in Exophthalmic Goitre.—King pleads that the once-popular "infection" theory as to the causation of exophthalmic goitre should not be forgotten. He has never seen the disease cured by tonsillectomy, but believes that this procedure helps to prevent recurrences.

Deutsche Medizinische Wochenschrift

Berlin vol. 64 July 15, 1938

Results of Insulin Depot Treatment. F. Umber.—p. 1025.

*Demonstration of Normal and Morbid Tooth Structures in Polarized Light and its Import for General Medicine. F. Proell.—p. 1028.

Development of Epilepsy after Malaria. W. Mebr.—p. 1030.

Inhibition of Ovarian Function under Hormone Influences. E. Colombo.—p. 1034.

Filter-paper Manoeuvre in Flocculation Reaction in Syphilis: II. K. D. Guo.—p. 1035.

Lumbar Anaesthesia in Gynaecology and Obstetrics with "Dry Decalin" (Bayer). R. Hellmann.—p. 1037.

Congenital Hypoplasia of Thumb F. R. Hayd.—p. 1041.

Gonococcal Sepsis cured by Uleron. K. W. Scholze.—p. 1042.

Heparin in Blood Transfusion. J. Clemens.—p. 1043.

"Exin" in Subacute and Chronic Inflammatory Conditions of Urinary Tract. J. G. Becker.—p. 1045.

High Court Medico-legal Judgments in 1937. Faech and Trembur.—p. 1046.

Hospital, Doctor, and Taxation. K. Wuth.—p. 1048.

Significance of Collective Gymnastics in Hospital. F. Perold.—p. 1049.

Polarized Light on Teeth.—The structure of the teeth, as demonstrated by the technique the author describes, gave him valuable indications as to the influence of various diets on the teeth of rats.

Edinburgh Medical Journal

Edinburgh vol. 45 July, 1938

Natural Chemical Stimulators. Sir Henry Dale.—p. 461.

Reaction of Urine in Disease and in Treatment. D. M. Lyon.—p. 461.

Debatable Tumours in Human and Animal Pathology: V. Giant-cell Tumours of Bone. E. K. Dawson, J. R. M. Innes, and W. F. Harvey.—p. 491.

Effect of Reticulo-endothelial Blockade on Natural Antibodies and Natural Immunity Reactions. S. Thomson.—p. 505.

Intrapleural Division of Adhesions in Pneumothorax Treatment of Pulmonary Tuberculosis. B. M. Dick.—p. 518.

Abdominal Symptoms in Cardiac Disease. W. T. Ritchie, J. A. G. Burton, J. Fraser, and J. H. Wright.—p. 134.

*Anaemia in Pregnancy and Puerperium. E. M. K. Stevenson.—p. 81.

Anaemia in Pregnancy and Puerperium.—This paper records an investigation of one hundred cases of anaemia occurring during pregnancy and the puerperium. The author considers that the existing literature fails to emphasize the frequency and importance of anaemia as a complication of pregnancy and the puerperium. Thirty of the cases were of the "pernicious" type. Expectant treatment of this type of case is dangerous. Cure is brought about by the administration of liver, and maintenance treatment is usually unnecessary. The recognition and treatment of this anaemia in the early stages will save some patients from becoming chronic invalids, and may actually prevent a fatal issue.

Journal of the American Medical Association

Chicago vol. 111 July 16, 1938

Clinical Research in Private Practice. W. Johnson.—p. 215.

Sites of Metastases from Carcinoma of Anus, Rectum, and Sigmoid Colon. H. Bacon and P. Gilbert.—p. 219.

Thrombocytopenic Substance in Extract from Spleen of Patients with Idiopathic Thrombocytopenic Purpura that reduces Number of Blood Platelets. C. Troland and F. Lee.—p. 221.

Use of Sulphanilamide in Diagnosis and Treatment of Brucellosis. H. Welch, J. Wentworth, and F. Mickle.—p. 226.

Lateral Pylorogram as Diagnostic Aid in Perinephric Abscess. J. Menville.—p. 231.

Fibrous and Fatty Replacement of Renal Parenchyma. L. Roth and J. Davidson.—p. 233.

Vitamin A. H. Munsell.—p. 245.

Klinische Wochenschrift

Berlin vol. 17 July 16, 1938

Review of Leukemia. J. Engelbreth-Holm.—p. 993.

General Condition of Patients Suffering from Silicosis. G. Schlemke, K. Naumann, and A. Bechtel.—p. 999.

Conditions Determining Development of Muscular Dystrophy. K. Kuré and K. Ohshima.—p. 1003.

Effect of β -phenylisopropylamine Sulphate (Benzedrine, Actedron) under Normal and Pathological Conditions. T. v. Lehoczy.—p. 1006.

Influence of Stasis in Lower Extremities on Vital Capacity of Lungs. G. Budelmann.—p. 1009.

Pathological Exertion Electrocardiogram in Children. P. Laurentius.—p. 1011.

Production of Ascorbic Acid Deficiency in Animals by Intravenous Injection of Colloidal Silver Chloride. T. Bersin, S. Raabe, and H. J. Lauber.—p. 1014.

*Treatment of Simmonds's Disease. G. Straube.—p. 1016.

Dietetic Treatment of Obesity. R. Bolter.—p. 1018.

Simple Colorimetric Determination of Carbon Monoxide Haemoglobin. H. Oetzel.—p. 1019.

Treatment of Simmonds's Disease.—The administration of anterior pituitary hormone alone had no effect; the addition of posterior pituitary hormone stopped further loss of weight. Complete recovery followed after a further addition of suprarenal hormone.

Lancet

London vol. 2 July 16, 1938

Diabetes Mellitus: Survey of Changes in Treatment during Last Fifteen Years. H. G. Graham.—p. 121.

Acute Appendicitis treated by Operation. C. C. Holman.—p. 126.

Acute Appendicitis treated by Immediate Operation. I. Ald.—p. 127.

*Hepatin and Coronary Thrombosis in Experimental Animals. D. Y. Solandri and C. H. Best.—p. 130.

Post-partum Necrosis of Anterior Pituitary: Effect of Subsequent Pregnancy. H. L. Sheehan and R. Murdoch.—p. 132.

Sudden Appearance of Senility after Accident. A. P. Thomson.—p. 135.

Chemotherapeutic Experiments on Virus of Lymphogranuloma Inguinale in Mouse. F. O. MacCallum and G. M. Findlay.—p. 136.

Multiple Intussusceptions caused by Secondary Melanomata. H. S. Kander.—p. 139.

Herna into Hartmann's Inferior Ileo-caecal Fossa. J. A. Maxwell Cameron.—p. 140.

Heparin and Coronary Thrombosis.—A method of inducing coronary occlusion by thrombus formation in dogs is described; this and the resulting infarction could be prevented by the administration of highly purified heparin in large amounts. The difficulties in the application of such experimental results to clinical treatment are discussed.

Medical Journal of Australia

Sydney vol. 1 June 11, 1938

Anaesthesia in Pulmonary Tuberculosis. G. Brown.—p. 955.

Experiences with Pentothal Sodium. G. Brown and G. Troup.—p. 959.

Cyclopropane Anaesthesia. S. V. Marshall and H. J. Daly.—p. 990.

Sydney vol. 1 June 18, 1938

Spinal Arachnoiditis. E. G. Robertson.—p. 1044.

Infant Hercules Type of Adrenogenital Syndrome. L. Dods and R. Jeremy.—p. 1047.

- Method of instilling Zinc Sulphate Solutions in Anterior Poliomyelitis. E. Gutteridge.—p. 1050.
Results of Investigation of Reflex Epilepsy. I. M. Allen.—p. 1052.
The Unsatisfactory Child. L. Male.—p. 1055.
Persistent Benign Meningococcal Bacteriæmia. C. G. Lambie.—p. 1058.

Medizinische Klinik

Berlin vol. 34 July 15, 1938

- Psychasthenic Personalities. H. Riedel.—p. 925.
Mental Sequelae following Head Injuries. H. W. Grubbe.—p. 928.
Myasthenic Manifestations and their Relation to Endocrine System: I. W. C. Meyer.—p. 930.
Treatment of Recurrences after Operation for Gastric and Duodenal Ulcer: I. H. Finsterer.—p. 933.
Treatment of Wounds with "Dextromon." G. Vogt.—p. 936.
Is Goat's Milk Harmful to Babies? K. Schwartz.—p. 937.
Suppurating Streptococcal Lymphadenitis in Twins. S. von Nida.—p. 939.
General Directions for Estimation of Incapacity in Panel Practice. E. Oldmeyer.—p. 940.
Diseases of Aorta and their Treatment. H. Kochslein.—p. 942.

Artificial Feeding with Goat's Milk.—According to Schwartz goat's milk has proved definitely inferior to cow's milk in the artificial feeding of babies.

Medizinische Welt

Berlin vol. 12 July 16, 1938

- Adrenals and the Circulations. S. Thadden.—p. 1019.
Significance of Uterin in Treatment of Gonorrhoea. A. Stillmer.—p. 1025.
Diagnosis of Chronic Inflammatory Rheumatism of Spine. H. Hennes.—p. 1031.
Dangers of X-Ray Controls of Early Infiltrates in Lungs limited by Periodic Examinations. H. Ziegler.—p. 1034.
Modern Indications for Suction Treatment. R. Katz.—p. 1034.

Münchener Medizinische Wochenschrift

Munich vol. 85 July 15, 1938

- Bullous Dermatitis in Harems. W. Krantz.—p. 1057.
Menstrual Disturbances in Genital Infantilism and Observations on Incidence of Hypoplasia in Tübingen. K. Klöppner.—p. 1060.
Isolated Thrombopenia in Chronic Benzol Poisoning. B. Kern.—p. 1062.
Rectal Infusion of "Vital Serum" in Tuberculosis. G. Kalle.—p. 1064.
Prophylaxis of Embolism and Thrombosis. R. Vorster.—p. 1066.
Fluorescent Staining of Tubercle Bacilli with Auramin. K. H. Hagemann.—p. 1066.
In which Stage of Cervical Carcinoma do we wish to make a Clinical Diagnosis? H. Hinselmann.—p. 1071.
Distribution of Pathological Process in Central Nervous System in Heine-Medin's Disease. G. Peters.—p. 1073.
X-Ray Diagnosis of Foci of Dental Infection. W. Praeger.—p. 1076.
Necessity for Repeated X-Ray Examinations in the Late Manifestations of Bronchogenous Tuberculous Infection. H. Bartsch and S. Zollner.—p. 1078.

Nature

London vol. 141 July 16, 1938

- Antarctica and Glacial Ages. E. W. MacBride.—p. 97.
Formation of Milk. A. H. W. Allen, jun., and G. Hevesy.—p. 111.
New Phosphoric Ester Isolated from Products of Yeast Juice Fermentation. R. Robison, M. G. Macfarlane, and A. Tazelaar.—p. 114.
Oxygen Transport with Fully Reduced Arterial Haemoglobin in Human Being. R. Brinkman and J. H. P. Jonxis.—p. 115.
Sugar Content of Hormones of Pituitary Anterior Lobe and of Gonadotropic Hormone from Pregnancy Urine. M. Hartmann and F. Benz.—p. 115.

New England Journal of Medicine

Boston vol. 219 July 14, 1938

- Further Experiences with Regional Enteritis. C. G. Mixer and Arnold Starr.—p. 37.
Placental Transfer of Sulphanilamide. R. H. Barker.—p. 41.
Progress in Gastro-enterology in 1936 and 1937. E. S. Emery.—p. 42.

Placental Transfer of Sulphanilamide.—Sulphanilamide given to pregnant women shortly before, or during, labour is absorbed in the gastro-intestinal tract and passes readily through the placenta to appear in almost equal concentrations in maternal and foetal venous bloods.

Policlinico

Rome vol. 45 July 11, 1938 (Sez. Prat.)

- *Rare Sites of Acute Osteomyelitis from Common Pyogenic Organisms. A. Casini.—p. 1305.
Case of Fistula between Gall-bladder and Duodenum. G. Ricci.—p. 1314.

Acute Osteomyelitis.—Three cases of acute osteomyelitis are described, affecting respectively the patella, ninth rib, and anterior superior iliac spine and due to *Staphylococcus aureus*. In all a furunculosis and a definite local trauma preceded the condition. The special difficulties in diagnosis and treatment of such cases are discussed.

Rome vol. 45 July 18, 1938 (Sez. Prat.)

- Problems of Articular Pathology. V. Chini.—p. 1349.
Pleural Empyema following Typhoid Fever. L. Supino.—p. 1359.

Presse Médicale

Paris vol. 56 July 13, 1938

- Mechanism of Action of Male Hormones in Prostatic Hypertrophy. Ch. Champy, Heitz-Boyer, and R. Coujard.—p. 1097.
Sore Throats in Diphtheria Carriers. J. Paraf and P. Boulenger.—p. 1101.
Acute Post-operative Ileus cured by Spinal Anaesthesia Alone. T. Asterades.—p. 1103.

Paris vol. 57 July 16, 1938

- Treatment of Cerebrospinal Meningitis by Serum and by Sulphanilamide in French Nigeria. G. Muraz, H. Chirle, and A. Quéguiner.—p. 1113.
Massive Collapse of Lungs in Course of Primary Pseudo-membranous Bronchitis. J. Rakower.—p. 1116.

Schweizerische Medizinische Wochenschrift

Basle vol. 68 July 16, 1938

- Chemistry of Thyroid Hormone. I. Abelin.—p. 803.
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Protein Metabolism during Muscular Exertion as Affected by Diet and Hyperthyroidism. L. Asher and S. Goldstein.—p. 804.
Metastases Leading to New "Essential" Disease. M. Askanazy.—p. 809.
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Therapeutic Significance of So-called Subthreshold Doses. E. Bürgli.—p. 812.
Fight against Götze in Netherlands. R. de J. de Jong.—p. 813.
Causation of Acute and Chronic Non-purulent Thyroiditis. F. de Quervain.—p. 815.
Significance of Precedent Conditions in Accidental Injuries to Spine. M. Dubois.—p. 817.
Pathogenesis of Endemic Cretinism: Observations in Mothers of Cretins. J. Euster.—p. 820.
Diagnosis of Graves' Disease at Post-mortem Examination. T. Fahr.—p. 821.
Aneurysm of Temporal Artery. M. Feurer.—p. 822.
Concerning Diagnosis "Cardiac Enlargement." W. Frey.—p. 823.
Nervous Complications in Mumps. E. Glanzmann.—p. 825.
Connections between Chemical Constitution, Trypanocidal, and Neurotoxic Activity of Aromatic Arslato Acids. E. A. H. Friedhelm.—p. 826.
Occlusion of Mesenteric Vessels with Intestinal Gangrene during Pregnancy. H. Guggisberg.—p. 829.
Histogenesis of Brenner Tumours and Pseudomucinous Cysts. E. Heij.—p. 831.
Conception of Inflammation in Disease Concepts. K. Helly.—p. 833.
Effect of Adrenaline on Thyroid. F. J. Lang and T. Wense.—p. 834.
Three Cases of Endemic Deaf-dumbness. E. Lüscher.—p. 835.
Pulmonary Embolus after Esmarch's Bandage. H. Matti.—p. 838.
Sclerosis of Pulmonary Artery. L. Michaud.—p. 840.
Resistance against Eczema and Pyogenic Infection in Allergic Urticaria, Lichen Ruber, and Psoriasis. O. Naegeli.—p. 841.
Foetal Iron Supply. W. Neuweiler.—p. 843.
Fat Embolism in Newborn. J. L. Nicod.—p. 845.
Reduction and Retention in Apposition of Fractures of Lower End of Radius. C. A. Pettavel.—p. 846.
Congenital Deficiency of Parathyroid. R. Russle.—p. 848.
Pseudomyxoma Peritonei. F. Roulet.—p. 849.
Pulmonary Nodule of Thyroid-like Tissue. E. Rutishauser.—p. 852.
Periarticular "Rheumatism." H. Schær.—p. 854.
Skeletal Participation in Corporeal Mineral Metabolism. M. B. Schmidt.—p. 856.
Importance of Test Material in Testing and Judging Sterilizing Machines. G. Sobernheim and O. Mündel.—p. 858.
Giant Calculeus of Posterior Urethra. F. Stoccarda.—p. 859.
Experimental Production of Sarcoma by Radium and Mesothorium. E. Uehlinger and O. Schürch.—p. 860.
Traumatic Rupture of Chordae Tendinae of Mitral Valve with Lethal Moral Incompetence. A. v. Albertini.—p. 861.
D. subpestifer Infection in Man. H. v. Meyenburg.—p. 863.
Disturbances of Growth in Young Cretins and their Treatment by Thyroid Gland Substance. Wagner-Jauregg.—p. 865.
Formation and Significance of Nuclear Glycogen in Liver. B. Walther.—p. 866.
Significance of "Nervous and Muscular Faradic Inexcitability." E. M. Walther.—p. 867.
Lymphogranulomatosis as Seen in Basle in Necropsy Cases from 1922-34. Werthemann.—p. 868.
Spontaneous Disintegration in Vesical Calculi. H. Wildhirt.—p. 873.
So-called Free Interval. H. Zanger.—p. 875.

Endemic Deaf-dumbness.—Microscopical examination of the temporal bones from three deaf-and-dumb Swiss patients—

being a cretin and two goitrous—showed pathological features affecting almost exclusively the middle ear, with conspicuous increase in the size of the periotic labyrinthine capsule, partial or complete occlusion of the niche of the round window, and other lesions, which are described in detail. The cochlea and internal ear as a whole were little changed, or were normal.

Sclerosis of Pulmonary Artery.—On the basis chiefly of four non-congenital cases recently studied Michaud discusses the pathogenesis of primary sclerosis and of the variety which is superimposed on morbid cardiac or pulmonary conditions. The results of tests of pulmonary function in three cases are described. In one case necropsy revealed a purely fractional dilatation, although clinical, tomographic, and other findings had pointed decidedly to an organic sclerosis.

Lymphogranulomatosis in Basile.—The cases numbered thirty-seven. The localization and mode of spread are analysed and the haematological findings reported. Diagnosis at present must be based on histological examination, repeated in early or doubtful cases. Diagnosis of Hodgkin's disease by exclusion is not justified, and the designation "atypical lymphogranulomatosis" is valueless and confusing.

Science

New York vol. 88 July 15, 1938

Some Chemical Aspects of the Cancer Problem. C. Voegelin.—p. 41.
Transmissible Lysins in Water Extracts of Seeds. R. C. Thomas.—p. 56.
Chromoproteins of Photosynthetic Purple Bacteria. C. S. French.—p. 69.

New York vol. 88 July 22, 1938

Zoological Sciences in the Future. F. R. Lillie.—p. 65.
Effect of Astenic on Toxicity of Scleritous Grains. A. L. Moxon.—p. 81.
Electrophoresis Experiments with Egg Albumens and Haemoglobins. K. Landsteiner, L. G. Longworth, and J. van der Scheer.—p. 83.
Determination of Sulphanilamide. E. K. Marshall, jun., and J. T. Lichtfield, jun.—p. 85.
Inducing "Dormancy" in Potato Tubers with Potassium Naphthalene-acetate and Breaking it with Ethylene Chlorohydrin. J. D. Guthrie.—p. 86.

South African Medical Journal

Capetown vol. 12 July 9, 1938

History of Medicine. P. W. Laidler.—p. 453.
*New Radium Treatment. J. van Rooyen.—p. 457.
Discussion on J. van Rooyen's Paper. H. N. Krige.—p. 462.
Notes on Milk-borne Typhoid Outbreak. D. Landau.—p. 463.
District Surgeon and Public Health. J. H. Rauch.—p. 465.
Treatment of Fracture of Femoral Neck by Lippmann's Corkscrew Bolt. C. G. L. van Dyk.—p. 475.
Prevention of Toxicity in Treatment of Syphilis. L. F. Freed.—p. 477.

SPECIAL JOURNALS

Acta Paediatrica

Uppsala vol. 28 June 30, 1938 Fasc. 4

Dental Caries in White Rat due to Changes in Acid-base Conditions of Organism: Role of Variations as Determining Factor in Dental Caries (Ft.). S. Forslund.—p. 409.
"Summer Diarrhoea" in Children in Ankara (Ger.). A. Eckstein.—p. 431.
Clinical Manifestations of Intramural Diverticula of Small Intestine (Ger.). A. Normark.—p. 475.
Glycozgenesis (Eng.). F. Karlström.—p. 497.
Treatment of Severe Pneumonia in Infants (Ger.). S. Wolff.—p. 523.
Total Hemi-hypertrophy and Hemi-atrophy and Spontaneous Gangrene of Extremities in Infants (Ger.). H. L. Kottmeier.—p. 530.

American Journal of Diseases of Children

Chicago vol. 56 July, 1938

*Vitamin A, Carotene, and Vitamin C Content of Canned Milk. O. Neulemans and J. H. de Haas.—p. 14.
Hepatomegaly in Juvenile Diabetes Mellitus Treated with Pancreatic Extract. H. G. Grayzel and L. S. Radwin.—p. 22.
Size of Heart in Healthy Children: Reentgen Measurements of Cardiac Area and Transverse Diameter in Sixty-seven Children between Birth and Age of Six Years. M. M. Marsh and A. H. Washburn.—p. 33.
Basal Metabolism of Undernourished Girls. F. B. Talbot.—p. 61.

New Radium Treatment.—The author describes a new method of radium treatment to produce large homogeneous fields of gamma radiation of sufficient intensity with only moderate quantities of radium. Radium is intimately mixed with a heavy metal and formed into plaques of various shapes, according to the part under treatment. It is anticipated that treatment of cancer in various organs will be possible without producing any changes in the skin other than minor reactions, and that no operative treatment will be necessary.

Capetown vol. 12 July 23, 1938

Rheumatic Disease. N. Finn.—p. 467.
Prognosis in Heart Disease. H. F. Bell Walker.—p. 491.
Mixed Diagnosis in Uterus. R. Campbell Beag.—p. 501.
Case of Disseminated Sclerosis. S. du T. de Wet.—p. 505.
Case of Spina Bifida. M. Greenberg.—p. 505.

Ugeskrift for Læger

Copenhagen vol. 100 July 14, 1938

*Investigation of Aetiology of Epidemic Hepatitis. T. Thomsen Andersen.—p. 777.
Some Cases of Cancer of Uterus examined by Hystero-graphy, with Reference to their Suitability for Radium Treatment. B. Nielsen.—p. 790.
Two Cases of Lympho-epithelioma in Nasopharynx. V. H. Fancé.—p. 795.

Epidemic Hepatitis.—This epidemiological and experimental study of epidemic hepatitis in Denmark has convinced the author that this disease is a parenchymatous inflammation of the liver common to man and the pig and communicable from pig to man. More stringent precautions, referable to this disease, with regard to the sale of pork are therefore indicated.

Wiener Klinische Wochenschrift

Vienna vol. 51 July 15, 1938

Pathological Anatomy of Pathology. A. Friesel.—p. 749.
Early Haematological Diagnosis of Typhoid. K. Noell.—p. 750.
"Vozanin" Injections in Treatment of Fertile Uter. K. Spitz.—p. 753.
Treatment of Obesity. R. Böller.—p. 757.
Haematemesis in Isolated Hern as Cause of Cystic Formation and Menstruating Fistula in Abdominal Wall. L. Knaul.—p. 759.
Surgery of Sympathetic Nervous System of Urinary Organs. R. Uebelhor.—p. 760.
New Results in Cancer Research with Klein's Silver Stain. A. Mistricek.—p. 763.

Wiener Medizinische Wochenschrift

Vienna vol. 88 July 23, 1938

Hygiene in Wartime and Newly Conscripted Army. E. Glaser.—p. 805.
New Observations on Rubrophen Treatment of Surgical Tuberculosis. K. v. Saller.—p. 808.
Gastric Complaints after Histamine Treatment. L. v. Friedrich.—p. 811.

Serum Cholesterol in Patients with Rheumatic Fever: Further Study. F. M. Offenbranz.—p. 67.
Respiratory Metabolism in Infancy and in Childhood: XX1. Daily Water Exchange of Normal Infants. S. Z. Levine, M. A. Wheatley, T. H. McEachern, H. H. Gordon, and E. Marples.—p. 83.

Canned Milk.—It is proved that there is no appreciable loss of vitamin A in canned milk, as it is not possible for oxygen to exercise any influence. The vitamin C is also hardly influenced, though it is slightly less than in fresh milk. The vitamins, however, vary according to whether the milk used is from cows confined to stalls or from those kept on pasture. Sweetened skimmed milk contains practically no vitamin A; this milk is fatless and therefore quite unsuitable for infant feeding. All milks, however, whether fresh or canned, contain less vitamins than breast milk.

American Journal of Obstetrics and Gynecology

St. Louis vol. 36 July, 1938

Dystocia in Diabetes Insipidus. C. Fisher, H. W. Magoun, and S. W. Ranson.—p. 1.
Histological Correlation of Endometrial and Cervical Biopsies. A. Woolner.—p. 10.

- Causes of Vaginal Bleeding and Histology of Endometrium after Menopause. H. C. Taylor and R. Millen.—p. 22.
- Chemical Test for Pregnancy Applied to Determination of Oestrin in Urine of Normal and Toxic Patients in Last Trimester of Pregnancy. J. E. Savage, H. B. Wyllie, and L. H. Douglass.—p. 39.
- Studies on Circulation in Pregnancy. K. Thomson, A. Hirschelmer, J. Gibson, and W. A. Evans.—p. 48.
- Pregnancy and Tuberculosis. Edwin E. Jameson.—p. 59.
- Effect of Oestrogenic Hormone upon Contractility of Fallopian Tubes. S. H. Geist, U. J. Salmon, and M. Mintz.—p. 67.
- Non-protein Urea and Residual Nitrogen of Blood during Labour and Puerperium. J. F. Cadden and A. M. Farris.—p. 77.
- Gynaecological Features of Carcinoma of Large Bowel. J. Schwartz and H. Bergman.—p. 85.
- Protein in Third Stage of Labour. M. R. White.—p. 90.
- Vasectomy. I. C. Mason and P. A. Knepper.—p. 94.
- Bilirubin Liver Function Test in Toxicities of Pregnancy. R. A. Lyon.—p. 99.
- Potential Bisexual Character of Ovary. A. J. Ramsay and J. F. McCahey.—p. 104.
- Virilism and Female Pseudohermaphroditism with Relation to Bisexual Nature of Ovary. J. F. McCahey and A. J. Ramsay.—p. 108.
- Evaluation of Anterior Pituitary-like Substance Intradermal Test for Pregnancy. J. I. Friedman and H. Fink.—p. 116.
- Uterine Bleeding with Virilism. V. G. Rheuby.—p. 119.
- Arsenical Encephalitis during Pregnancy. C. Kuchn, R. A. Keating, and E. von Hamm.—p. 122.
- Actinomycosis and Blastomycosis of Female Genitalia. M. Joseph and F. Summerhill.—p. 126.
- Five-year Study of Eclampsia in Maryland. J. M. Reese and F. W. Peyton.—p. 130.
- Erythroblastosis. L. L. Hellman and A. T. Hertig.—p. 137.
- Puerperal Gangrene of Extremities. P. E. Gutman.—p. 154.
- True Knot of Umbilical Cord Causing Foetal Death Before Labour. H. B. McNally.—p. 156.
- Gangrene of Extremities in Puerperal Thrombophlebitis. J. H. Tilley.—p. 157.
- Lipoma of Uterus Associated with Carcinoma. A. A. Humphrey and R. L. Mustard.—p. 159.
- Manikin for Individual Student Use. J. B. Jacobs.—p. 163.

Pregnancy and Tuberculosis.—Of 450 young women suffering from tuberculosis, 12 per cent. showed a relationship between the onset of the disease and the preceding pregnancy, the symptoms first appearing during gestation in 3.5 per cent. This study of a large number of cases appears also to prove that pregnancy has a definitely unfavourable influence on tuberculosis.

American Journal of Public Health

New York vol. 28 July, 1938

- Investigation of Early Syphilis. W. T. Clark and C. A. Sargent.—p. 807.
- Nutrition Services in Maternal and Child Health Programmes under Social Security Act. M. M. Hestline.—p. 813.
- Accuracy of Cancer Death Records. E. J. MacDonald.—p. 818.
- Precision Methods in Determination of the Heavy Metals. L. T. Fairhall.—p. 825.
- Formate, Ricinoleate, and Brilliant-green Bile Broths to Detect Coliform Organisms in Pasteurized Milk. I. C. Gunsalus and C. N. Stark.—p. 832.
- Politics in Selection of Health Department Personnel: Is there a Remedy? W. P. Capes.—p. 835.
- Sanitary Study of Commercial Laundry Practices. L. Arnold.—p. 839.
- Supervision of Food in New York City. A. Lichterman.—p. 845.
- Nutritionist in City Public Health Programme. S. S. Halsted.—p. 849.
- Schlick Reactions in Students of Medicine. H. C. Pilley and M. S. Fleisher.—p. 854.
- Evaluation of Dental Programmes for Children. J. M. Wisan.—p. 859.

American Journal of Syphilis, Gonorrhoea, and Venereal Diseases

St. Louis vol. 22 July, 1938

- *Infectiousness of Semen of Patients with Late Syphilis.—J. E. Kemp.
- *Serological Reactions and Immunity in Relation to Infection and Treatment of Syphilis.—J. A. Kolmer.
- Appraisal of Lauehlin Serological Test for Syphilis.—G. S. Usher.
- Method for "Quantitation" of Inocula in Experimental Syphilis.—H. J. Morgan and G. P. Vryonis.
- Further Experiences with Mapharsen: Its Use in Latent Syphilis.—G. D. Astrachan and F. Wise.
- Experimental Contribution to Study of Anti-syphilitic Hypertrophy produced by Physical Agents.—A. Bessentans.
- Role of Biopsy in Diagnosis of Venereal Diseases.—E. R. Pund, R. B. Greenblatt, and G. B. Huie.
- Spirochaetes in Brain in General Paresis in Jamaica.—G. M. Saunders.
- Syphilis in Dependent Mothers.—H. Harrington and L. J. Matschat.

Infectiousness of Semen.—The semen of 144 cases of syphilis was examined for spirochaetes by various methods, and the

organisms were found in fourteen, or 9.7 per cent. In sixty-seven early (less than four years) cases the figures were thirteen, or 19.4 per cent., and in fifty-two late cases they were one, or 1.9 per cent. It is therefore concluded that spirochaetes are present in the semen in about the same frequency as in other body fluids in early syphilis, but that in late syphilis they are very rarely present in the semen. A complete bibliography is appended.

Infection and Treatment of Syphilis.—This article represents a discussion of the relation of persistently positive serum reactions to immunity and the treatment of chronic syphilis. The author comes to the following conclusions, among others: that immunity is acquired only by infection, is of the tissue type, is responsible for clinical latency, and may fail to prevent reinfection or superinfection; that antibody is similar in nature to the agglutinins produced from *B. proteus* in the Rickettsia diseases, is not treponemocidal, may occur in certain normal animals and in some cases of leprosy and malaria owing to the presence of partial antigens or haptens in the organisms producing these diseases; and, finally, that persistent positive serum reactions are not due to "hang-over" of reagin following cure but to persisting infection.

Mapharsen in Latent Syphilis.—Mapharsen is as effective in the treatment of latent syphilis as neoarsphenamine; it is, however, less toxic, a matter of some importance, since many patients with latent syphilis are past the prime of life. It gives better results when combined with bismuth, and the two drugs are more efficient when given concurrently than when given alternately.

Annales d'Hygiène Publique, Industrielle et Sociale

Paris No. 6 June, 1938

- Tobacco considered as Insecticide. M. L.-A. Danzel.—p. 237.
- Tuberculin Cuti-reaction at School Age. D. Faivre.—p. 263.
- Relation of Age and Source in Typhoid Epidemics. H. Cambes-Védel.—p. 271.

Paris No. 7 July, 1938

- French Legislation relating to Hygiene, Medicine, and Public Assistance 1937. G. Ichok.—p. 285.
- *Water Supply of Rouen. E. Perrier.—p. 316.

Paris No. 8 August, 1938

- French Legislation relating to Hygiene, Medicine, and Public Assistance 1937 (continued). G. Ichok.—p. 333.
- *New Cause of Lead Poisoning. D. Mornac.—p. 362.
- *Resistance of Typhoid, Dysenteric, and Other Bacilli in Water. S. Mihailov.—p. 365.
- Fluorescence of Salicylic Acid Compounds. M. Dérivé.—p. 374.

Rough Water Supply.—A technical description of the water supply of Rouen, with an account of recent extensions and improvements. The water is obtained from two natural sources in the chalk formation, and is filtered, chlorinated, and stored in distributing reservoirs. Statistical tables from 1900 to 1937 are used to show the reduction in typhoid since these works were undertaken; also the favourable position of Rouen in this respect as compared with other Continental cities.

New Cause of Lead Poisoning.—Arsenate of lead is supplied largely to agriculturists in Puy-de-Dôme for the purpose of spraying fruit trees, vines, etc. Hands, face, and especially lips and moustaches become contaminated and are not cleaned by ordinary washing. The toxicity of this compound of lead is not appreciated by the workers, hence plumbism is prevalent. It is recommended that arsenate of aluminium (equally effective) be used instead.

Resistance of Bacilli in Water.—The author describes a series of experiments to determine the length of life of various pathogenic bacilli in waters of different qualities—pure, saline, foul, infected with saprophytes, etc.—also the effect of light and temperature. The bacilli used were those of typhoid, paratyphoid A and B, Shiga, Koch, and Loefler, the growth of the last two being very feeble.

Annals of Internal Medicine

Lancaster, Pa. vol. 12 July, 1938

- Some Experimental Observations pertinent to Treatment of Heratic Disease. J. L. Bollman.—p. 1.
- Climate, Mode of Life, and Heart Disease. P. D. White.—p. 6.
- Hyperparathyroidism simulating or associated with Paget's Disease: Three Illustrative Cases. A. B. Gutman and W. B. Parsons.—p. 13.
- Oxygen Therapy of Pneumonia (Five Years' Experience at U.S. Marine Hospital, Norfolk, Virginia). G. H. Faget and W. B. Martin.—p. 12.
- Secondary Amyloidosis: Results of Therapy with Dissected Whole Liver Powder. H. C. Grayzel and M. Jacoby.—p. 39.
- Relationship of Age to Concentration of Acid Soluble Phosphorus in Human Tissues. L. Pincuska, C. I. Reed, and M. B. Vrecher.—p. 59.
- Infection of Heart: III. Clinical Course and Morphological Findings. W. B. Bean.—p. 71.
- Present Status of Methods for Prophylaxis of Acute Anterior Poliomyelitis. J. A. Kolmer.—p. 95.
- Study of Changes in Serum Cholesterol, Gastric Secretion, and Carbohydrate Metabolism in Patients with Toxic Goitre. J. S. McElroy, E. B. Schuman, and J. O. Ritchey.—p. 106.
- Trends in Public Health. T. Parran.—p. 115.
- Hyperparathyroidism with Rather Rapid Recalcification of Bone Following Removal of Adenoma. T. P. Sprunt.—p. 121.
- Primary Carcinoma of Jejunum: Report of Case. I. W. Hurdley and W. Bates.—p. 128.

Hyperparathyroidism Resembling Paget's Disease.—Three cases of hyperparathyroidism with radiological appearances resembling Paget's disease are described. In two the appearance was thought merely to simulate Paget's disease; in the third it was suggested that the two diseases coexisted. It was concluded that there was no evidence that the two diseases were related conditions.

Liver Powder in Amyloid Disease.—Thirteen children with secondary amyloid disease, were treated with a crude whole liver powder; four died, one was unimproved, six were cured, and two were improved. In a control series of sixty-eight cases not receiving liver all died within two years. The cure of the amyloid symptoms is unrelated to the cure of the initial infection.

Infarction of Heart.—A detailed account of the sequelae in 300 cases of coronary thrombosis is given. Congestive cardiac failure was the main cause of death, and occurred in some degree in 55 per cent of cases. Shock and syncope was the next commonest cause. Attention is drawn to the frequency of peripheral thrombosis, which accounts for many incidents attributed to embolism. The morbid anatomy of the cases is discussed in detail. In this series, as in others, the left coronary artery was most often affected.

Annals of Surgery

Philadelphia vol. 107 June, 1938

- Adrenal Cortical Tumours and their Treatment. W. Walters and E. I. Kepler.—p. 881.
- Surgical Problem of Hypertension. L. Davis and M. H. Barker.—p. 899.
- Clinical Results of Coeliac Ganglionectomy in Treatment of Essential Hypertension. G. Crile.—p. 909.
- Advantages of Abdominal Approach to Inguinal Hernia. C. Williams.—p. 917.
- Diverticulum of Female Urethra. W. E. Lower and T. W. Tormey, jun.—p. 923.
- Modern Treatment of Varicose Veins as Indicated by Comparative Tourniquet Test. H. R. Mahoney and A. Ochsenr.—p. 927.
- Repair of Surface Defects of Hand. J. B. Brown.—p. 952.
- Influence of Pre-operative Medication on Post-operative Complications. E. V. Mastin.—p. 972.
- Internal Fixation of Fractures of Neck of Femur. R. G. Carothers.—p. 980.
- Lumbosacral and Sacro-dilae Strain causing Low Back Pain. E. L. Gilcrest.—p. 988.
- Glass Rods and Other Items in Technique of Abdominal Incision. W. O. Bullock.—p. 996.
- Uveoparotitis. A. Stengel, jun.—p. 1000.
- Spivack's Gastrostomy. D. H. Wagner.—p. 1005.
- Endometriosis of Rectum and Sigmoid. J. D. Schofield and H. E. Bacon.—p. 1022.
- Early Cardiac Decompensation in Traumatic Arteriovenous Aneurysms. J. M. Mason, G. S. Graham, and J. D. Bush.—p. 1029.

Adrenal Cortical Tumours.—This is an analysis of seven cases operated upon without fatality. The value of post-operative treatment to anticipate adrenal insufficiency is emphasized.

sized, and is essential if a low mortality rate is to be secured. The variations in the clinical picture occurring with sex and age are well described, as are the difficulties of differential diagnosis from similar syndromes produced by hyperplasia of the adrenals, or by ovarian tumours or intracranial lesions. The close parallel presented to Cushing's syndrome in certain cases and the fact that the treatment of this condition is little more than palliative lead the authors to conclude that in suspected cases of pituitary basophilism the adrenals should always be explored, since a readily removable tumour may be disclosed.

Hypertension.—A review of the experimental methods of producing hypertension is given, and an attempt is made to correlate the experimental findings with the disease process in the human. The selection of suitable cases for operation is discussed, with a preliminary note on the use of cyanates in treatment.

Varicose Veins.—This is an important paper in which the value of the differential tourniquet test in localizing the site of valvular incompetence is described and well illustrated in a series showing insufficiency at various levels. The types of operation suitable to the different cases and the value of post-operative sclerosing injections are discussed.

Annals of Tropical Medicine and Parasitology

Liverpool vol. 32 August 2, 1938

- Device for Applying Oil or Other Liquids in Flushing Cisterns. D. B. Blacklock.—p. 109.
- Some Species of *Sarcophaga* from Java and its Neighbouring Islands. Chi Ho.—p. 115.
- Note on Pathology of Schistosomiasis due to *S. japonicum* among Cattle in China. L. S. Kau and Kuang Wu.—p. 129.
- Pathological Findings among Pigs experimentally infected with *Fasciolopsis buskii*. L. S. Kau and Kuang Wu.—p. 133.
- Contribution to Knowledge of Second Intermediate Hosts of *Gnathostoma spinigerum*: Owen, 1936. Svati Damsawang and Pradit Tangsural.—p. 137.
- Study of Male and Female Terminia of Germs *Sarcophaga*, with Illustrations of Terminia of *Haemorrhoidalis* Group. W. S. Patton and Ch' I Ho.—p. 141.
- New Species of Nematode (*Subulura leachi*) from Kingfisher. A. Kirshner.—p. 159.
- Studies in Chemotherapy: XVIII. Changes in Blood and Urine Produced by Administration of Urethane Diamidine. J. Devine.—p. 163.
- Studies in Chemotherapy: XIX. Further Report on New Trypanocidal Substances. H. Kink, E. M. Lourie, and W. Yorke.—p. 177.
- Some Observations on Guinea-worm Larvae. T. Southwell and A. Kirshner.—p. 193.
- Cerebrospinal Fluid of Monkeys (*Cercopithecus* sp.) Infected with a Strain of *Trypanosoma rhodesiense*. J. F. Corson.—p. 197.
- Studies in Chemotherapy: XX. Preparation of Strains of *Trypanosoma* Resistant to Synthalin and Urethane Diamidine and Analysis of their Characters. E. M. Lourie and W. Yorke.—p. 201.

New Trypanocidal Substances.—This is a valuable paper analysing the relation between the trypanocidal activity and chemical constitution of a new series of experimental trypanocidal substances.

Resistance to Guanidine and Diamidine Compounds.—Resistance is only acquired slowly, and differs from resistance produced by arsenicals, antimony, acriflavine, or Bayer 205. Guanidine- and diamine-resistant trypanosomes are sensitive to aromatic arsenicals and to Bayer 205, and vice versa.

Archives d'Ophthalmologie

Paris vol. 2 July, 1938

- Observations on Retinoglioma in Child of 16 Months. R. Arnaud and L. Calmettes.—p. 593.
- Palpebral Manifestations of Tertiary Syphilis. G. Renard and P. Halbron.—p. 599.
- How to Achieve Rational and Efficacious Social Prophylaxis against Trachoma in Indo-China and more especially in Tonkin. P. Keller.—p. 606.

Palpebral Syphilis.—Syphilis rarely attacks the lids. A gumma is most frequently seen; it is commoner in women, and appears at least three years after the primary infection. Gummatous ulceration may be confused with ulcerating dacryocystitis, Meibomian cyst formation, or epithelioma. A

nodular gummatous tarsitis resembles a tarsal cyst. The marginal gumma presents appearances similar to those of ulcerative blepharitis. In all cases the rapid effect of specific treatment assists in the diagnosis.

Paris vol. 2 AUGUST, 1938

- Ocular Lesions of Hensler-Boeck-Schaumann's Disease. L.-M. Pautrier.—p. 689.
A New Syndrome: Iritis with Acute Ulcers of Mouth and Vulva.—L. Weekers and H. Reginster.—p. 697.
Post-traumatic Pearl Cyst of Iris. M. Teulieres and T. Beauvieux.—p. 706.
Extraction of After-cataract. Van Lint.—p. 711.
Surgical Treatment of Corneal Affections. R. Rubrecht.—p. 714.

After-cataract.—A small limbal puncture and counter-puncture are made with a Graefe knife. Through the temporal incision a cystitome detaches and draws the nasal half of the capsule to the centre of the pupil. Forceps passed through the nasal incision grasp the freed part of the capsule, detach the remainder, and draw the whole out of the eye.

Beiträge zur Klinik der Tuberkulose

Berlin vol. 91 June 20, 1938 Heft 6

- Relation of Erythema Nodosum to Tuberculosis in Adults. E. Zweifel.—p. 569.
Influence of Oxygen on Resorption of Gas in a Pneumothorax. G. Perschmann and F. Momsen.—p. 585.
Tuberculosis of Spleen in Old People. A. Arenstein.—p. 592.
Contribution to Question of Treatment of Latent Cavities. K. Bönsdorf.—p. 605.
Experimental Contributions to Gold Therapy in Tuberculosis: III, Histological Investigations on the Deposition of Gold in the Organs of Rabbits treated with Gold. IV, Specific and Non-specific Blood Investigations in the Gold Treatment of Tuberculosis. St. J. Leitner.—p. 626.

Gold Therapy.—These experiments support the view that the beneficial effect of gold in pulmonary tuberculosis is due to stimulation of the reticulo-endothelial system. The white blood count was found to be the most reliable index of the effect of gold therapy. Eosinophilia is a most sensitive sign of susceptibility to gold.

Brain

London vol. 61 July, 1938

- Some Observations on Headache. D. W. C. Northfield.—p. 133.
"Aphasia" in a Partial Deaf Mute. Macdonald Critchley.—p. 163.
Gliomatosis Cerebri. S. Nevin.—p. 170.
Subacute Diffuse Ependymitis. R. M. Stewart.—p. 192.
Central Pathway in Man of Vasomotor Response to Pain. D. G. Marquis and D. J. Williams.—p. 203.
Vasomotor Control of Cerebral Vessels. H. S. Forbes and S. S. Cobb.—p. 221.

Headache.—In this paper the author describes the results of a clinical study of headache in cases of intracranial tumour. The incidence of the symptom, the distribution of the pain, and its relation to the intracranial pressure are discussed. Clinical experimental observations designed to determine the mechanism of the headache are described. It is concluded that the dura mater is not the sensitive structure which is responsible, but that the headache is caused by an abnormal state of tension in the walls of the cerebral blood vessels.

Gliomatosis Cerebri.—Three cases of diffuse new growth of neuroglial cells throughout wide areas of the cerebral hemispheres are described. Clinically they were characterized by a long history of epilepsy followed by mental symptoms and increased intracranial pressure. The pathological process was considered as primarily a blastomatous malformation closely related on the one hand to Von Recklinghausen's disease, and on the other to diffuse gliomas of the pons, thalamus, and optic nerve.

Vasomotor Control of Cerebral Blood Vessels.—The literature on this subject is reviewed and some original experimental observations with a cranial window and microscope in cats, dogs, and monkeys are recorded. It is concluded that there is now substantial agreement among workers in this

field to the effect that while there is evidence of vaso-constrictor and vasodilator nerve fibres in the cerebral blood vessels, chemical factors, especially carbon dioxide, play a major part in the regulation of the cerebral blood flow.

British Journal of Anaesthesia

Manchester vol. 15 July, 1938

- *Concerning Spinal Analgesia. (1) W. Etherington-Wilson.—p. 135. (2) E. Falkner Hill.—p. 142. (3) H. Brennan.—p. 147.
Introduction of Avertin. G. Edwards.—p. 154.
Breaking of Spinal Needles. J. N. Cave.—p. 158.

Spinal Analgesia.—These three articles illustrate the conflict of opinion prevailing upon the subject. They are based on a report of difficulties experienced with the Etherington-Wilson technique which appeared in this *Journal* in April, 1938.

British Journal of Ophthalmology

London vol. 22 August, 1938

- *Case of Rhinosporidiosis on the Eye. H. Kaye.—p. 449.
Ablatio Falciformis Congenita (Retinal Fold). H. Weve.—p. 456.
Some Clinical Notes on Nature of Retinal Venous Pulse. N. Pines.—p. 470.
Light Reserve for Occupation in Sight-saving Classes. R. A. Kaz.—p. 482.
Children with Defective Vision: In Need or Not of Sight-saving Classes. R. A. Kaz.—p. 486.

Rhinosporidiosis.—Due to a parasite causing an exfoliative non-infiltrating granuloma, this lesion usually occurs on the nose, but has been noted in the lacrimal sac and on the conjunctiva. A case is described where, originally on the conjunctiva, a recurrence appeared two and a half years after excision of the primary trouble. The lesion was excised and cauterized and 2 per cent. antimony tartrate drops were prescribed. A description and illustrations of the microscopic characteristics are added.

Canadian Public Health Journal

Toronto vol. 29 July, 1938

- Public Health Progress (Presidential Address). P. S. Campbell.—p. 321.
*Outbreak of Staphylococcal Food Poisoning. James Roberts, W. J. Driman, and F. J. Elliot.—p. 325.
*Staphylococcal Food Poisoning in Billings, Montana. W. F. Cozswell, B. K. Kilbourne, and E. Kuhns.—p. 333.
Some Factors concerning Care of Newborn. A. Brown.—p. 337.
Objectives of Industrial Hygiene. F. M. R. Bulmer.—p. 345.

Staphylococcal Food Poisoning.—In the former of these groups an investigation was made of a small outbreak (five families) of food poisoning due to *Staph. aureus*, the vehicle being cream and custard-filled pastry. The symptoms were gastric distress, vomiting, and diarrhoea. The organism was recovered from gastric contents and faeces of patients, from material and products of the bakery, and from the nose and throat (but not urine and faeces) of certain employees. Tests for typhoid and paratyphoid were all negative. In the second group of cases (nine families) the onset was more acute and suggested intoxication rather than bacterial invasion. *Staph. albus* as well as *Staph. aureus* was found. It is suggested that the toxicity of these organisms is increased by growth in a starch medium.

Current Researches in Anesthesia and Analgesia

Elmira, N.Y. vol. 17 July-August, 1938

- Physiology of Spinal Anesthesia. C. Tui.—p. 181.
Quantitative Determination of Weak Local Anesthesia Action. H. M. and H. Robinson.—p. 188.
*Anaesthetic Efficiency of Sodium Isoamyl Ethyl Thiobarbiturate. C. I. Burstein and E. A. Roventine.—p. 195.
*Sodium Thio-ethylamyl Anesthesia: Clinical Use. S. C. Cullen and E. A. Roventine.—p. 201.
General Anesthesia in Deep Neck Dental Infections. H. J. Field and A. A. Ackerman.—p. 205.
Clinical and Electrocardiographic Findings following Use of Various Local Anesthetic Solutions. H. C. Miller, P. G. Dick, and C. W. Scott.—p. 207.

- Anaesthetic Procedures as Standardized for Certain Types of Operation in Large General Hospital. H. J. Shields.—p. 211.
 *Method for Preventing Cross-infection with Gas Machines. T. B. Magath.—p. 215.
 Barbiturates with Reference to Individual Susceptibility. R. Kohn.—p. 216.
 Basal Anaesthesia with "Sigmoidal." T. A. Colmers.—p. 223.
 Massive Collapse of the Lung following Anaesthesia. H. C. Luech.—p. 229.
 Bio-assay of Local Anaesthetics. G. E. Wakelin.—p. 232.
 Peri-operative Inhalation Therapy and Ateleciasis. A. I. Kuehn.—p. 234.
 Unified Theory of Aetiology of Shock. N. W. Roome.—p. 237.

Sodium Isoamyl Ethyl Thiobarbiturate.—The anaesthetic efficiency of this compound, or sodium thio-ethylamyl, has been studied experimentally on rats and cats, and compared with that of sodium amylal, of which it is the sulphur derivative. Sodium thio-ethylamyl shows a greater anaesthetic range of safety and more consistency in its effects than its non-sulphurous homologue. A study of poisonous doses has shown the value of atropine and ephedrine, as well as that of the usual anaesthetics. Spasm of the larynx has been found to be of importance in the causation of asphyxia as well as central depression, and is effectively combated by intubation.

Sodium Thio-ethylamyl Anaesthesia.—A preliminary series of 100 administrations has been carried out with this newly introduced anaesthetic. Cases were selected, and in general it was confined to those requiring only brief anaesthesia. In general the results were comparable to those of other short-acting barbiturates given intravenously. A note of caution is sounded both as to the conclusions to be drawn from this report and as to the intravenous use of barbiturates in general.

Cross-infection by Gas Machines.—The possibility of the transmission of bacteria by gas machines has been investigated. A water filter is described, designed to be fitted into the expiratory side of circuit breathing apparatus, and which is claimed to prevent the passage of bacteria and therefore the contamination of the machine.

L'Encephale

Paris vol. 1 April, 1938

- History of Origin of Treatment of Schizophrenia by Insulin Shock. M. Sakel.—p. 153.
 Changes in Schizophrenia under Influence of Prolonged Narcosis. B. Gulliarowski.—p. 165.
 Colloidal Relations of Plasma in Schizophrenics. S. Schrijver-Hertzberger.—p. 181.
 Essay on Role of Syphilis in Pathogenesis of Dementia Praecox. P. Favoret and J. Rondepierre.—p. 194

Eugenics Review

London vol. 30 July, 1938

- Population Policies in Scandinavia. D. V. Glass.—p. 89
 Measurement of Differential Reproduction by Paternity Rates C. Tietze.—p. 101.
 Study of Intelligence of Anglo-Chinese Children. P. C. Hu.—p. 109.
 Fertility and Economic Status in London. D. V. Glass.—p. 117.

† Fukuoka Acta Medica

Fukuoka vol. 31 June, 1938

- Influence of Anaesthetics and Narcotics on Experimental Nystagmus (Ger.) H. Yasuda.—p. 101
 *On Relationship between Chemical Structure and Reducing Power of Certain Reducing Agents (Eng.). J. Takano.—p. 102.
 *Respiration, Glycolysis, and Non-protein Nitrogen of Brain in Experimental Uraemia (Ger.). N. Okumura.—p. 105.
 Vascular System of Cat's Spleen, particularly of Malpighian Bodies (Ger.). T. Imai.—p. 106.
 Basic Substance in Nerve Tissue (Ger.). G. Hirako, T. Honbe, M. Okuda, and T. Wavano.—p. 127.
 Results of Treatment of Schizophrenia by Cardiazol Convulsions (Ger.). S. Yamamoto, M. Okazaki, and N. Sippuku.—p. 129.
 Experimental Studies in Pathogenesis of Toxic Icterus with Special Reference to Concentration of Bile Pigment in Bile (Ger.). T. Shirakabe.—p. 129

Reducing Agents.—There are differences in the power of reduction of various chemical groups, particularly the "trans"

† In this periodical the language in which each paper is presented is indicated as follows: English (Eng.); German (Ger.).

situated OH group in various types of keto- and aldo-hexoses, the endiol groups in ascorbic acid, the $\text{HN}=\text{C}$ group in creatine and creatinine, the SH group in glutathione, and the CO group in pyruvic acid.

Brain Metabolism in Uremia.—Experimental nephrectomy, or the injection of uranium nitrate or potassium chromide, causes true uraemia in dogs. In such cases the tissue respiration and glycolysis, particularly aerobic glycolysis, increase. With respiration glycolysis is arrested and the "Meyerhof quotient" decreases. The results show an increase in the metabolism of the brain in true uraemia.

Gynécologie et Obstétrique

Paris vol. 37 June, 1938

- Genital Crisis of Tabes and Syphilitic Myelitis in Women. A. Binet.—p. 425.
 Post-partum Lung Abscess. P. Trillat and R. Burthault.—p. 434.
 Post-partum Cardiac Insufficiency. P. Brunet and R. Mahon.—p. 453
 Experimental Researches on Toxicity of Blood in Uterine Fibromata. C. Daniel and I. Floran.—p. 463.
 Luteal Cysts. B. S. ten Berge.—p. 474.
 Death of One of Twins in Bivelline Pregnancy. A. Costa.—p. 482.

Journal of Physiology

London vol. 93 August 15, 1938

- Mechanism of Inhibition and Excitation of Crayfish Muscle. G. Marmont and C. A. G. Wierma.—p. 173
 Changes in Muscle Contraction Curves Produced by Drugs of Esterine and Curarine Groups. G. Buxcoe.—p. 194.
 Degenerative Changes in Axis Cylinders of Dental Nerves, due to Diet Deficient in Vitamin A and Carotene. J. D. Kitz, W. Lewinsky, and D. Stewart.—p. 206.
 Action of Esteric-like and Curare-like Substances on Responses of Frog's Nerve-muscle Preparations to Repetitive Stimulation. S. L. Cowan.—p. 215.
 Dependence of Activity of "Apneustic Centre" on Carbon Dioxide of Arterial Blood. G. Stella.—p. 263
 Micro-blood Volume Method using Blue Dye and Photo-cell. J. A. Kennedy and G. A. Millikan.—p. 276
 Neuromuscular Conduction in Fowl. G. L. Brown and A. M. Harvey.—p. 285.
 Plethysmographic Method for Measuring Systolic Blood Pressure in Intact Rat. F. B. Byrom and C. A. Wilton.—p. 301.

Journal de Radiologie et d'Électrologie

Paris vol. 22 August, 1938

- X-Ray Therapy of Inflammatory Conditions. G. Daniel.—p. 353.
 Contribution to Study of Urology in Egypt. J. Buschai and T. Georgiev.—p. 368.
 Peculiar Image Mistaken for Calculus following Operation on Gall-bladder. B. Jirca.—p. 375.
 Electrotherapy of Stenosis of Rectum and Sigmoid. G. Durand and L. Delherm.—p. 380.

Journal d'Urologie

Paris vol. 45 June, 1938

- *Transurethral Resection. J. Cibert.—p. 481.
 Importance of Sclerotic Lesions accompanying Vesico-vaginal and Urethrovaginal Fistulae. G. Cabané.—p. 503
 Development of Urethrocèle Distal to Perineo-bulbar Rupture of Urethra. Ch. Gauthier and R. Gayet.—p. 524.
 *Is there a Valvular Effect in Coffey's Operation for Vesical Exstrophy? W. Dobrzanski.—p. 512.
 True Sarcoma of Kidney in Adult. P. Macquet and P. Decoux.—p. 528.
 Enormous Rounded Calculus of Renal Pelvis. P. Macquet and P. Decoux.—p. 532

Transurethral Resection.—This is a sane consideration of the subject. Four post-prostatectomy resections were performed for persistent fistula or for incontinence due to diaphragm formation. Eleven resections for prostatic carcinoma entailed three deaths (27.7 per cent.). Thirty-six resections were performed for bladder-neck dysectasia—twenty-seven with closed bladder (no mortality) and nine after cystostomy—the total mortality being 2.7 per cent. The results were excellent in eleven cases, and also in a twelfth, which, however, called for a second resection. In the others the result was less good—residual urine minimal, but persistence of marked pollakiuria, pyuria, cystitis, or dysuria.

In the cases of resection after cystostomy, cystostomy had been performed in preparation for resection (an indwelling catheter being inadequate), or else resection was done to close a hypogastric fistula. There were thirty-nine resections for prostatic adenomas (twenty-six with closed bladder, thirteen after cystostomy) with one death (mortality 2.5 per cent.). This is notable in view of the numerous cases where resection was preferred to enucleation because of the patient's poor condition. The main indications for resection are certain early prostatic carcinomas, bladder-neck dysectasia, and small prostatic adenomata, especially when the general condition is poor.

Coffey's Operation for Vesical Exstrophy.—The author concludes that the establishment of a mechanical barrier or competent valve between the urinary tract and the colon is possible with an anatomically and functionally healthy ureter. Such a mechanical barrier is not necessarily a bacterial one. But when the ureter is inert, dilated, and congenitally deformed complete valvular competence is only conjectural. Under these conditions the uretero-colic anastomosis does not resist retrograde pressure, and there is a tendency to the phenomenon of ureteral reflux with all its consequences.

Monatsschrift für Kinderheilkunde

Berlin vol. 75 July 16, 1938 Hft. 1 and 2

- Cataract and Encephalitis. G. Bessau.—p. 1.
Spasmodic Circulatory and Blood Vessel Disturbances in Neuropathic Children. O. Borsari.—p. 11.
Pathogenesis of Cooley's Anaemia. K. Choremis, and G. Spiliopoulos.—p. 18.
Influence of Lactoflavine on Anaphylactic and Histamine Shock. L. Doxiadis and H. Lemke.—p. 23.
Dysentery in Infancy. I. Duzár.—p. 31.
Essential Haematuria in Childhood. C. Gahlenmann.—p. 45.
Bellagra and Nutritional Damage of Nervous System. E. Glanzmann.—p. 48.
Dietetic Treatment of Diabetes Mellitus with Sauerkraut. A. Frank.—p. 65.
Pseudo-retention of Testis. E. Gohrbandt.—p. 72.
Physiological Importance of Bromine in Childhood. U. Gröninger.—p. 100.
Treatment of Pleural Empyema. H. Jaithe and E. Larisch.—p. 104.
Foetal Chondrodystrophy. M. Meisger.—p. 110.
Diseases of Nervous System. R. Neurath.—p. 138.

Radiology

St. Paul, N. America vol. 31 July, 1938

- Thoracic Serioscopy: Method of Study for Pleuro-pulmonary Lesions. P. Cottenot.—p. 1.
X-ray Diagnosis of Complete and Partial Acute Intestinal Obstruction: L. Solis-Cohen and S. Levine.—p. 8.
Radiology in Amoebiasis Diagnosis. G. Esquerro-Gomez.—p. 15.
Roentgen and Light Therapy of Intestinal and Peritoneal Tuberculosis.—E. Mayer and M. Dworkin.—p. 35.
Local and General Irradiation in Hodgkin's Disease. L. F. Craver.—p. 42.
Observations on Radiological Chest Volume during Artificial Pneumoperitoneum Treatment. A. L. Banyal.—p. 45.
Some Biological Experiments with Condenser Discharge Type of X-Ray Tube. K. H. Kingdon, P. A. Zahl, C. P. Haskins, and H. E. Tanis.—p. 52.
Bone (Calcium) Metabolism in Relation to Industrial Injury. W. W. Watkins.—p. 59.
Treatment of Female Endocrinopathies. J. Kotz and E. Parker.—p. 66.
Studies on Effect of Radiation upon Growth and Respiration of Various Tissues *in vitro*: Lethal Dose and Sublethal Dose of X Rays and Radium: Preliminary Report. A. Goldfeder.—p. 73.
Effect of Radiation on Cell Respiration: I. Respiration and Anaerobic Glycolysis of Mouse Kidney *in vitro* following Radiation. A. Goldfeder and J. L. Fersling.—p. 81.
Generators for Gamma Rays and Neutrons and Radiotherapeutic Possibilities. A. Bouwers.—p. 89.
Experimental Study of Effects of Roentgen Rays on Gonads of Developing Chick. J. M. Essenberg and A. Zikmund.—p. 94.
How X Rays may Kill Cells. H. Rudisill, jun., and J. H. Höch.—p. 104.
Use of "Aquaphor" in Irradiation Epidermitis. J. I. Kaplan and S. Rubenfeld.—p. 107.
One and a Half Years' Experience in Employment of 220 Kilovolt X-Ray Therapy with Heavy Filter: Report on Seven Cases of Carcinoma of Bladder. R. H. Lafferty and C. C. Phillips.—p. 107.

Intestinal and Peritoneal Tuberculosis.—X-ray therapy is particularly indicated in the hyperplastic and simple proliferative forms, and the best results are obtained from early treatment in the ascitic forms of tuberculous peritonitis. Light therapy, both natural and artificial, gives good results in practically all forms of peritoneal and intestinal tuberculosis. The patients are not critically ill.

Revue de la Tuberculose

Paris vol. 4 July, 1938

- On Extrapleural Pneumothorax: Study of Forty Cases. O. Monod and Garcia-Bengochea.—p. 741.
Concerning Communication of Coulaud and Barbier on Medical Extrapleural Collapse Therapy. M. Arnaud.—p. 774.
Thoracic Deformities and Modifications of Wall after Thoracoplasty. A. Bernou, H. Fruchaud, and Lucienne Marecaux.—p. 775.
Senile Tuberculosis: Its Practical and Doctrinal Importance. M. Renaud.—p. 784.
Medical Treatment of Certain Infected Pleuritis associated with Pneumothorax. A. Dufourt, Despiques, and Despiques.—p. 795.
Mediastinal Hernia of Abnormal Appearance in Course of Bilateral Pneumothorax. A. Dufourt, Muller, and Jandaud.—p. 798.
Breaking of Needle in Extrapleural Pneumothorax: Extraction by Extrapleural Endoscopy. C. Gernez-Rieux.—p. 804.
Attempts at Preimmunization of Guinea-pigs against Tuberculosis. C. Mayer.—p. 807.
Recurrent Acute Gastro-duodenal Dilatation in Patient with Bilateral Pneumothorax. H. Hubert, Gousse, and Bilski.—p. 811.
Effects of Oxygen Therapy on Dyspnoea in Pulmonary Perforations. I. Bezancon, F. Joly, M. Brunel, and C.-O. Guillaumin.—p. 814.
Glandulo-pulmonary Complex and Tomography. J. Troisier and Orthol.—p. 821.
Tomographic Study of Bicosto-clavicular Zone. G. Mainot, E. Bernard, and J. Weil.—p. 826.
Erythema Nodosum in Patient with Pulmonary Tuberculosis and Attacks of Malaria. J. Loubeyre.—p. 832.
Primary Tuberculous Infection in Adult: Military Tuberculosis with Prolonged Course; Meningitis. H. Mondon and H. Audoye.—p. 834.

Zeitschrift für die Gesamte Neurologie und Psychiatrie

Berlin vol. 162 May 21, 1938

- Hereditary Disposition and Epilepsy: V. Contribution to Problem of "Epileptoid" Psychopathy. K. Conrad.—p. 505.
Blood Liquor Barrier and Short Waves. R. Glauner and L. Schotte.—p. 511.
Differential Diagnosis of Symptomatic Psychoses. K. F. Scheid.—p. 514.
Investigation into Kind and Frequency of Remissions with Schizophrenia, with Special Consideration of Early Discharge and Continuous Sleep Treatment. O. Brinck.—p. 582.
Sarcomatous Degeneration in Post-traumatic Meningiopathy. L. Benedek and L. d. Anyal.—p. 598.
Congenital Unilateral Hypertrophy of Tongue. F. Lanestener.—p. 603.
Clinical Aspects of Stigmata. F. Pollak.—p. 606.
Question of Genetic Determination of Homosexuality: III. T. Lang.—p. 621.
Cerebral Oedema. M. de Crinis.—p. 646.
Studies in Vitamin C Content of Cerebrospinal Fluid: IV. Vitamin C Content of Cerebrospinal Fluid in Experimental Poliomyelitis; V. Influence of Narcosis on Vitamin C Content of Cerebrospinal Fluid. M. Kautsky and I. Gammo.—p. 671.

Remissions in Schizophrenia.—In 267 schizophrenics followed for about three years, Brinck finds 111 total and good social recoveries. The figures obtained with continuous narcosis are distinctly better than those without. He also attributes a favourable influence to discharge from hospital as early as possible.

Homosexuality.—Lang brings further figures in support of his theory that a great number of homosexuals are so by virtue of a genetic factor.

Zeitschrift für Infektionskrankheiten, parasitäre Krankheiten und Hygiene der Haustiere

Berlin vol. 52 February 28, 1938

- Intramuscular Cysts in Moose. R. Wetzel and K. Eniak.—p. 23.
Transmission of Brucellosis between Animals and Men. A. Thomson.—p. 24.
Results of Research on Practical Utility of Formol-vaccine against Contagious Abortion of Cattle. F. Kress.—p. 316.
Laryngeal Cancer in Horse. H. Wilmes.—p. 328.

Brucellosis.—The author reveals the epidemiological characters of the three chief types of Brucella—namely, *Brucella melitensis* (Bruce), *Br. abortus* (Bang), and *Br. suis* (Traum)—especially in regard to geographical distribution, frequency, and the kind of animal affected. Sources, types, and modes of cross-infection are then discussed in considerable detail, and the statement is made that contact infection is more important than milk infection. The article concludes with a scheme for prophylaxis and general control of the disease.

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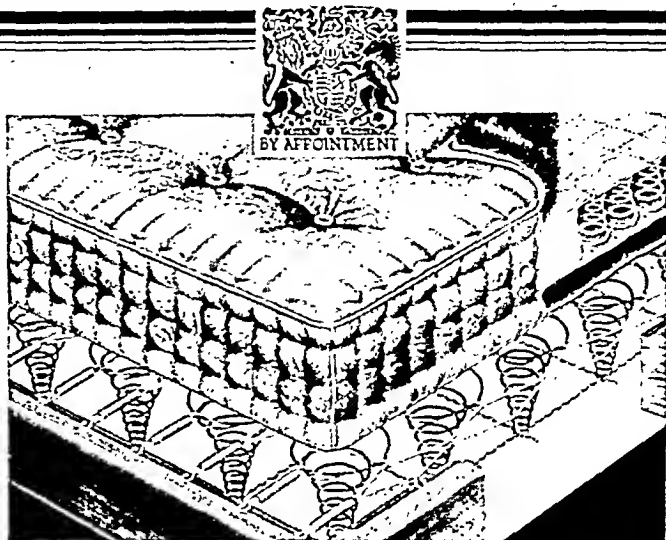
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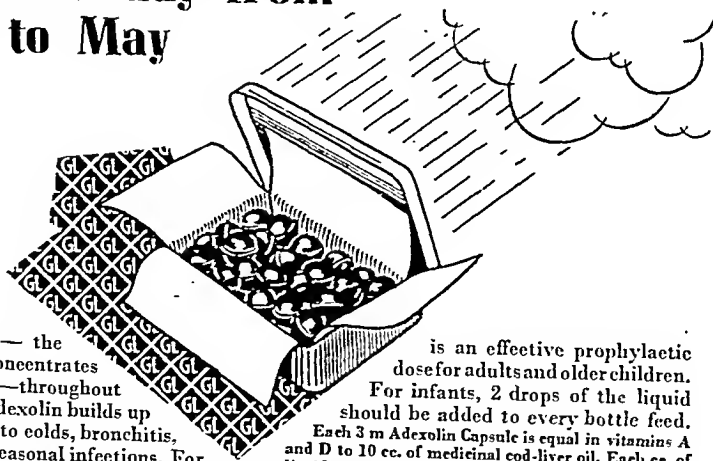


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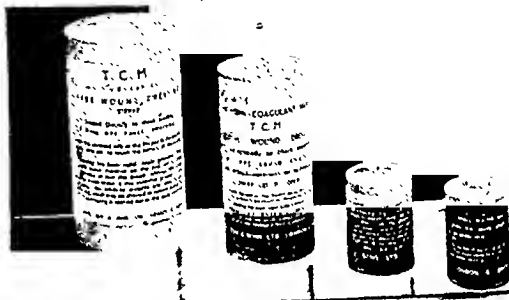
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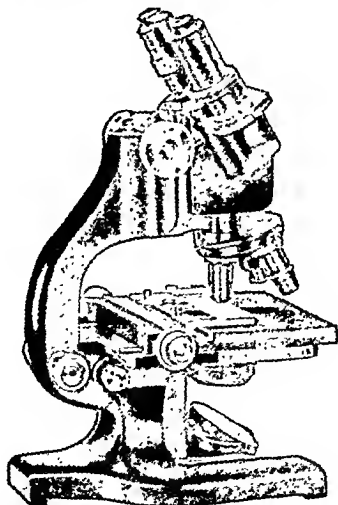
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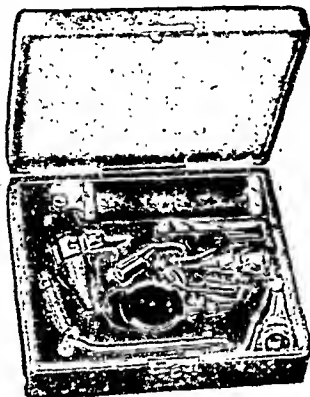
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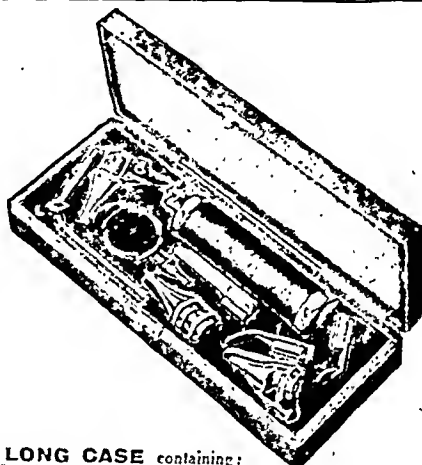
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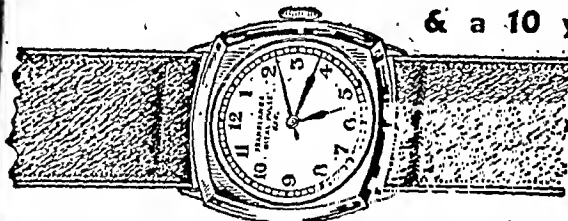
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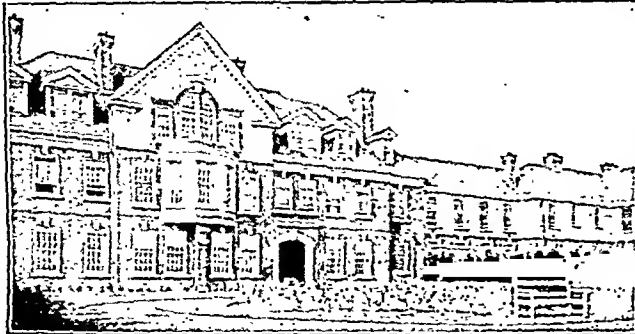
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Town Hall, J. KENNEDY ALLERTON,
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October 1st, 1938.

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The successful candidate will be required to devote his whole time to the duties of the office. The appointment will be subject to two calendar months' notice on either side, such notice to date from the last day of any calendar month.

Applications should be sent to the Education Committee of School Medical Inspection, and preference will be given to candidates who have had experience of Refraction work and in the work of School Clinics and who are recognized by the Board of Education in connection with certification under the Mental Deficiency and Other Acts.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the successful candidate passing a medical examination to the satisfaction of the Medical Officer of Health.

Forms of application may be obtained from the Director of Education and these should be addressed to the Director of Education, Education Offices, Middlesbrough, not later than Saturday, October 15th, 1938.

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September 26th, 1938.

NEW ZEALAND
DEPARTMENT OF HEALTH, WELLINGTON.

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Successful applicants will be required to commence duty in New Zealand in February, 1939. Reasonable costs of transport to New Zealand will be paid.

Applications close on October 15th, 1938, with the High Commissioner for New Zealand, 415, Strand, London, W.C.2, from whom printed particulars giving the terms of appointment may be obtained.

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(FEMALE STAFF.)

There will shortly be a vacancy for an ASSISTANT WOMAN MEDICAL OFFICER in the Headquarters Medical Branch. The appointment will be pensionable, and will carry a salary commencing at £100 per annum and rising by annual increments of £25 to £150 a year. The rates of salary are liable to review.

Each candidate must be a fully qualified medical practitioner, a natural-born British subject, and the child of a person who is, or was at the time of death, a British subject. Candidates must also be unmarried, or widows. Preference will be given to candidates under 30 who have held one or more Hospital appointments. The successful candidate will not be allowed to engage in private practice in addition to her official duties.

Applications, stating qualifications, age, etc., with copies of any recent testimonials, should be sent to the Chief Medical Officer of General Post Office, London, E.C.1, not later than October 31st, 1938.

Political influence should not be sought in support of applications; it would prejudice rather than assist the candidature.

The Female Medical Staff at Headquarters consists of a senior Woman Medical Officer and five Assistant Women Medical Officers. Information as to the duties can be obtained from the Chief Medical Officer.

Candidates may be required to attend for personal interview in London at their own expense.

COUNTY OF SOMERSET.

APPOINTMENTS OF MEDICAL OFFICER OF HEALTH FOR THE URBAN DISTRICTS OF FROME AND KEYNSHAM AND THE RURAL DISTRICTS OF FROME AND BATHAVON, AND ASSISTANT COUNTY MEDICAL OFFICER.

Applications are invited from duly qualified Medical Practitioners who are registered in the Medical Register as holders of diplomas in Sanitary Science, Public Health or State Medicine for the above appointments which it is intended shall be held by the same person.

The duties as Assistant County Medical Officer will include school medical inspection and venereal disease work.

The officer appointed will be required to devote his whole time to the duties of the above-mentioned appointments, and will be restricted from engaging in private practice as a medical practitioner. He will be required to perform all the duties prescribed by statute or regulation and such other duties as may from time to time be assigned to him by the County Council.

The aggregate commencing salary will be £600, rising by annual increments of £25 to £600 a year.

Travelling allowance for the use of the officer's motor-car will be paid in accordance with the County scale, and office accommodation and clerical assistance will be provided.

The successful candidate, who must pass satisfactorily a medical examination, will be required to reside in or near the City of Bath.

Applications, stating age, qualifications, diplomas and experience, must be accompanied by copies of not more than three recent testimonials, and must be sent to the Clerk of the County Council, County Hall, Taunton, so as to reach him not later than October 10th 1938, in envelopes endorsed "District Medical Officer."

Further particulars and conditions of appointment may be obtained from the Clerk of the County Council, on receipt of a stamped addressed foolscap envelope.

Canvassing, directly or indirectly, will be deemed a disqualification.

HAROLD KING.

Clerk of the Somerset County Council.

H. J. ALLARD,

Clerk to the Frome Urban District Council.

W. B. KENT,

Clerk to the Frome Rural District Council.

GEORGE R. ASHTON,

Clerk to the Keynsham Urban District Council.

R. H. WHITTINGTON,

Clerk to the Bathavon Rural District Council.

September 22nd, 1938.

COUNTY BOROUGH OF HALIFAX.

THE HALIFAX GENERAL HOSPITAL.
(1405 Beds.)JUNIOR RESIDENT MEDICAL OFFICERS
(Male).

Applications are invited from duly qualified registered Medical Practitioners for the above appointments. Two are required, one for obstetrical and one for medical duties.

Salary £250 per annum or more according to experience, together with board, residence, and laundry. The appointments are for a term not exceeding twelve months and are not renewable.

Forms of application and conditions of appointment can be obtained from the Medical Officer of Health, Powell Street, Halifax.

Completed applications, together with copies of not more than three recent testimonials, endorsed "Junior Resident Medical Officers," must be forwarded to the undersigned as early as possible.

Canvassing, either directly or indirectly, will be a disqualification.

The Council has not adopted a superannuation scheme.

The Town Hall, PERCY SAUNDERS.

Halifax. Town Clerk.

September 20th, 1938.

CITY OF PORTSMOUTH.

TEMPORARY AIR RAID PRECAUTIONS MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from registered medical practitioners for the post of Temporary Air Raid Precautions Medical Officer and Assistant Medical Officer of Health for a period not exceeding one year in the first place, at a salary of £500 per annum. The duties of the appointment will be whole time, under the direction of the Medical Officer of Health, and will be concerned mainly with the teaching of first aid and with the training of the First Aid and Medical Section of the Air Raid Precautions Services. Preference will be given to candidates who have had experience in Air Raid Precautions work and in training in first aid.

Forms of application, giving particulars of the appointment, may be obtained from and should be returned to the Medical Officer of Health, the Guildhall, Portsmouth, not later than 10 a.m. on Friday, October 7th, 1938.

The Guildhall, F. J. SPARKS,

Portsmouth. Town Clerk.

September 20th, 1938.

CITY OF LEEDS.

ASSISTANT CLINICAL TUBERCULOSIS OFFICER.

Applications are invited for the post of Assistant Clinical Tuberculosis Officer. Applicants should be duly qualified and registered medical practitioners, and must have had not less than three years' postgraduate experience, including experience in general medicine, surgery, and radiology, and in the treatment of tuberculosis at a dispensary or in a hospital, sanatorium or other institution reserved for such cases. Preference will be given to candidates with experience in the treatment of non-pulmonary tuberculosis. The possession of a D.P.H., though not essential, would be considered an additional qualification. The present grading scheme of the Corporation provides for a commencing salary of £500-£600 per annum according to qualifications and experience, with annual increments of £25, subject to satisfactory service, to the maximum of £700 per annum. The first increment will take effect on April 1st following the completion of twelve months' service.

The person appointed will be required to pass a medical examination and contribute to the Superannuation Fund, established under the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on a form to be obtained from the undersigned, together with copies of three recent testimonials, and endorsed "Tuberculosis Officer," must be received at the Health Department, 12, Market Buildings, Vicar Lane, Leeds, 1, not later than 10 a.m. on Saturday, October 15th, 1938. Canvassing in any form, either directly or indirectly, will be a disqualification.

J. JOINSTONE JERVIS,
Medical Officer of Health.

CITY OF LEICESTER.

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER (FEMALE).

The Council invite applications for the appointment of an Assistant Medical Officer of Health and Assistant School Medical Officer.

Applicants must be under 40 years of age and possess the Diploma in Public Health, or a similar qualification.

Salary £500 per annum, rising by annual increments of £25 to £700 per annum.

The post is a designated one under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

The duties will be primarily in connection with the School Medical and Maternity and Child Welfare Services, but may include any other duties properly assigned from time to time.

Application forms may be obtained from Dr. E. K. Macdonald, Medical Officer of Health, Health Department, Grey Friars, Leicester, and should be returned to him, with copies of not more than three testimonials, not later than October 15th, 1938.

L. McEVOY, Town Clerk.

Leicester, September 21st, 1938.

CITY OF MANCHESTER.

Monsall Hospital for Infectious Diseases (600 beds).

The Public Health Committee invites applications from registered medical men for the post of SECOND RESIDENT ASSISTANT MEDICAL OFFICER at the above-named hospital.

Preference will be given to applicants who have held resident surgical and medical posts in a general hospital, and have special experience in bacteriology.

Salary £350 rising by £25 annually to £450 per annum, with board, residence and laundry in addition, subject to the Manchester Corporation conditions of service.

Full information and forms of application may be obtained from the Medical Officer of Health, Town Hall, Manchester, 2, and applications for the post must be received by him not later than the post must be received by him not later than October 8th, 1938.

F. E. WARBRECK HOWELL, Town Clerk.
Town Hall, Manchester, 2.
September 20th, 1938.

KENT COUNTY COUNCIL.

SENIOR RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Senior Resident Assistant Medical Officer at the County Hospital, Pembury (620 beds).

The salary for the appointment is £350 a year, rising by £25 a year to £450 a year, together with residential emoluments which are valued at £120 a year.

Applicants must have had experience in Surgery. Forms of application can be obtained from the Public Assistance Officer, Tonbridge Road, Maidstone, to whom applications must be sent by stone, 10 a.m. on Monday, October 10th, 1938.

W. L. PLATTS, Clerk of the County Council.
Sessions House, Maidstone.
September 23rd, 1938.

COUNTY COUNCIL OF DURHAM.

EDUCATION DEPARTMENT.

ASSISTANT SCHOOL MEDICAL OFFICERS.

The County Education Committee invite applications for the posts of Two Assistant School Medical Officers (women) to act under the School Medical Officer in connection with the inspection of school children and such other duties as may be required by the Education Committee.

Commencing salary in each case £500 per annum (provided the candidate has had not less than three years' postgraduate experience), rising by annual increments of £25 to £700 per annum, together with travelling expenses according to the County Scale. The successful candidates will be required to devote their whole time to the duties of the office, and reside in or near the districts to which they will be attached at places to be approved by the Education Committee. The appointments will be subject to three calendar months' notice on either side, expiring on the last day of any calendar month.

Applicants must have had experience in the work of school medical inspection, and preference will be given to candidates who

(a) have had experience in the work of School Clinics,

(b) have been accustomed to make special reports on Mentally Defective, Physically Defective, Epileptic, and other Defective Children.

The possession of a Diploma in Public Health is desirable though not essential.

Canvassing, directly or indirectly, is prohibited and will disqualify.

A deduction of 5 per cent. will be made from the salary in each case in accordance with the Local Government and Other Officers' Superannuation Act, 1922, and the appointments will be subject to the candidates passing the medical examination in connection therewith.

Form of application, to be returned not later than Saturday, October 8th, 1938, will be supplied by the Director of Education, Shire Hall, Durham, on receipt of a stamped addressed foolscap envelope.

THOS. B. TILLEY,
Director of Education.
September 19th, 1938.

COUNTY BOROUGH OF BIRKENHEAD.

DEPARTMENT OF THE MEDICAL OFFICER OF HEALTH.

BIRKENHEAD MUNICIPAL HOSPITAL (560 Beds.)

SENIOR RESIDENT MEDICAL OFFICER.

Applications are invited for the above appointment at the Birkenhead Municipal Hospital.

Candidates must be male, unmarried, and duly qualified registered medical practitioners. As the duties are almost entirely of a medical nature preference will be given to candidates who have obtained higher qualifications in medicine and who have had previous medical experience at either a Voluntary or Municipal Hospital.

The appointed candidate will be a member of the staff of the Medical Officer of Health.

The remuneration attached to the appointment will be £350 per annum, rising by annual increments of £25 to a maximum of £450 per annum, together with board, residence, laundry, etc.

The appointment is subject to the Local Government and Other Officers' Superannuation Act, 1922, and is determinable by three calendar months' notice on either side.

Forms of application and further particulars relating to this appointment can be obtained from Dr. D. Morley Mathieson, Medical Officer of Health, 9, Hamilton Square, Birkenhead.

Canvassing, directly or indirectly, will disqualify the applicant.

Applications, endorsed "Senior Resident Medical Officer," should reach the undersigned not later than Saturday, October 22nd, 1938.

E. W. TAME, Town Clerk.
Birkenhead.

COUNTY BOROUGH OF WOLVERHAMPTON.

NEW CROSS HOSPITAL.

ADDITIONAL APPOINTMENT.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER (male) at the above Hospital which contains 350 beds, including Medical, Surgical, Maternity, and Children's Wards, and is modernly equipped.

Candidates with experience in the administration of anaesthetics and who have held previous hospital posts will be preferred.

The appointment is limited to a term not exceeding one year, with salary at the rate of £200 per annum, and full residential emoluments.

Applications, stating age, qualifications, and nationality, together with copies of three recent testimonials, should be addressed to—

A. G. ALDRIDGE,
Public Assistance Officer,
Stafford Street, Wolverhampton.

LANCASHIRE COUNTY COUNCIL

PARK HOSPITAL, DAVYHULME, near Manchester.

APPOINTMENT OF ASSISTANT RESIDENT MEDICAL OFFICERS.

Applications are invited from registered Medical Practitioners for the appointments of Assistant Resident Medical Officers at the above Hospital. Candidates must be unmarried.

Salary £300 per annum, together with the usual residential allowances.

One Resident Medical Officer to be attached to the Obstetrical and Gynaecological and Surgical Unit; and the other to the Medical, and Ear, Nose and Throat Unit.

The appointments will, in the first instance, be for a period of six months, the successful applicants being eligible for reappointment for a further period of six months at the end of that period.

The Hospital comprises 500 beds for acute cases, is fully equipped in every respect, and is recognised as a complete Training School for Nurses.

The appointments will be terminable by one month's notice on either side.

Forms of application may be obtained from the County Medical Officer of Health, Hospital and Medical Department, County Offices, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded so as to be received not later than Saturday, October 15th, 1938.

County Offices, Preston.
GEORGE EHLERTON, Clerk of the County Council.
September 26th, 1938.

LANCASHIRE COUNTY COUNCIL

PUBLIC ASSISTANCE COMMITTEE.

LAKE HOSPITAL, ASHTON-UNDER-LYNE, Near Manchester.

APPOINTMENT OF RESIDENT OBSTETRICAL OFFICER.

Applications are invited for the appointment of a Resident Obstetrical Officer at the Lake Hospital, Ashton-under-Lyne, near Manchester (500 beds—approximately 600 births per year).

Applicants must hold the Diploma of the College of Obstetricians and Gynaecologists or a diploma of similar standing, and preference will be given to applicants who have held a responsible appointment at a Maternity Hospital.

The salary is at the rate of £150 per annum, rising by annual increments of £25 to £200 per annum, together with the usual residential emoluments.

The appointment is for a period of one year, the first instance but may be renewed for a further period of one year.

Forms of application may be obtained from the County Medical Officer of Health, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded not later than Monday, October 10th, 1938.

GEORGE EHLERTON, Clerk of the County Council.
County Offices, Preston.
September 19th, 1938.

KENT COUNTY COUNCIL.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Resident Assistant Medical Officer at the County Hospital, Dartford (655 beds).

The salary for the appointment is £250 a year, with residential emoluments which are valued at £120 a year.

The appointment is a whole-time one and is determinable by three calendar months' notice on either side.

Forms of application can be obtained from the Public Assistance Officer, Tonbridge Road, Maidstone, to whom applications must be sent by stone, 10 a.m. on Monday, October 10th, 1938.

W. L. PLATTS, Clerk of the County Council.
Sessions House, Maidstone.
September 20th, 1938.

THE LEEDS VOLUNTARY HOSPITAL COUNCIL.

THE GENERAL INFIRMARY AT LEEDS (673 Beds.)

The Council invite applications for the post of HONORARY ASSISTANT SURGEON at the above Institution. Candidates must be fully qualified medical practitioners, and must be members of the Royal College of Surgeons in England.

Information relative to the post will be sent on reference to the Hon. Secy.

Twenty-five copies of application forms must be addressed to, and received by, the Hon. Secy. not later than October 10th, 1938.

Envelopes to be enclosed "Public Assistance Staff."

S. CLAYTON FRYER, Secretary.
The General Infirmary at Leeds.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE.

During 1938, the Secretary of State for the Colonies proposes to select a number of Medical Officers to fill vacancies, the majority of which will occur in Tropical Africa and Malaya.

QUALIFICATIONS.—Candidates must be British subjects of European parentage, under 35 years of age, and must possess a medical qualification registrable in the United Kingdom. Preference will be given to candidates who have held Hospital or Public Health appointments, or who have special knowledge of anaesthetics, radiology, surgery, medicine, ophthalmology, gynaecology and midwifery, diseases of the ear, nose and throat, venereal diseases, etc.

SALARY.—Initial salaries vary from £600 to £700, and rise by increments to a maximum of between £1,000 and £1,200.

PRIVATE PRACTICE.—Private practice is not allowed as of right, but in the case of some appointments it is permitted on certain conditions.

QUARTERS.—In Tropical Africa, free quarters, or an allowance in lieu, are provided. In Malaya, quarters are provided at an annual rental not exceeding 6% of the officer's salary.

PASSAGES.—Free first-class passages are provided on first appointment and when proceeding on and returning from leave. Assistance is also given towards family passages.

TERMS OF APPOINTMENT.—The appointments are pensionable, subject to a probationary period which varies from two to three years.

COURSES OF INSTRUCTION IN TROPICAL MEDICINE AND HYGIENE.—Selected candidates will normally be required to attend a course of instruction leading to the Diploma in Tropical Medicine and Hygiene before proceeding overseas.

DUTIES.—Although Medical Officers are appointed in the first instance for general service, there are opportunities for work in special branches of medicine and surgery, in public health, and in medical research.

Further particulars and forms of application may be obtained from the Director of Recruitment (Colonial Service), 8, Buckingham Gate, London, S.W. 1.

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in January, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list, and periods of unemployed or half pay are very rare. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W. 1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than November 21st, 1938.

METROPOLITAN BOROUGH OF GREENWICH.

JUNIOR ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER.

The Council of the Metropolitan Borough of Greenwich is prepared to receive applications from registered Medical Practitioners for the appointment of Junior Assistant Maternity and Child Welfare Medical Officer in the Borough of Greenwich. Applicants must have had experience in connection with Maternity and Child Welfare work generally, must be a registered Medical Practitioner who, prior to April 1st, 1930, had held the appointment of Medical Officer of an Ante-Natal Clinic with the approval of the Minister of Health, or who, subsequent to qualification, has had at least three years' experience in the practice of practical midwifery and special experience of possession of the Diploma in Public Health and Incident Obstetric experience will be considered additional qualification.

The person to be appointed will act generally under the direction and supervision of the Medical Officer of Health, who is the Administrative Medical Officer of the Maternity and Child Welfare Services. The salary will be at the rate of £500 per annum, rising by annual increments of £25 to a maximum of £700 per annum.

The successful candidate will be required to reside in the neighbourhood of the Borough Council's Maternity Home, to devote the whole of his or her time to the service of the Council, and not to engage in private practice.

The appointment will be subject to the provisions of the Council's Superannuation Acts, and will be terminable by three months' notice in writing on either side.

Applications must be made on forms to be obtained from the undersigned, stating age, qualifications, and experience, and accompanied by copies of not more than three recent testimonials, and must be sealed up and endorsed "Junior Assistant Maternity Medical Officer," and reach me not later than 12 o'clock noon on Wednesday, October 5th, 1938.

Canvassing members of the Council, either directly or indirectly, will be a disqualification. Stamped addressed foolscap envelope must accompany application for form.

Town Hall, D. J. REASON,
Greenwich, S.E.10. Town Clerk.
September 23rd, 1938.

LANCASHIRE COUNTY COUNCIL.

PUBLIC ASSISTANCE COMMITTEE.

LAKE HOSPITAL AND DARNTON HOUSE. Ashton-under-Lyne, near Manchester.

APPOINTMENT OF JUNIOR RESIDENT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the appointment of Junior Resident Medical Officer at the above Hospital and Institution, comprising 300 and 525 beds respectively. The Hospital is recognized as a complete Training School for Nurses.

Candidates must be unmarried. Salary at the rate of £225 per annum, together with the usual residential emoluments.

The appointment will, in the first instance, be for a period of six months, the successful applicant being eligible for reappointment for a further period of six months at the end of that period.

Forms of application may be obtained from the County Medical Officer of Health, Public Assistance (Hospital and Medical) Department, County Offices, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded not later than Saturday, October 15th, 1938.

County Offices, GEORGE ETHERTON,
Preston. Clerk of the County Council.
September 26th, 1938.

ESSEX COUNTY COUNCIL.

JUNIOR RESIDENT MEDICAL OFFICERS.

The County Council of the Administrative County of Essex invite applications for the appointment of two Junior Resident Medical Officers at the Oldchurch County Hospital, Romford. Each appointment is for a period of one year, and the salary will be at the rate of £250 per annum, together with the usual indoor emoluments, value at £160 per annum. Experience in the Maternity Department of a hospital will be considered an additional qualification in respect of one of the appointments. The successful candidates will be required to pass a medical examination and will be subject to the Council's Sick Pay Rules and Regulations, a copy of which will be forwarded on application. Applications on the prescribed form, obtainable from the undersigned, should be addressed to me and delivered at the County Hall, Chelmsford, not later than 10 a.m. on Tuesday, October 11th, 1938.

County Hall, E. S. HOLCROFT,
Chelmsford. Clerk of the County Council.
September 20th, 1938.

MIDDLESEX COUNTY COUNCIL.

MIDDLESEX COUNTY COUNCIL MATERNITY HOSPITAL, Heathborne Road, Bushey Heath, Herts.

RESIDENT ASSISTANT MEDICAL OFFICER (woman) required—must be registered medical practitioner, preferably M.C.O.G. or D.C.O.G., with previous resident appointment in general hospital and special experience and knowledge of obstetrics.

Appointment for four years only (subject to medical examination), is held during pleasure of Council, and terminable by one month's notice on either side.

Salary £400-£25-£475 p.a. with board, lodgings and laundry valued at £100 p.a. Contributions to Superannuation Fund will be required from April 1st, 1939. Possibility of retention on established staff, with £500 p.a. max.

Whole-time duties, such as County Council may direct, under supervision of Medical Superintendent and Obstetric Surgeon of Redhill County Hospital, as an annex. Duties include medical charge of the 48 beds and attendance at ante-natal clinics at Redhill.

Written applications, with copies of not more than three recent testimonials, to be sent to undersigned in envelopes endorsed "Mat. Hosp.—A.M.O." by October 15th, 1938—disclosing relationship to any member or officer of Council. Canvassing, direct or indirect, disqualifies. C. W. RADCLIFFE, "Z,"
Gulldhall, Westminster, Clerk of the County Council.
S.W.1.

WEST RIDING OF YORKSHIRE MENTAL HOSPITALS BOARD.

APPOINTMENT OF AN ASSISTANT MEDICAL OFFICER.

WADSLEY MENTAL HOSPITAL.

Applications are invited for the appointment of an Assistant Medical Officer in the Board's service at the above Mental Hospital, at a commencing salary of £350 per annum, rising by annual increments of £25 to a maximum of £450, together with emoluments (board, apartments and laundry), valued at £120 per annum. The Board will allow an extra £50 per annum to the successful candidate who (whilst on this scale) holds or obtains the Diploma in Psychological Medicine, for which this Hospital affords special study facilities.

It will be an advantage if candidates have had at least one year's experience in general medicine after qualification.

The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909, Class 1.

Applications, with copies of not more than two recent testimonials, stating age and full particulars, to reach the Medical Superintendent, West Riding Mental Hospital, Wadsley, Sheffield, 6, not later than October 10th, 1938.

There is no printed form of application. Board Offices, G. L. BANNER,
Wakefield. Clerk of the Board.
September, 1938.

THE MIDDLESEX HOSPITAL, W.I.

Applications are invited from qualified medical men holding the D.A., or who intend shortly to do so.

Duties will include ANAESTHETICS and a RESIDENT ANAESTHETIC research in anaesthetics. The first place will be resident. Salary £300 per annum less the value of board and residence provided.

Further particulars may be obtained from the undersigned, to whom applications, supported by copies of testimonials, must be sent by Saturday, October 15th, 1938.

S. R. C. PLIMSOLL,
Secretary-Superintendent.

THE WEIR HOSPITAL. Weir Road, Balham, S.W.12. (30 Beds.)

SENIOR RESIDENT MEDICAL OFFICER (male, unmarried) required the middle of October. Salary £250 per annum, with board, residence, and laundry. Candidates must be fully qualified and duly registered.

Applications, with copies of three testimonials, to be sent to the Secretary, from whom further information may be obtained.

THE INFANTS HOSPITAL. Viney Square, Westminster, S.W.1.

Applications are invited for the post of HONORARY ANAESTHETIST to attend on Monday afternoons. An honorarium of £25 per annum will be paid in respect of the appointment. Particulars of the appointment, and information as to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications must be delivered not later than October 25th 1938. ARNOLD TUNSTALL, Secretary.

COUNTY BOROUGH OF ROTTERHAM.

TUBERCULOSIS OFFICER; MEDICAL SUPERINTENDENT, OAKWOOD HALL SANATORIUM; AND MEDICAL SUPERINTENDENT, ISOLATION HOSPITAL.

Applications are invited from fully qualified medical practitioners under the age of 45 years for the above post, at a commencing salary of £750 per annum, rising by three biennial increments of £50 and one of £37 10s. to £937 10s., less the emolument of a house to the value of £52. The successful applicant will be required to reside at the Oakwood Hall Sanatorium, where an Assistant Medical Officer is also resident.

Applicants must possess the D.P.H. and must have had practical experience of all forms of tuberculosis, the administration of a sanatorium, in dispensary work, and the training of nurses for examination. The selected candidate will also be in charge of the Isolation Hospital, and experience in infectious diseases is essential. He will be required to work under the direction of the Medical Officer of Health and to devote the whole of his time to the duties of the office and to undertake such other work as may be assigned from time to time.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination at to physical fitness.

The appointment will be terminable by three months' notice on either side.

Applications, stating age, experience, and qualifications, accompanied by copies of not more than three recent testimonials and endorsed "Tuberculosis Officer," should be received by the undersigned not later than Wednesday, October 12th, 1938.

Forms of application may be obtained from the Medical Officer of Health, Municipal Offices, Rotherham.

CHAS. L. DEES FORGES,
Municipal Offices, Rotherham. Town Clerk

COUNTY BOROUGH OF ROTTERHAM.

MEDICAL SERVICES COMMITTEE.

ASSISTANT RESIDENT MEDICAL OFFICER

The Medical Services Committee invite applications for the position of Assistant Resident Medical Officer at their Alina Road Hospital, Rotherham, for a period of twelve months. Preference will be given to those candidates who have held a resident appointment in a General Hospital, or a Municipal Hospital, for a period of at least six months.

The Hospital has approximately 350 Acute Beds and 50 Chronic Beds. There is an associated district service with Out-Patient Department. There are four Assistant Resident Medical Officers, and one Deputy Medical Superintendent and Obstetric Officer. The work that will be required of this medical officer will be chiefly medical, and there will be district visiting. The salary is £450 per annum, together with the usual residential emoluments.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act. The successful candidate will be required to pass a medical examination. The person appointed will be required to act under the general direction of the Medical Superintendent, and in any sphere which the Council may from time to time direct.

Forms of application may be obtained from the Medical Officer of Health, Town Hall, Rotherham, and must be returned to the undersigned, and to "Assistant Resident Medical Officer, Alina Road Hospital," not later than noon on Wednesday, October 12th, 1938.

Municipal Offices, CHAS. L. DEES FORGES,
Rotherham. Town Clerk

LONDON CHEST HOSPITAL. Victoria Park, E.2. (Bus/Tram, and Rail, L.N.F.R. Cambridge Heath Station.)

The Committee of Management invite applications for the post of ASSISTANT SURGEON. An honorarium is attached to the post.

Applications should be forwarded to the undersigned on or before October 31st, 1938.

THOMAS BROWN,
Secretary

THE WILLESDEN GENERAL HOSPITAL. Harlesden Road, N.W.10

Applications are invited for the appointment of CLINICAL ASSISTANT (Honorary) to the Out-Patient Department (Tuesday afternoon only).

Applications should be forwarded to the Secretary from whom further details of the appointment may be obtained, and should be received not later than first post on Wednesday, October 13th, 1938.

September 26th, 1938

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.

Brompton, S.W.3.

The Committee of Management invite applications for the following posts:

RESIDENT SURGICAL OFFICER. Candidates must have held a resident hospital appointment for not less than six months. Salary £150 per annum, with board and residence, and an additional £25 per annum for services in connection with paying patients. The appointment is for twelve months, commencing November 1st.

ASSISTANT RESIDENT MEDICAL OFFICER. Candidates must have held a resident hospital appointment for not less than six months. Experience in Artificial Pneumothorax essential, and in Ear, Nose, and Throat work desirable. Salary £150 per annum, with board and residence. The appointment is for six months, commencing November 1st.

HOUSE PHYSICIANS. There are three vacancies. The duties include work in the Out-patient Department and in the Wards. One of the selected candidates will be appointed Assistant to the Tuberculosis Officer for the Local Tuberculosis Dispensary at the Hospital. The appointment is for six months, commencing November 1st, with an honorarium of £50.

HOUSE PHYSICIAN (male) at the SANATORIUM at Frimley. The appointment is for six months, commencing November 1st, with an honorarium of £50.

Applications, with copies of testimonials, must reach the undersigned not later than Saturday, October 8th.

F. G. ROUVRAY,

Brompton,

September, 1938.

Secretary.

DREADNOUGHT HOSPITAL, GREENWICH.

S.E.10. (257 Beds.)

MEDICAL SUPERINTENDENT.

The Committee of Management of the Seamen's Hospital Society invite applications for this post falling vacant on November 1st, 1938.

The appointment will be for one year in the first instance at the commencing salary of £50 per annum and certain emoluments with board, residence and laundry. Previous surgical experience is required, and candidates must be male and unmarried.

Applications, stating age and previous experience, with copies of not more than three recent testimonials, to be sent in on or before October 8th to the undersigned, from whom further particulars may be obtained.

F. A. LYON, Secretary.

BRITISH RED CROSS SOCIETY CLINIC FOR RHEUMATISM,

Peto Place, Marylebone Road, N.W.1.

The British Red Cross Society invite applications for the following Honorary appointment to the Clinic for Rheumatism Peto Place, Marylebone Road, N.W.1:

HONORARY DERMATOLOGIST.

HONORARY NEUROLOGIST.

Applications, stating qualifications and present appointment should be sent in on or before October 8th, 1938, addressed to the Secretary of the Medical Board.

Clinic for Rheumatism,
British Red Cross Society,
14, Grosvenor Crescent, S.W.1.

BELGRAVE HOSPITAL FOR CHILDREN

(Incorporated), 1, Clapham Road, S.W.9.

The Committee of Management invite applications for the positions of **TWO HOUSE PHYSICIANS** and **ONE HOUSE SURGEON** which will become vacant on October 30th.

Applicants must be fully qualified and registered. The appointments are for six months, with board, residence and wages provided. Salary at the rate of £100 p.a. in each case.

Applications, with copies of testimonials, stating age, should be forwarded on or before Friday, October 7th.

By Order,

THOMAS CLAPHAM, Secretary.

ACTON HOSPITAL, W.3.

CASUALTY OFFICER (male, unmarried) required to commence duties October 21st, 1938, for a three-months' appointment, with promotion to Resident Medical Officer for a further period of three months if approved. Salary £150 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered. Applications, stating age, nationality, and qualifications, should be sent, with copies of three testimonials, to the Secretary, and should arrive not later than first post Saturday, October 8th, 1938.

DONALD C. D. SWORD,

Acton Hospital,

Gunnelsbury Lane, Acton, W.3.

Secretary.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART,

Westmoreland Street, Marylebone, W.1.

OUT-PATIENT MEDICAL OFFICER.

Applications are invited for the post of Out-patient Medical Officer (non-resident, male). The appointment is for a period of six months from November 1st, but may be renewed for a further period not exceeding six months.

Candidates, who must be duly registered Medical Practitioners, will not be expected to call on the Hon. Medical Staff, but should send their applications, with copies of three recent testimonials, to me at the Hospital not later than Thursday, October 6th.

The Out-patient Medical Officer will be required to assist the Hon. Medical Staff on five afternoons weekly, or four afternoons and one morning as may be arranged.

ROBERT G. E. WHITNEY,

Secretary.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART,

Westmoreland Street, Marylebone, W.1.

RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Resident Medical Officer (male). The appointment is for a period of six months from November 1st, but may be renewed for a further period not exceeding six months.

Salary at the rate of £150 per annum, with board, residence, and washing.

Candidates, who must be duly registered Medical Practitioners, will not be expected to call on the Hon. Medical Staff, but should send their applications, with copies of three recent testimonials, to me at the Hospital not later than Thursday, October 6th.

ROBERT G. E. WHITNEY,

Secretary.

NATIONAL HOSPITAL, QUEEN SQUARE, W.C.1.

ASSISTANT REGISTRAR. Applications are invited for the post of Assistant Registrar, who will be required to attend the Hospital each afternoon in the Out-patient Department. The salary is £200 a year.

Applications, with recent testimonials, should reach the undersigned from whom any further particulars may be obtained, on or before Saturday, October 8th, 1938.

GODFREY H. HAMILTON,

Secretary.

NATIONAL HOSPITAL, QUEEN SQUARE, W.C.1.

RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Resident Medical Officer and should be sent to the undersigned, accompanied by three recent testimonials, not later than Saturday, October 8th. The salary is £150 per annum, with board and lodging.

Applicants should state if they are willing to accept a post of House Physician (salary £100).

GODFREY H. HAMILTON,

Secretary.

KING GEORGE HOSPITAL, ILFORD

(near London) (207 Beds.)

HOUSE SURGEON (male) required for six months from November 1st. Salary at the rate of £100 p.a.

Forms of application may be obtained from the undersigned, to whom they should be returned, duly completed, not later than October 17th.

G. AUSTIN HEPPWORTH,

Secretary and Superintendent.

KING GEORGE HOSPITAL, ILFORD.

The Board of Management invite applications for the post of **HONORARY SURGEON** to the Hospital, a vacancy occurring on January 1st next.

Applications, which may be typewritten, should be addressed to the undersigned, by whom they should be received not later than October 31st. Further particulars available upon request.

G. AUSTIN HEPPWORTH,

Secretary and Superintendent.

KING EDWARD MEMORIAL HOSPITAL, Ealing. (145 Beds.)

Applications, which must be submitted by October 10th, are invited for the appointment of **CONSULTING PHYSICIAN** for Diseases of Children.

Particulars may be obtained from the undersigned.

R. A. NICKELWRIGHT,

House Governor.

PADDINGTON GREEN CHILDREN'S HOSPITAL

(Incorporated), London, W.2.

HOUSE PHYSICIAN. HOUSE SURGEON.

These appointments will become vacant on November 1st, 1938. Gentlemen (unmarried) are invited to send in their applications, with copies of three testimonials, to the undersigned, not later than Friday, October 14th, 1938. Salary of each at the rate of £150 per annum, with board and residence.

Candidates who have held a responsible Resident Hospital appointment are preferred. The appointments are for a period of six months.

JAMES A. HAMILIN,

Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the following appointments:

HOUSE PHYSICIAN, vacant December 1st. The appointment is for nine months (three months as Out-patient Medical Officer and Anaesthetist and six months as House Physician). Salary at the rate of £70 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent by October 7th to the undersigned, from whom the necessary forms of application and rules can be obtained.

GILBERT G. PANTER,

Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15.

HONORARY SURGEON.

There is a vacancy on the staff of this Hospital for an Honorary Surgeon in charge of the Gynaecological Department.

Applications, accompanied by copies of three recent testimonials from male candidates only, who must be Fellows of the Royal College of Surgeons of England, should be sent to the undersigned not later than Monday, October 3rd, 1938.

RAPHAEL JACKSON (Major),

Secretary.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

SURGICAL REGISTRARS. The Committee invite applications for the appointments of three Registrars (male) as from November 1st. Candidates who have obtained the F.R.C.S. (Eng.) will be offered an Honorarium of £105 per annum. The appointments are for twelve months, renewable for a further twelve months on the recommendation of the Medical Board.

Applications, with copies of three recent testimonials, should reach the Secretary, 234, Great Portland Street, London, W.1, not later than October 12th.

LONDON HOSPITAL E.1.

Applications are invited for the post of **SURGICAL FIRST ASSISTANT AND REGISTRAR.** Candidates must be Fellows of the Royal College of Surgeons. The appointment is for one year, but is renewable annually on application for two further periods of one year. Salary £300 per annum, payable by the Hospital and Medical College jointly.

Applications should arrive at the Hospital not later than by the first post on Saturday, December 17th.

A. G. ELLIOTT,

House Governor.

METROPOLITAN HOSPITAL, London E.8.

SURGICAL REGISTRAR.

Applications are invited for the above non-resident post, to which an honorarium of £120 is attached. Applicants, who must be Fellows of the College of Surgeons, England, or Master of the Society in an English University, should apply to the undersigned for full particulars. Closing date October 14th, 1938.

FRANK JENNINGS,

House Governor and Secretary.

LONDON CHEST HOSPITAL, Victoria Park, E.2.

Bus. Tram. and Rail, L.N.E.R. Cambridge Heath Station.

The Committee of Management invite applications for the post of **ASSISTANT SURGEON.** An Honorarium is attached to the post.

Applications should be forwarded to the undersigned on or before October 31st, 1938.

THOMAS BROWN,

Secretary.

DORSET COUNTY HOSPITAL,
Dorchester.**APPOINTMENT OF HOUSE SURGEON.**

The Committee of Management are open to receive applications for the position of House Surgeon (male only), to take up his duties about the middle of November, 1938.

Every candidate must be unmarried and possess a recognised qualification to practise medicine and surgery from some recognised body in Great Britain or Ireland. Salary £150 per annum, with board and lodging. The appointment is for a period of six months. All applications, accompanied by copies of three recent testimonials, should be sent to the Secretary Dorset County Hospital, by October 22nd, 1938.

Candidates must be of British birth and nationality.

WORCESTER COUNTY AND CITY MENTAL HOSPITAL,
Powick, near Worcester.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER. Applicants must be male, single, under 35 years of age, and duly qualified in medicine and surgery. Commencing salary £350, rising by annual increments of £25 to a maximum salary of £450 per annum, together with furnished apartments, board, laundry and attendance. A further £50 per annum will be paid if the selected candidate holds or obtains a Diploma in Psychological Medicine. Experience in Anaesthetics will be a recommendation. The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Applications, stating age, and full particulars of qualifications and experience, accompanied by copies of three recent testimonials, to be forwarded to the Medical Superintendent not later than Saturday, October 8th, 1938.

BETHLEHEM ROYAL HOSPITAL, MONKS ORCHARD, BECKENHAM, KENT.

Wanted, two RESIDENT HOUSE PHYSICIANS (unmarried) recently qualified in Medicine and Surgery.

The term of residence is for six months from November 1st next. To each officer an honorarium at the rate of £175 per annum will be paid, with apartments, complete board, and laundry.

Written applications, with testimonials, are to be forwarded to the Physician-Superintendent at the Hospital, from whom copies of the duties can be obtained.

EAR AND THROAT HOSPITAL,
Birmingham, 3.

THIRD HOUSE SURGEON wanted (non-resident). Must be qualified and with clinical experience. Salary at the rate of £150 per annum, with lunch on six weekdays and an allowance of £50 per annum in lieu of board and lodging. Appointment for six months, to commence as soon as possible. Candidates are eligible for election to Senior posts. Facilities for training for D.L.O. Applications and testimonials to be forwarded to the undersigned immediately.

W. H. LOMAS, Secretary.

HEREFORDSHIRE GENERAL HOSPITAL,
Hereford. (152 Beds.)

Applications are invited for the post of HOUSE SURGEON (male) in charge of Casualty and Ear, Nose, and Throat Departments, which falls vacant on October 22nd.

Salary at the rate of £100 per annum, with board, residence, and laundry.

Applications stating age and qualifications, together with copies of three recent testimonials, to be sent to the undersigned.

T. W. UPTON, Secretary.

INVERNESS DISTRICT ASYLUM.

JUNIOR ASSISTANT MEDICAL OFFICER (male) required. Recent graduate with some general hospital experience preferred. Salary £350 per annum, with board, lodging and laundry.

Appointment is subject to terms of Asylums Officers' Superannuation Act, 1909.

Applications, stating age and qualifications, with copies of testimonials, to be sent to the Medical Superintendent.

DUNDEE MENTAL HOSPITAL, WESTGREEN.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER (male) to the above Hospital. Salary £300 or £350 per annum, according to experience, with board, lodging, and laundry, subject to deductions under the Asylums Officers' Superannuation Act.

Applications stating age and experience, with copies of three recent testimonials, to be forwarded to the Medical Superintendent.

ROYAL MANCHESTER CHILDREN'S HOSPITAL,
Out-Patients' Department, Gartside Street, Manchester.

Applications are invited for the post of FULL-TIME SENIOR MEDICAL OFFICER (Non-Resident). The appointment is for one year as from December 1st, 1938, and may be extended for further periods. Salary £300 per annum. Particulars of the duties can be obtained from the Secretary.

Applications, stating age, qualifications, and experience, and accompanied by copies of not more than four testimonials, to be sent to the undersigned at the Hospital, Pendlebury, Manchester, on or before Saturday, October 15th.

By Order,
H. HEARDMAN,
Secretary.

LIVERPOOL HEART HOSPITAL.

Applications are invited for the position of HONORARY ASSISTANT PHYSICIAN to the above Hospital. The Institute for the Prevention of Disease is the Research Department of the Hospital. There is a vacancy for a RESEARCH FELLOW at the Institute (£250 per annum); although separate applications for either position will be considered, these two positions may be held by the same gentleman. There are available at the Institute unique laboratory facilities, including those for animal experimentation. Candidates from outside Liverpool will receive the same consideration as local men. Applications to Miss Lewis, Secretary, not later than Friday, October 7th.

MINEHEAD AND WEST SOMERSET HOSPITAL,
Minehead, Somerset.

Applications are invited for the post of RESIDENT HOUSE SURGEON (male or female) to this Hospital.

Duty to commence on October 29th. Appointment for a period of six months. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, experience, and qualifications, accompanied by copies of three recent testimonials, to be sent to the undersigned not later than October 22nd.

W. H. P. RODDA,
Secretary.

PRINCESS ALICE MEMORIAL HOSPITAL,
Eastbourne.
(Voluntary General Hospital, 120 Beds.)**HON. ASSISTANT OPHTHALMIC SURGEON.**

The Committee of Management invite applications for the above new appointment. Particulars may be obtained on application to the undersigned.

Applications from qualified practitioners, with copies of not more than three testimonials, should be delivered to the undersigned by first post on October 15th, 1938.

W. RUSSELL RUDALL,
Secretary.

September 22nd, 1938.

NORTH LONSDALE HOSPITAL, BARROW-IN-FURNESS. (164 Beds.)

Required immediately—RESIDENT HOUSE PHYSICIAN and RESIDENT CASUALTY OFFICER. Salaries £175 and £150 per annum respectively, with board, residence, and laundry. Applications are invited for the above positions from fully qualified practitioners experienced in the administration of anaesthetics.

Applications, stating age, qualifications, experience, and nationality, and accompanied by copies of three recent testimonials should be sent to the Secretary.

REDLANDS HOSPITAL FOR WOMEN.

Applications are invited from qualified Medical Women for the posts of RESIDENT MEDICAL OFFICER (Two). Appointment is for six months from October 10th (three months Medicine and Midwifery; three months Surgery and Gynaecology). Salary at the rate of £50 p.a.

Applications, together with copies of three testimonials, should be lodged not later than October 7th with the Medical Secretary, Redlands Hospital for Women, Kelvinside, Glasgow, W.2.

WHITEHAVEN AND WEST CUMBERLAND HOSPITAL.

HOUSE SURGEON required for end of September. Ninety beds. Two House Surgeons in residence. Six months' appointment. Salary at the rate of £150 per annum, board, residence and laundry.

Applications, with copies of three recent testimonials, to be sent to the Secretary.

THE YORKSHIRE CHILDREN'S ORTHOPAEDIC HOSPITAL,
Kirkbymoorside, York. (124 Beds.)

Applications are invited for the position of HOUSE SURGEON (female). Salary £200 per annum, with board, residence, and laundry. Previous Orthopaedic experience is not necessary, but preference will be given to candidates who have held resident hospital appointments, and who are competent anaesthetists. The appointment is for one year, and renewable, and may be terminated by three months' notice.

Applications, with copies of not more than three recent testimonials, should be forwarded to me at the above address to arrive not later than the first post on Wednesday, October 12th, 1938.

P. HANKS,
Secretary.

THE ROYAL EARLSWOOD INSTITUTION,
Redhill, Surrey.
(Under Medical Deficiency Acts)

JUNIOR ASSISTANT MEDICAL OFFICER required. Applicants must be registered practitioners, males (British birth), unmarried. The appointment is for six months, but may be extended. Inclusive salary at the rate of £250 per annum with board, residence, and washing. Good facilities for postgraduate studies, classes and examinations.

Applications, stating age, religion, and qualifications, with copies of three testimonials of recent date and two references to be sent at once to the Medical Superintendent at the Institution. The envelope to be endorsed "Assistant Medical Officer."

ST. MARY'S HOSPITALS, MANCHESTER REGISTRAR

Applications are invited for the post of Registrar to the Gynaecological Out-patients' Department. The post is non-resident and bears a remuneration of £1 1s. per session. Attendance will be required for six mornings per week. The appointment will be for a period of one year. Membership of the College of Obstetricians and Gynaecologists will be deemed an advantage.

Applications, together with copies of three testimonials, should be forwarded in the undersigned not later than October 15th, 1938.

A. R. WISE,
Superintendent and Secretary.

SWANSEA GENERAL AND EYE HOSPITAL.
(336 Beds.)

Applications are invited for the undermentioned appointments, which will become vacant mid-October:

- (a) HOUSE SURGEON.
 - (b) HOUSE PHYSICIAN.
 - (c) CASUALTY OFFICER.
- Salaries £150 per annum.
Salary £150 to £175 according to experience.
Appointments for six months. Immobiles include board, residence, and laundry.
Applications, stating age, qualifications, experience, and nationality to be forwarded to the Secretary-Superintendent.

STOCKTON AND THORNABY HOSPITAL,
Stockton-on-Tees
(140 Beds—3 Residents)

JUNIOR HOUSE SURGEON required for a period of at least six months, to commence on or about October 16th, 1938. Salary £150 per annum with board, residence and laundry. Candidates must be duly qualified and unmarried.
Applications, stating age, nationality and experience, together with copies of three testimonials, to be sent to the undersigned.

I. WILKINSON,
Secretary.

THE CASSEL HOSPITAL FOR FUNCTIONAL NERVOUS DISORDERS,
Swaylands, Pevensey, Kent

RESIDENT MEDICAL OFFICER (male, married) required to commence duty on November 1st. Previous experience in therapy essential.

Salary £400 p.a., with board, residence and laundry.

Applications to be sent to the Medical Director enclosing testimonials, not later than October 1st.

THE HARTLEPOOL HOSPITAL,
Hartlepool. (95 Beds.) (Two Practitioners)

Applications are invited for the post of HOUSE SURGEON.

Salary £150 p.a., with board, residence and laundry, and appointment for six months.

Dates to commence on October 1st.

W. O. DAVEN,

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

| Town or District. | Town or District. | Town or District. |
|---|---|---|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(contd.) | PUBLIC HEALTH |
| ABERTYSSWG MEDICAL AID SOCIETY. (Medical Officer.) | MID-RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer.) | COUNTY OF ROXBURGH. (Assistant Medical Officer of Health.) |
| BLAENAVON MEDICAL SOCIETY. (Chief Medical Officer.) | NEATH AND DISTRICT. (Medical Aid Association) | DISPENSARY APPOINTMENTS |
| GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme.) | OGMORE VALLEY, GLAMORGAN. (Wynckham Colliery Medical Aid Society) (Workmen's Medical Scheme.) | LIMERICK CITY. (Whole-time Dispensary Medical Officers.) |
| LILWYNYPFA, CLYDACH VALE. PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme.) | OAKDALE, MON. (Medical Officer for Medical Aid Association) | |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District. | Hon. Sec. of Division or Branch | Town or District. | Hon. Sec. of Division or Branch. | Town or District. | Hon. Sec. of Division or Branch. |
|--|--|---|---|--|--|
| NEW SOUTH WALES (All Friendly Society Appointments.) | The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W. | VICTORIA (All Institute or Medical Dispensaries.) | The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria | WESTERN AUSTRALIA (Contract and Locum Practitioners) | The Hon. Sec., Western Australian Branch, British Medical Association, "Sheff House," 205, St. George's Terrace, Perth, Western Australia. |
| QUEENSLAND (Brisbane Associate Friendly Societies Institute) | The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17. | | | | |

September 28, 1938.

By Order of the Council

G. C. ANDERSON, Secretary.

MONTAGU HOSPITAL, MEXBOROUGH. (113 Beds; 3 Residents.)

Applications are invited for the post of RESIDENT HOUSE SURGEON (male), commencing salary £175 per annum, with the usual residential emoluments. Previous Hospital experience essential.

The appointment commences November 1st, and is for six months and is subject to renewal. This post offers excellent general experience, and the duties include work in the Orthopaedic Dept and Fracture Clinic.

Applications, stating age, nationality, qualifications, and experience, accompanied with copy testimonials, to be sent to the undersigned.

JOHN N. DRAKE,
Secretary-Superintendent.

ROYAL EYE HOSPITAL, Pevensy Road, Eastbourne.

NON-RESIDENT HOUSE SURGEON required, to commence duty at once. The appointment will be for six months in the first instance.

Salary £100 per annum, and allowance in lieu of board-residence £175 per annum.

Applications, stating age, qualifications, and ophthalmic experience, together with recent testimonials, should reach the undersigned as soon as possible.

Before engagement candidates have to be interviewed by the Hon. Surgeon, from whom further particulars could be obtained in person.

H. BYGRAVE, Hon. Secretary.

MONTROSE MATERNITY HOSPITAL, Govan, Glasgow.

RESIDENT (female) DOCTOR required either permanent or at least six months, commencing November. Forty beds. Practical experience in obstetrics essential. Salary £150 and board, etc.

Apply, stating age, when available, qualifications and experience, with three copies of testimonials, to IAN M. GRANT, Secretary, 113, St. Vincent Street, Glasgow.

ANCOATS HOSPITAL, MANCHESTER. 4. SURGICAL REGISTRAR REQUIRED.

Applications are invited from duly qualified Medical Practitioners. Duties: To assist the Hon. Surgeon in the Out-patient Department, Surgical Clinics, on Tuesday and Friday mornings. Honorarium £50 per annum. Appointment for twelve months and is renewable.

Applications, stating age, qualifications, experience, and full particulars, to be forwarded to the undersigned on or before October 5th, together with copies of three recent testimonials.

By Order of the Board

HERBERT J. DAFFORNE,
Gen. Supt. and Secretary.

ANCOATS HOSPITAL, MANCHESTER. 4.

RADIOLOGICAL OFFICER, lady or gentleman. Whole-time appointment, non-resident, no private work allowed. Salary £400 per annum, with luncheon and tea. The appointment is for twelve months and is renewable. Candidates must hold the D.M.R.E. Diploma.

Applications, stating age and particulars of qualifications and experience, to be forwarded to the undersigned on or before October 12th, together with copies of three recent testimonials.

By Order of the Board,

HERBERT J. DAFFORNE,
General Supt. and Secretary.

MANCHESTER NORTHERN HOSPITAL (General Hospital; 113 Beds), Cheetham Hill Road, Manchester, 8.

Applications are invited for the post of RESIDENT SURGICAL OFFICER. Salary £200 per annum, with board and residence. The appointment is for six months, to commence duty at any date.

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, to be sent to the Secretary, MR. JAMES C. DANIELS, 38, Barton Arcade, Manchester, 3, as soon as possible.

THE CHESTER ROYAL INFIRMARY. (225 Beds.)

Applications are invited for the post of HOUSE SURGEON (male), to take up duty November 1st, 1938. Salary £150 per annum, with board, lodging, and laundry.

The appointment is approved in connexion with the M.S. (London University) and F.R.C.S. (Eng.) examinations.

Application list closes October 13th, 1938. Application forms may be obtained from:—

W. H. GRACE, M.D., M.R.C.P.,
Hon. Sec., Medical Committee.

September 16th, 1938.

THE CHESTER ROYAL INFIRMARY. (225 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN (male), to take up duty November 1st, 1938. Salary £150 per annum, with board, lodging, and laundry.

The appointment is approved for the purposes of the M.D. examinations of the University of London.

Application list closes October 13th, 1938. Application forms may be obtained from:—

W. H. GRACE, M.D., M.R.C.P.,
Hon. Sec., Medical Committee.

September 16th, 1938.

THE CHILDREN'S HOSPITAL, SHEFFIELD. (157 Beds.)

Applications are invited for the post of HOUSE SURGEON, vacant October 1st, 1938.

The appointment is for six months. Salary £109 per annum, with board residence, and laundry. Candidates (male and unmarried), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of three recent testimonials, to the undersigned.

T. H. G. GARTLAND,
Superintendent and Secretary.

(Appointments continued on p. 51)

TO ADVERTISERS

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TYPEWRITING, DUPLICATING, TRANSLATIONS.—Experts in Medical work. TESTIMONIALS, THESES, etc., accurately copied in style that commands attention.—WOBURN BUREAU, Drayton House, Gordon Street, London, W.C.1 (close B.M.A. House). EUSTON 1775.

ASSISTANCIES

WANTED IMMEDIATELY, ASSISTANT FOR Partnership in small Cheshire town, mixed practice. Small hospital. Married, outdoor preferred but indoor assistant considered. Protestant, English, Scottish, or North of Ireland. Dispenser kept. Salary £450 to £480. Some experience of practice desirable. Car provided.—Address, No. 9016, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR ASSISTANT. Unmarried, Midland town, with view to partnership. Rapidly increasing panel and club practice. Salary £350, with £50 car allowance.—Address, No. 9001, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view to Partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED IMMEDIATELY, YOUNG MALE indoor ASSISTANT, English or Scottish, for panel and private practice near Leeds. Dispenser kept. Comfortable home. Salary from £300, all found.—Address, No. 9023, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MID-OCTOBER, MALE ASSISTANT. British, for mixed practice, Seaside town, Co. Durham. Commencing salary £360, with rooms, board, and attendance. Usual bond.—Address, No. 8934, B.M.A. House, Tavistock Square, W.C.1.

WANTED OCTOBER, MALE INDOOR ASSISTANT. Single, for country town panel and private practice. Write, stating age, experience, nationality, car.—Address, No. 9002, B.M.A. House, Tavistock Square, W.C.1.

WANTED, FOR EARLY OCTOBER, MALE indoor ASSISTANT in large mixed practice in South Yorkshire town. Previous experience not essential; British preferred; salary £300-£350 p.a. all found, with use of car or an allowance.—Address, No. 8923, B.M.A. House, Tavistock Square, W.C.1.

WANTED AT EARLY DATE, YOUNG single male outdoor ASSISTANT, English or Scottish and recently qualified preferred, for mixed practice in Essex, 30 miles from London. Salary £480, including car allowance. Own car essential. References.—Address, No. 8956, B.M.A. House, Tavistock Square, W.C.1.

WANTED AT AN EARLY DATE, MALE ASSISTANT for mixed practice near New-castle-on-Tyne. Single, live in, £375; or married, castle-on-Tyne. Single, live in, £375; or married, £450 plus free house. Car allowance included. Scotch graduate preferred.—Address, No. 9020, B.M.A. House, Tavistock Square, W.C.1.

WANTED FOR SIX MONTHS, INDOOR ASSISTANT (British), private and panel practice, no colicities. Salary £300 p.a. Usual bond.—Address, No. 9027, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MARRIED ASSISTANT, YOUNG man preferred, for Midland practice. Salary £450 p.a. and good house. Reply stating date and place of birth and religion.—Address, No. 9032, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANT (MIDLANDS), IRISH or Scot preferred. Salary £400, indoor. Car provided. Excellent prospect for steady work. Testimonial and recent photograph with application.—Address, No. 8808, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, WEST WALES. view to Partnership. £350 with house; £25 car allowance. Good opportunity for keen rural Hospital practice available.—Address, No. 8942, B.M.A. House, Tavistock Square, W.C.1.

WANTED, IN THE MIDLANDS, MALE OR female ASSISTANT with experience. Salary £120, rising to £400, with excellent rooms and full board. Good car provided.—Address, No. 9022, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MIDLANDS, INDOOR ASSISTANT, male, Scotch or English, with some experience of G.P. preferred but not essential. Salary £325, all found, plus car allowance. References with photo if possible to.—Address, No. 8966, B.M.A. House, Tavistock Square, W.C.1.

WANTED, PART-TIME ASSISTANT, NORTH London main road. Accommodation and food if desired. Suit postgraduate.—Address, No. 9017, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT WANTED, BRITISH, MME Salary £400, plus £50 car allowance. Mixed urban and rural practice, Midlands. The partner.—Address, No. 8735, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT WANTED, WITH A VIEW TO PARTNERSHIP, in a large mixed and very old-established practice in a well-known town near London. Growing district. Local hospital. Abundant scope for a young energetic and well-qualified Englishman. Preference given to one with hospital experience.—Address, No. 8904, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP IN SURREY WANTED BY M.R.C.S., L.R.C.P., male, unmarried. Ho-surgeon, house physician, and general practice experience. Own car.—Address, No. 9021, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP (OUTDOOR) WANTED. A middle November, M.B., Ch.B. (Glasg.) married, R.C., 24 years' hospital experience. The house, own car. Surgical scope an advantage, but not essential.—Address, No. 9031, B.M.A. House, Tavistock Square, W.C.1.

B.S.C., M.B., Ch.B. EDIN., SCOTTISH H.P., ex-H.S. wishes ASSISTANTSHIP with a view to PARTNERSHIP, South of Engl.—Address, No. 8901, B.M.A. House, Tavistock Square, W.C.1.

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DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or phone Temple Bar 5558, THE DISPENSER'S BUREAU, 3, Linday House, 171, Shaftesbury Avenue, London, W.C.2.

LADY DISPENSER BOOKKEEPER, QUALI- fied 13 years, experience with firm of three doctors, seeks POST with doctor. Able to drive car. Croydon district preferred.—Address, No. 9010, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL OFFICER, M.R.C.S., L.R.C.P., aged 44, British, desires POST, private mental home or any works or institution. Experienced in R.A.F. and general practice.—Address, No. 9007, B.M.A. House, Tavistock Square, W.C.1.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

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LONDON, S.E., PRACTICE, £2,250, FOR SALE, suit TWO friends. Panel 1,750. Two years' purchase. Two houses for sale or rent. Opportunity for surgery and hospital appointment.—Address, No. 9014, B.M.A. House, Tavistock Square, W.C.1.

MIDLAND CITY.—PARTNERSHIP IN pleasant part. Exceptional opportunity. Panel 2,500. £2,212 last year. Half share at £3,000 or near offer. Choice of house.—THE WESTERN MEDICAL AGENCY, 22, Clare Street, Bristol, 1 (Bristol 22689), and 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532)

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'Phone: EUSon 2111.

PARTNERSHIP IN CORNISH TOWN: £1,400 at two years' purchase. Partner should be young, married, with good medical degree, experienced G.P. Good house, garden, garage.—Address, No. 8910, B.M.A. House, Tavistock Square, W.C.1.

SOMERSET COAST—PARTNERSHIP IN country town. Panel over 1,400. Average £3,200 p.a., increasing. Third share in commencing 2 years' purchase. House rent.—THE WESTERN MEDICAL AGENCY, 22, Clare Street, Bristol, 1 (Bristol 22689), and 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532).

PRACTICES

WANTED IMMEDIATELY, PRACTICE IN London. Income £1,500 to £2,000 upwards, with a fairly large panel. Immediate cash available. Reply in strict confidence to Address, No. 8920, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, COUNTRY OR country town PRACTICE. About £1,000-£1,500 p.a., with panel. Moderate-sized house and garden.—Address, No. 9018, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, BY PRIVATE purchaser, PRACTICE, 2,000-3,000 panel patients. London or environs preferred. Confidential.—Address, No. 9019, B.M.A. House, Tavistock Square, W.C.1.

COUNTRY PRACTICE WANTED, WILTS. Hants, Dorset, with panel, appointments, good house, garden. Income about £1,000. Experienced practitioner, aged 45. Free October onwards, having sold practice.—Address, No. 9005, B.M.A. House, Tavistock Square, W.C.1.

DEVON.—UNOPPOSED COUNTRY PRA- CTICE, average £1,350, panel 800, for sale. Beautifully situated house in excellent repair with large well-stocked garden.—Address, No. 9025, B.M.A. House, Tavistock Square, W.C.1.

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LONDON, S.W.—MIXED PRACTICE, WITH panel of 1,400. £1,200 p.a. Premium £3,000. House rent.—THE WESTERN MEDICAL AGENCY, 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532), and 22, Clare Street, Bristol, 1 (Bristol 22689).

MEDICAL PRACTICE (NON-PANEL) IN Glasgow for sale, long established, substantial receipts. Good house. Terms moderate.—Apply, CRAWFORD, HERRON AND CAMPBELL, Solicitors, 257, West George Street, Glasgow, C.2.

MIDLANDS OR SOUTH.—MIDDLE AND working class PRACTICE. Urgently required doing about £1,200-£1,500 annually with substantial panel. No agents.—Address, No. 9004, B.M.A. House, Tavistock Square, W.C.1.

NORTHUMBERLAND, GOOD RURAL— Over £1,100 per annum; panel nearly 700. Excellent house. Moderate premium.—GARRONRY DREW AND KESCHING, 17, Pilgrim Street, Newcastle-upon-Tyne (Newcastle 21723).

NUCLEUS OFFERED (ABOUT £200), TO BE worked in partnership South Coast. Rapidly growing district, excellent scope for energetic WOMAN. Scotch graduate preferred. Reasonable premium.—Address, No. 8906, B.M.A. House, Tavistock Square, W.C.1.

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S.W. SUBURB—INCREASING PRACTICE, established 4 years. Income £700; panel 600; appointment £76. Detached house, 4 bed., 2 rec. Excellent surgery; garden. Premium £1,150.—Address, No. 8932, B.M.A. House, Tavistock Square, W.C.1.

WEST LONDON SUBURB, PRACTICE FOR sale. Panel (900) and private. Receipts about £1,400. Small compact house for sale or lease. Rapidly developing area with large scope.—Address, No. 9033, B.M.A. House, Tavistock Square, W.C.1.

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BRIDGE OF ALLAN SPA AND MINERAL WELLS

Offers are invited for a Lease of this famous SPA AND MINERAL WELLS, the property of BRIDGE OF ALLAN TOWN COUNCIL. The SPA buildings are in excellent condition and are equipped with the most complete installation for all modern treatments; there is also a magnificent Sun Lounge. The Mineral Waters, which have a high content of Calcium, Iodine and Bromine, are claimed by the highest authorities to be among the finest in Europe. Offers should be addressed to the Town Clerk, Bridge of Allan, Stirlingshire, so as to reach him not later than October 10th next.

DENTAL SURGEON DESIRES ACCOMMODA- TION in doctor's house, with view to COMMENDING PRACTICE. In or near London.—Address, No. 9024, B.M.A. House, Tavistock Square, W.C.1.

QUEEN ANNE STREET.—ONLY £40 P.A. secures exceptionally fine **CONSULTING ROOM** for use when required, with attendance and all services. Residential accommodation available. Address, No. 6355, B.M.A. House, Tavistock Square W.C.1.

QUEEN ANNE STREET, W.1.—SURGEON wishes to **SHARE** his **CONSULTING SUITE** of two rooms—one fitted as an examination room. Suit Urologist, Gynaecologist, or other specialist. Plate on door available. Low rent.—Address, No. 8908, B.M.A. House, Tavistock Square, W.C.1.

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APPOINTMENTS.—Contd.

WEST LONDON HOSPITAL, HAMMER-SMITH, W.6. (239 Beds.)

There is a vacancy for the newly created post of **HONORARY PHYSICIAN FOR PSYCHOLOGICAL MEDICINE**. Candidates, who may be men or women, should be Members or Fellows of the Royal College of Physicians, London, and should have had some experience in Child Psychiatry. A Diploma in Psychological Medicine is desirable. The candidate appointed would be expected to undertake at least one Out-Patient Session per week and such teaching as may be required by the Medical School. The appointment does not carry with it the charge of any Hospital beds.

Applications, accompanied by copies of testimonials, must reach me by first post on Thursday, October 20th. Candidates must attend a meeting of the Medical Council at 4.30 p.m. on Friday, October 21st, and prior to that date call upon and send copies of their application and testimonials to each member thereof. They must not canvass members of the Board, but, nevertheless, must send copies of their application and testimonials to each member thereof and, if so notified, be in attendance at a meeting of the Board at 5 p.m. on Tuesday, October 25th, when the appointment will be made.

H. A. MADGE, Secretary.

WEST LONDON HOSPITAL, HAMMER-SMITH, W.6. (239 Beds.)

An additional **HONORARY REGISTRAR** is required for the Throat, Nose, and Ear Department. The appointment is for one year from November 1st next and, subject to annual re-election, may be extended for a period of not longer than three years.

Applicants must be duly qualified registered Medical Practitioners with previous experience in oto-laryngology.

Applications, accompanied by copies of testimonials, must reach me not later than Thursday, October 20th, first post. Candidates must attend a meeting of the Medical Council at 4.30 p.m. on Friday, October 21st, and, prior to that date, call upon and send copies of their applications and testimonials to each member thereof. They must not canvass members of the Board but, nevertheless, must send copies of their application and testimonials to each member thereof and, if so notified, be in attendance at a meeting of the Board at 5 p.m. on Tuesday, October 25th, when the appointment will be made.

H. A. MADGE, Secretary.

WEST LONDON HOSPITAL, HAMMER-SMITH, W.6. (239 Beds.)

CHIEF ASSISTANT to the Department for **TREATMENT OF INJURIES** required. The post is a resident one and the duties commence on November 1st. Salary at the rate of £200 a year, with board and lodging. Candidates must be duly qualified registered Medical Practitioners, and it is desirable that they should possess one of the higher Surgical Degrees or Diplomas. They must have had special experience in the treatment of fractures. The appointment, which is terminable by a month's notice on either side, will be for a period of six months in the first instance, but this period may be extended.

Applications, which must be made on printed forms obtained from me, must reach me not later than first post on Thursday, October 20th. Candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at a Medical Council Meeting at 4.30 p.m. on Friday, October 21st, and the House Committee Meeting at 5 p.m. the same day, when the appointment will be made.

H. A. MADGE, Secretary.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Grade II).—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(a) **DULWICH HOSPITAL**, East Dulwich Grove, S.E.22 (two positions):

(1) Duties mainly medical, obstetrical experience desirable.

(2) Duties mainly medical, experience in anaesthetics desirable.

(b) **QUEEN MARY'S HOSPITAL**, Sidcup, Kent.—Duties mainly medical (male convalescent hospital), surgical experience desirable.

(c) **ST. JAMES' HOSPITAL**, Ouseley Road, Balham, S.W.12.—Duties obstetrical, gynaecological and anaesthetic experience essential.

(d) **ST. MARY ISLINGTON HOSPITAL**, Highgate Hill, N.19.—Duties mainly medical.

(e) **ST. MATTHEW'S HOSPITAL**, Shepherdess Walk, N.W.1.—Medical duties.

*No accommodation for a woman.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division, 2a), County Hall, S.E.1, returnable by October 17th.

Canvassing disqualifies.

COUNTY BOROUGH OF SOUTHEND-ON-SEA.

SOUTHEND MUNICIPAL HOSPITAL.

The House Committee of the Town Council invite application for the appointment of Resident Deputy Medical Superintendent at their Municipal Hospital situated at Rochford, Essex (460 Beds). Extensions to existing hospital buildings are now in course of erection. There is a staff of visiting Consultants, and the hospital is a recognized training school.

The applicants must have had experience in emergency surgery and treatment of fractures, and previous administrative experience will be a recommendation.

Salary £200 per annum, rising by annual increments of £25 to £600 per annum, together with board, residence and treatment of Enrolments valued at £150 per annum for Superannuation purposes.

The appointment is a designated post under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Application forms to be obtained from the Medical Officer of Health, The Municipal Health Centre, Warrior Square, Southend-on-Sea, and should be returned to him on or before October 19th, 1938.

Town Clerk's Office, H. I. WORWOOD, Southend-on-Sea. Town Clerk.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.2. (204 Beds.)

The Board of Management invite applications for the post of **EAR, NOSE AND THROAT SURGEON**. Candidates must be Fellows of the Royal College of Surgeons of England or of another recognized College. Attendance required, two half-days weekly. The appointed candidate will have charge of beds.

An honorarium to cover travelling expenses will be paid. Further information may be obtained from the undersigned, to whom applications, with copies of three recent testimonials, should be sent not later than October 12th, 1938.

CHARLES H. BESSELL, Secretary.

BIRMINGHAM AND MIDLAND EYE HOSPITAL. (114 Beds.)

Applications are invited from duly qualified Medical Practitioners for the post of **HOUSE SURGEON** at the above Hospital.

Salary £130 per annum (rising to £150 at the end of six months satisfactory service) and £10 laundry allowance.

The Resident Staff consists of a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials and evidence of registration, should be forwarded immediately to the undersigned.

J. W. PEARCE, House Governor.
Church Street, Birmingham, 3.

ST. ALBANS AND MID-HERTS HOSPITAL, Church Crescent, St. Albans.

(50 Beds.) (One Resident Medical Officer.)

Applications are invited for the post of **RESIDENT MEDICAL OFFICER**. Salary £150 per annum, with board, residence, and laundry.

The post will become vacant on October 17th next.

Applications to be sent to the Secretary, St. Albans and Mid-Herts Hospital, Church Crescent, St. Albans. Telephone No. 4516.

ST. BARTHOLOMEW'S HOSPITAL, Rochester. (200 Beds.) (Four Residents.)

The House and Finance Committee invite applications for the posts of **HOUSE PHYSICIAN** and **HOUSE SURGEON**, which will become vacant on October 25th, 1938.

Candidates must be unmarried, qualified, and registered medical men. The appointment is for six months. Salary at the rate of £150 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, experience, etc., accompanied by copies of two testimonials or one from the Dean of the candidate's Medical School should be received by the Superintendent-Secretary not later than noon, October 13th, 1938.

Canvassing the Honorary Staff will disqualify.

TILBURY HOSPITAL, ESSEX (Seamen's Hospital Society). (92 Beds.)

HOUSE SURGEON (male) required for six months as from October 1st. Salary £140 per annum, with board, residence, and laundry.

Applications, with copies of three testimonials, to be sent immediately to the undersigned.

F. A. LYON, Secretary.
Seamen's Hospital Society,
Greenwich, S.E.10.

THE BIRMINGHAM UNITED HOSPITAL (Medical School.)

Applications are invited for the post of **ASSISTANT BACTERIOLOGIST**.

Candidates must be Registered Medical Practitioners. Commencing salary £350 per annum.

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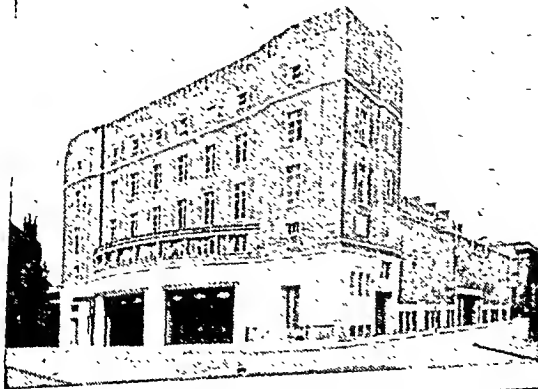
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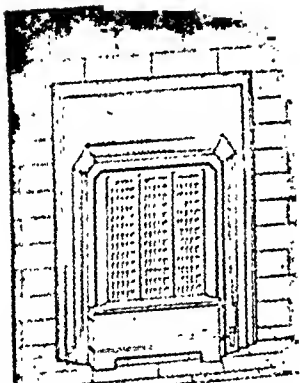
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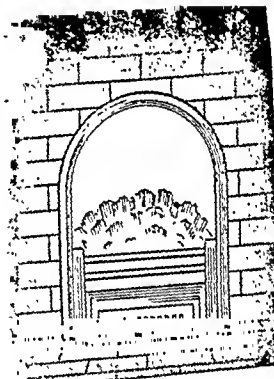
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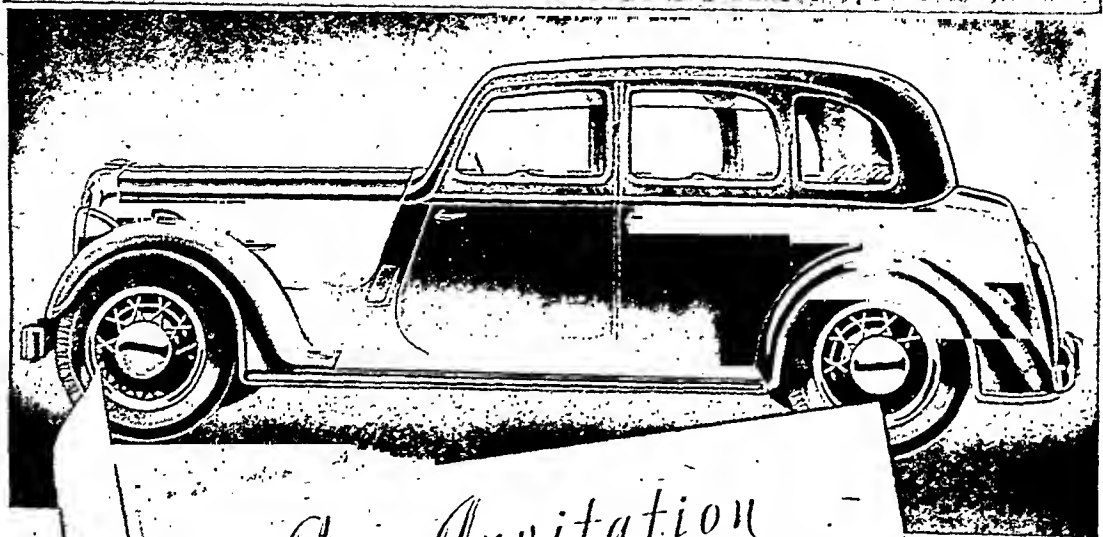
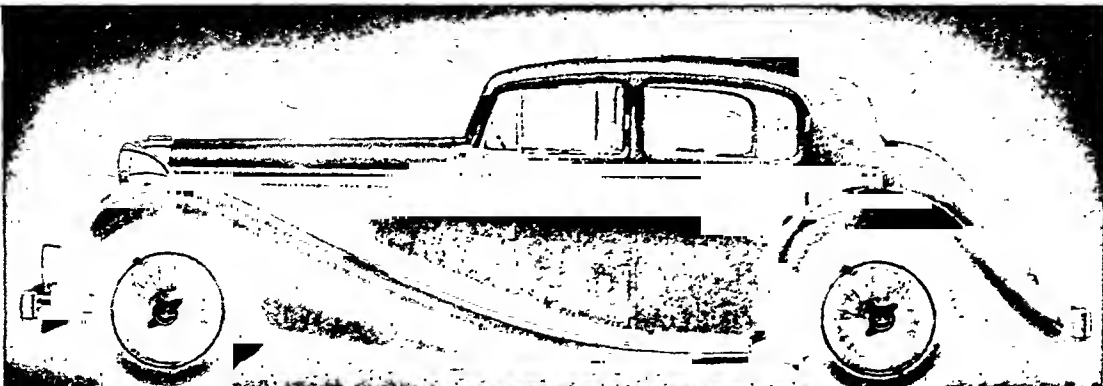
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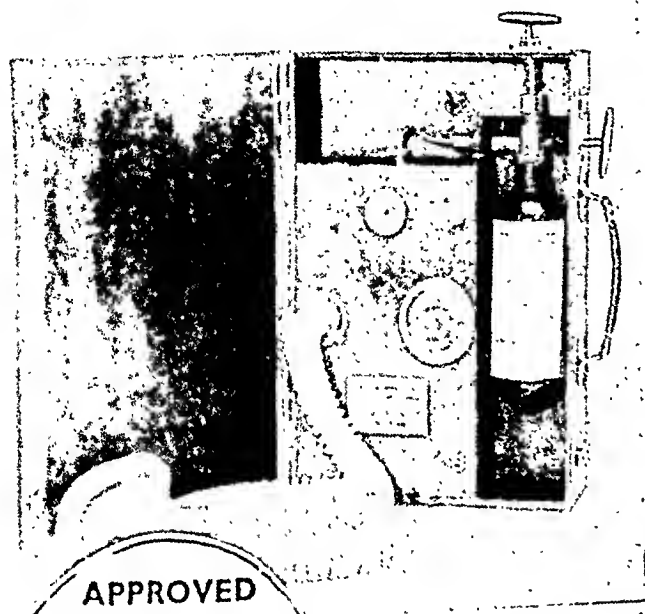
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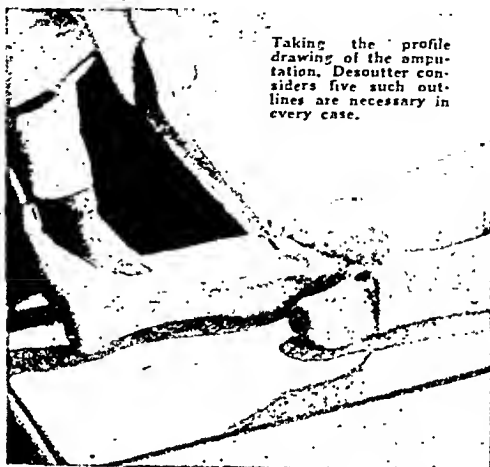
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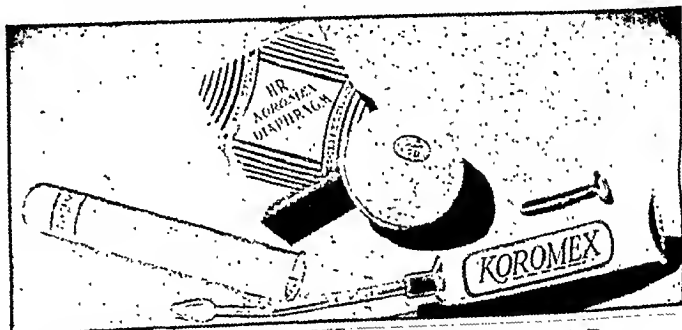
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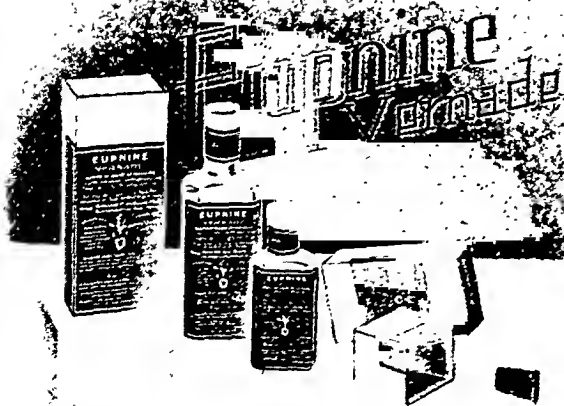
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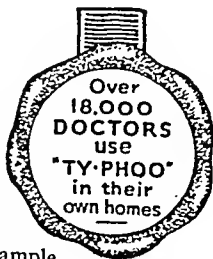
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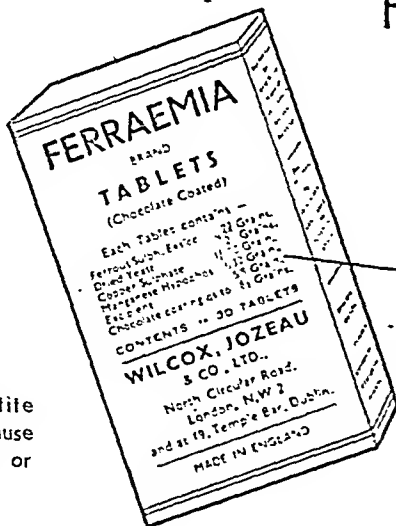
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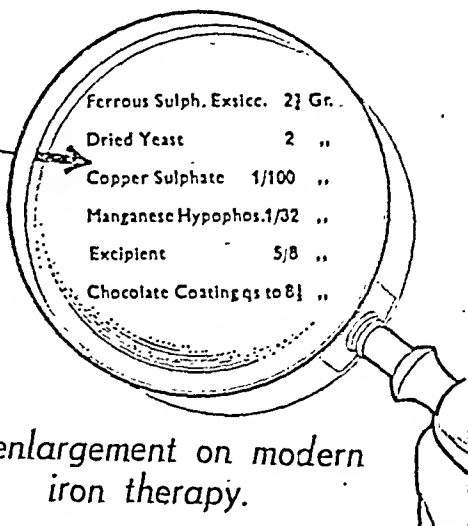
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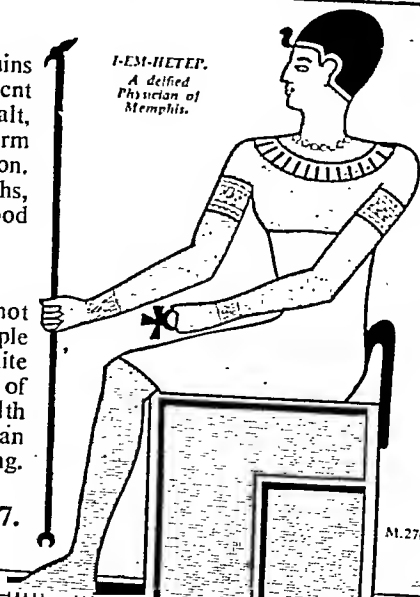
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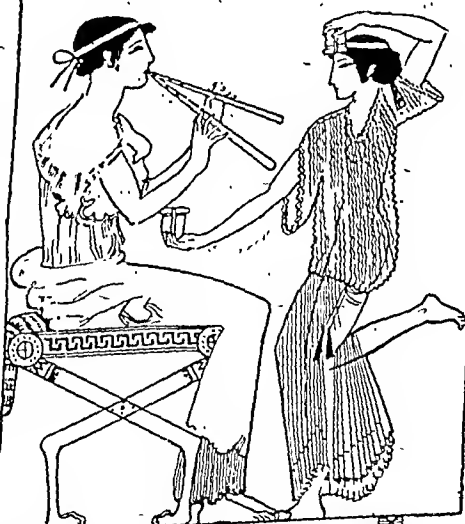
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Paranasal Sinusitis



Fig. 1.—A sagittal section of a normal skull.

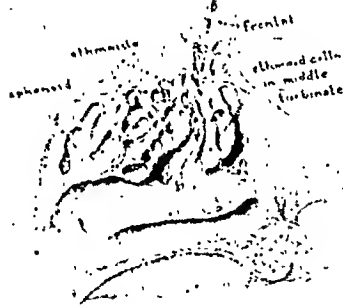


Fig. 2.—Complete exposure of the intricate cellular inter-communications and correlations of the frontal, sphenoidal, and maxillary sinus relations.



Fig. 3.—A semi-diagrammatic composite of Figs. 1 and 2.

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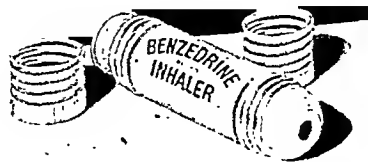
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(*Clin. Med. & Surg.*, Jan., 1937.)

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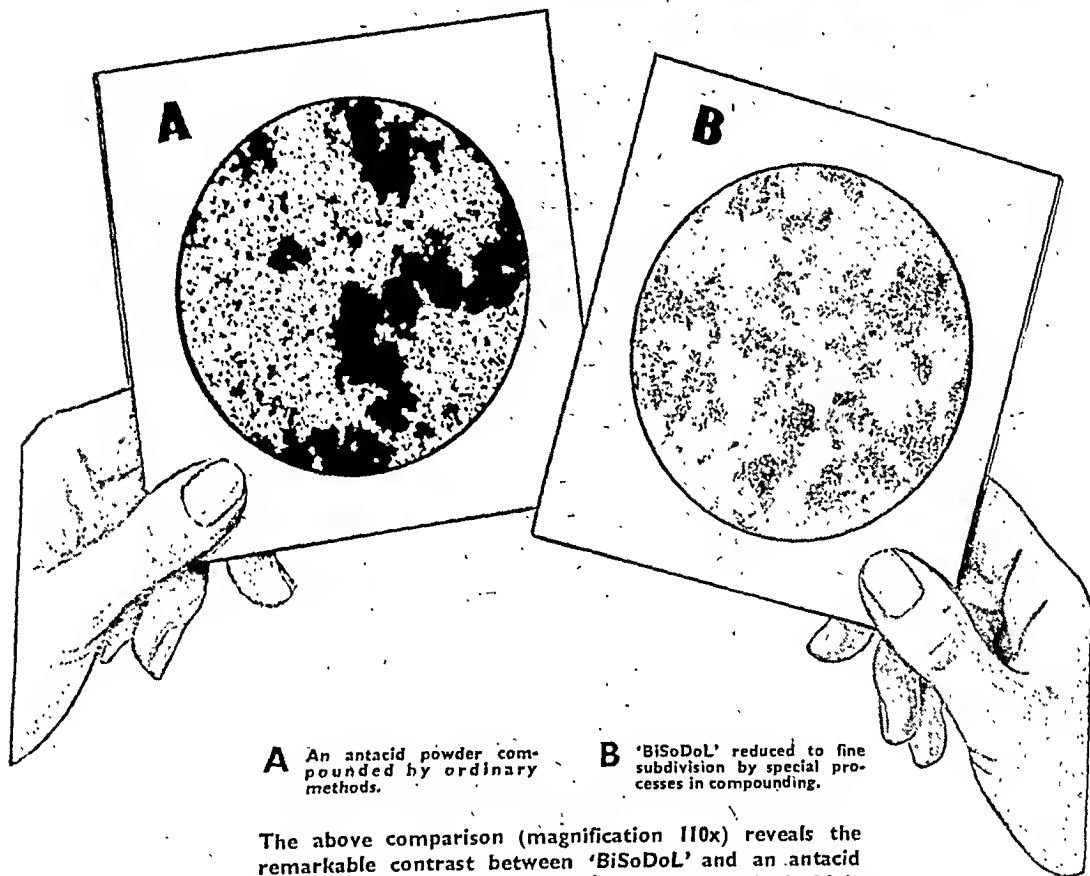
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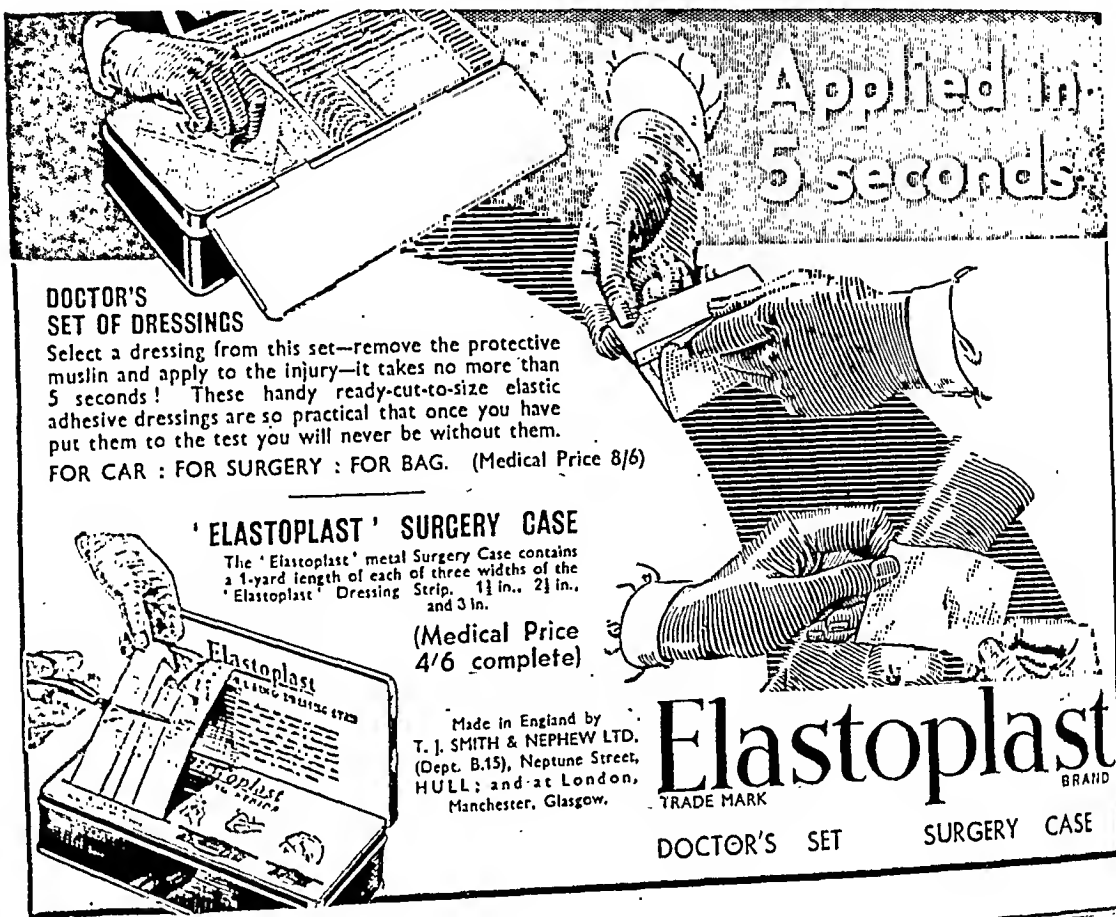
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THE MODERN DECLINE OF BREAST-FEEDING*

BY

J. C. SPENCE, M.D., F.R.C.P.

Assistant Honorary Physician to the Royal Victoria Infirmary, and Honorary Physician to the Babies Hospital, Newcastle-upon-Tyne

Prosperity and social comfort have not encouraged maternal breast-feeding of the human infant. There can have been few women of fashion in the eighteenth century who did not hire a wet nurse to succour and suckle their babies. At that time the wet nurse was the mother-substitute, and failing a wet nurse the mother must feed her own infant or it would die. Now we have changed all that. Since then we have learnt how to feed babies on cow's milk in a simple and relatively safe manner. We have invented the feeding-bottle and the rubber teat. Chemists have shown us the composition of milk, and commerce has made it available for all. We can have it fresh, dried, or condensed. We know how much to give and how to give it in order to promote an infant's growth. The cow is now the mother-substitute, and in this country there is no mother who cannot obtain this substitute if she so desires it. It is therefore an appropriate moment to ask ourselves to what extent there is a decline in maternal breast-feeding, and to inquire into the cause and effects of this decline. If it be found that a considerable proportion of women are gestating and bearing children but are cutting short this reproductive cycle by failing to lactate, it is surely both a matter of biological or clinical importance and a social experiment of great scientific interest.

The clinical importance of breast-feeding has always been recognized by paediatricians; but here again it is an appropriate moment to remind ourselves of this fact, for the infant mortality in this country remains twice as high as that in many other countries, and in some of our industrial towns it remains three times as high as it is, for example, in towns of similar size in Australia. Moreover, in some of our towns it has been slowly rising in recent years in spite of an increase in public expenditure on child welfare. This means that of the 40,000 deaths of infants each year in this country 20,000 might be prevented, or, to bring it nearer home, of the 500 infant deaths which take place each year in some of our industrial towns at least 300 could be prevented. The Edwardian question, "If preventable, why not prevented?" should be sufficient to keep alive our clinical interest in this important subject. That it is important can be recognized by comparing it with the clinical and social significance of a disease like pernicious anaemia. There can be no more than 7,000 or 8,000 people with per-

nicious anaemia in this country, yet the scientific and clinical interest involved in treatment of these old people is out of all proportion to that devoted to the prevention of the 20,000 preventable infant deaths each year.

It may be said that I am pushing an open door, that it is well recognized that an encouragement of breast-feeding is one of the methods of combating the excessive infant mortality. But there are many who do not recognize it. Let me quote a medical officer of health of one of the large towns who has recently written in his annual report: "I have reached the stage when I question very much if there is any material advantage in keeping an infant on the breast. Further, I believe that fewer dietetic troubles occur in the artificially fed babies, because there is less likelihood of overfeeding and irregular feeding and there is greater control of the diet. I have not seen any recent evidence to suggest that the artificially fed child is more prone to disease or more likely to succumb to disease than his naturally fed brother, neither do I think that he is responsible for the large number of rejects found amongst recruits to the national services. Finally, so far as the mother herself is concerned, I think it is to her advantage that she should not feed her child. The whole action of feeding acts as a drain on her resources and curtails her activities over a long period, and certainly does not encourage her to increase the number of her family." There can be no doubt that statements like this encourage the use of cow's milk at the expense of breast-feeding and that they represent a view which is spreading in some sections of the community.

The Incidence of Breast-feeding

Accurate information about the incidence of breast-feeding is difficult to find, and is still more difficult to compare on account of the difference in the methods of enumeration used. We desire to know what proportion of babies in various countries or in different social groups are breast-fed or artificially fed from birth. We desire to know also at what age weaning takes place. It is this precise information that is lacking. Some observers record their results by estimating the average duration of breast-feeding, others the proportion who are entirely breast-fed for six months or nine months. But there is no commonly adopted system of collecting statistics which tells accurately when women wean their babies. From maternity hospitals we can obtain accurate information about the feeding of infants in the first few weeks of life. This in itself is valuable, for in this neo-natal stage

* Read in opening a discussion in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Plymouth, 1938.

nutrition and protection from inimical influences are more important than at any other age. Moreover, since a large proportion of babies are weaned shortly after this neo-natal stage the incidence of breast-feeding at this time tells a good deal about the trend of events.

In Newcastle Dr. Frank Stabler has made careful statistical studies of the clinical material in the Princess Mary Maternity Hospital in recent years. He has supplied me with the following figures, which represent the percentage of those infants leaving hospital at about the end of the second week of the puerperium who are wholly breast-fed:

| | | | |
|-------------------------|-------|-------------------------|-------|
| 1933 (1,431 infants) .. | 87.8% | 1935 (1,436 infants) .. | 80.9% |
| 1934 (1,460 ") .. | 84.3% | 1936 (1,346 ") .. | 74.6% |

These figures from a city maternity hospital do not perhaps give a fair example of the people, so I have collected information from a private nursing home for middle-class patients and have excluded all patients with obstetrical difficulties or physically defective children. The matron is a sagacious woman with a strong personality who encourages breast-feeding wholeheartedly. Between 1934 and April, 1938, there were 1,046 normal deliveries, and of these 76.8 per cent. of the infants left the home wholly breast-fed, 19.6 per cent. partially breast-fed, and 3.6 per cent. wholly bottle-fed. The majority of infants who are only partially breast-fed in hospitals are shortly weaned, so it is plainly to be seen that in this town satisfactory breast-feeding in the neo-natal period is maintained by only three-quarters of the mothers, and that there has been a significant decline in the incidence of breast-feeding in recent years. In Edinburgh Dr. T. Y. Finlay has made a careful estimate of the incidence of breast-feeding by visits to the homes of three sample groups totalling 3,000 mothers, and has allowed me to use his results. The sample groups agree closely, and show that at the tenth to fourteenth day 87 per cent. of the mothers are wholly breast-feeding their infants.

There is an immediate decline in the incidence of breast-feeding when the mother resumes domestic and social duties. Dr. George Brewis has collected statistics of 1,326 infants who attended the municipal welfare centres in Newcastle in March, 1938. Of these, 58.4 per cent. were wholly breast-fed at three months and 34.7 per cent. at 6 months. In Edinburgh, of the 3,000 mothers visited between the third and sixth months 55 per cent. were continuing to wholly breast-feed their infants and 38.5 per cent. when visited after the sixth month. In both towns the child welfare services give ardent encouragement to the mothers to breast-feed their infants, so the results may be regarded on the high-water mark of achievement in big towns under prevailing conditions. A similar state of affairs obtains in other towns and other countries. In a South Lancashire centre in 1933 Wilson found that 50 per cent. of the infants were weaned at the third month. In an American village Bisal found that only 31 per cent. were breast-fed for three months. In Scandinavia two investigations have shown that 32 to 40 per cent. were breast-fed for six months. In Riga only 19 per cent. were breast-fed for six months. In America conditions wholly breast-fed for six months. In America conditions that breast-feeding exclusively for the newborn is about extinct in Brooklyn amongst the middle-class mothers. Yet in Chicago of 20,061 infants under the care of the welfare service from 1924 to 1929, 48.5 per cent. were entirely breast-fed for nine months.

For our argument it is safe to assume that, apart from the little milk that may be yielded in the first few days, 20 to 30 per cent. of babies are artificially fed from birth

in many if not most of our big towns, and that not more than a third of the mothers of these towns are fully feeding their babies until the sixth month. My experience is that bottle-feeding is a habit which readily spreads. If one woman in a maternity ward resorts to bottle-feeding others immediately begin to find difficulties in their own ability to breast-feed. So under prevailing conditions we can presume that a further decline in the incidence of breast-feeding will take place.

Influence of Feeding on the Infant's Health

The medical officer of health whom I have quoted is not alone in questioning the superiority of breast-feeding over artificial feeding in maintaining the health of the infant, and the belief has spread to other quarters. Modern advertisements and other agencies have persuaded large numbers of women that artificial feeding is entirely safe and satisfactory for their infants and not disadvantageous to themselves. The mother-and-child subject favoured by the mediaeval painters has been replaced by the baby-and-bottle subject or the studio-milkmaid subject of the modern photographic poster.

It is possible that hospital physicians seeing so much of sick infants are apt to exaggerate the dangers of artificial feeding. But, having taken that into account, it is beyond all question that breast-fed infants show a greater freedom from disease and a greater power of recovery from disease than artificially fed infants. The results in pyloric stenosis give straightforward evidence about this. In the Newcastle Babies' Hospital the mortality in 114 breast-fed infants with pyloric stenosis has been 5 per cent., but in 133 bottle-fed infants it has been 30 per cent. But the most complete evidence is to be obtained from the studies of Grulee and Sanford in Chicago. They investigated the morbidity rates and mortality rates in 20,000 infants. Including every minor disturbance of health, the morbidity rate in the breast-fed group was 37 per cent., in the partially breast-fed group 53 per cent., and in the artificially fed group 63 per cent. The mortality rates were still more striking. Of their 9,749 breast-fed infants only fifteen died, of 8,605 partially breast-fed infants 144 died, and of 1,707 artificially fed infants 144 died. These figures are significant enough to require no elaboration. But apart from the immediate significance of high morbidity rates and high mortality rates in artificially fed infants, there may be remote ill effects which have not yet been recognized or defined. It is possible that some of the serious degenerative diseases of adult life have their origin in the artificial feeding of infancy. I know of no investigation of this problem which has been scientifically carried out to disprove this, and we may recognize that such remote results are within the bounds of probability when we recall the wonderful clinical observations of Nye, that temporary exposure of children to the paint on veranda floors of wooden shacks produced arteriosclerosis and chronic nephritis thirty and forty years afterwards.

Breast-feeding and the Mother

There are difficulties in approaching this question of the effects of breast-feeding on the mother herself. Apart from the observation that repeated lactation in non-nourished women may produce anaemia, there is very little scientific information on this subject. It might be suspected that women who have cut short the reproductive cycle by failing to lactate would be prone later to develop endocrine disorders. The pathological obesities which sometimes follow pregnancy suggest that a mismanagement

ment of lactation may be an example of this. In the absence of scientific information opinions appear to be based largely on sentiment.

Much more is known about cows. Out of a common pedigree stock of shorthorn cows the breeders by selection have produced in thirty years two distinct strains—the dairy shorthorn and the beef shorthorn. Intensive breeding of these strains has resulted in a remarkable difference in their milking capacity. The dairy strain of shorthorn is capable of yielding five to six gallons of milk a day. The beef strain is capable of yielding less than two gallons of milk a day. So far has this gone that there is a danger that the beef-strain shorthorn will become incapable of yielding enough milk for her own calves. Selective breeding from human beings who hold the view that breast-feeding is no longer necessary may have remote biological effects we do not foresee.

The effects of lactation on the mother's character, temperament, and mental outlook deserve equal consideration with the physical or biological effects. This aspect has received very little study. Modern novelists, eager as they are to explain every conscious and subconscious gesture of their subjects, have hardly touched the theme. Havelock Ellis in his *Psychology of Sex* gives it relatively little notice. Yet the puerperal period is characterized by most interesting and distinctive psychological reactions. The desire for a mother to be left alone to sleep immediately after parturition has both a physical and a psychological value. And afterwards her peculiar jealousies and her craving for individual attention both suggest that she needs a special environment, for psychological as well as physical reasons. Again, if one is to judge by the look of lascivious content that comes over some women's faces as they feed their infants there must be a sense of achievement in the act which has a definite value in maintaining their mental health. These mental states and emotional states of the lying-in woman deserve careful elucidation. Most of those whose profession it is to research or to write are debarred either by their sex or by their sterility from judging aright in this matter. But there are some who are equipped by experience and insight to undertake this work, and I would suggest that they should elucidate these problems for us. For my part I can say only that in most cases I can recognize a woman who has successfully breast-fed an infant, and that I find her to be a saner and a more sensible woman than her sister who has failed to do so.

The Physiology of Lactation

If we are to discuss the causes of failure in breast-feeding it will be well to consider first the mechanism of lactation. New knowledge of the ovarian hormones and the pituitary hormones has filled many gaps in our understanding of this. During pregnancy the ovarian hormones develop and increase the breast tissue and the nipples, which in this way are prepared for lactation. Immediately after parturition the ovarian hormones which inhibit lactation recede, and a pituitary hormone, "prolactin," then comes into play and establishes lactation. Later lactation is maintained by this pituitary hormone secreted under nervous reflex influences. There are at least two of these reflex influences. The first is the frequent emptying of the breast by suckling; the second is a nervous influence engendered in the emotional state of the mother and probably acting through the hypothalamus. Fear, doubt, anxiety, and lack of interest are states of mind which inhibit lactation. I have known a woman to be secreting daily thirty-five to forty ounces of milk for her infant

and yet the yield has fallen suddenly to three or four ounces a day under the influence of a dispute with the father of the infant. In my experience it is emotional disturbances in which the father is concerned that have the greatest inhibiting effect, but over-anxiety about her own ability to feed her infant is almost as harmful. The behaviour of the father during and shortly after the mother's parturition, although often a subject for ridicule, is significant enough to suggest a remnant of some remote biological purpose, and as such it has been studied by the anthropologists. For our purpose it is sufficient to say that in the early stages of lactation he should remain an admiring and protective figure in the background, while his wife receives the ministrations and exhortations of a sagacious and experienced woman.

Studies of mothers' behaviour after parturition indicate that it alters in three distinct stages, each of them with a bearing on lactation. The first stage is one of profound rest and relaxation both for mother and child which may last for twenty-four to forty-eight hours. The child should not need milk or other fluid in that stage, and the mother should be free from meddlesome interference. It is one of the most miraculous of physiological arrangements that lactation is delayed in that early period and afterwards is suddenly established simultaneously with the awakening child's desire for food. The second stage is the establishment of lactation. This may take five or six days, and corresponds to the physiological lying-in period. In this stage the mother will require the help of the modern equivalent of the experienced and sagacious woman. Between these two the establishment of lactation should be a co-operative function, with the mother being allowed to fondle her child as often as she wishes, and without any fixed rules about four-hourly or three-hourly intervals. Another feature of this stage is that the mother requires to be segregated and free from distractions. She should, if possible, be in her own room, concerning herself only with the joys and duties of recovering from her labour and launching her infant on its new mode of existence. Studies of the peculiar jealousy reactions of lying-in women indicate the physiological need for this segregation. If in a surgical ward there are twelve women who have recently had operations for appendicitis we observe no jealousy and no unusual behaviour when a nurse gives particular attention to one of their number, but if there are twelve women in a maternity ward, all recently delivered, and a nurse has to give particular attention to one of them, there is immediately an atmosphere of jealousy which shows itself in demands for bed-pans and for other forms of individual attention. The third stage follows the lying-in period and begins when the mother, now out of bed, takes the feeding and care of her infant into her own hands. In these days its commencement, for many women, corresponds with the day of their discharge from a maternity hospital, abruptly to shoulder the double task of tending to their infants and their homes. Too often the significance of these stages and the need for the mother to pass successfully from one to another is overlooked. Particularly in maternity homes and by maternity nurses are they overlooked. For ten or fourteen days the mother follows the ritual of a hospital bed-patient with her infant presented to her at the ordained intervals, and then on the next day full responsibility is suddenly transferred to her.

There are wide variations in the time and rate at which lactation is established. This is well recognized, but it is not sufficiently understood that lactation may have been prevented for several weeks and yet be re-established. I have seen it re-established eleven weeks after parturition

in a woman who has resorted to bottle-feeding her infant, and who had not previously secreted any breast milk either by suckling or by manual expression.

There is a good deal of misunderstanding concerning the chemical composition of human milk. Fantastic theories of infant feeding have been built on the supposition that it is a food containing fixed and optimal quantities of protein, fat, and sugar. Far from being fixed, there is considerable variation in its composition from one feed to another. The fat content of human milk is commonly 3 per cent. at the first feed of the day, 6 per cent. at the second feed, and between 4 and 5 per cent. at the later feeds. The protein and sugar contents vary also, but to a lesser degree. Even the volume of feeds fluctuates widely under natural conditions. A healthy baby may require and take six ounces at one feed and be satisfied with three ounces at the next. I wish to emphasize these facts, for I shall refer to them again when dealing with the causes of failure in breast-feeding.

Concerning the normal mechanism of lactation there remains one other question. What percentage of women are incapable of breast-feeding because of physical abnormalities? Less than one cow in a thousand fails to lactate. Is the greater number of women who fail due to inherent structural faults or to environmental causes? In many rural districts in this country at least 95 per cent. of women successfully establish their lactation. There is no reason to think that with proper management the proportion of urban women capable of doing this is less than it is among the rural women. An endocrine mechanism which has allowed a woman to conceive and give birth does not at that stage fail to provide for lactation. There remain a few, less than five per cent., in whom it is physically impossible to establish lactation either because of diseased or malformed nipples, or because the infant cannot suck on account of mental defect or of cleft palate or other physical fault. All women who are not handicapped by these physical defects can breast-feed their infants if they desire to do so and if they are not prevented by an unsuitable environment.

The Failure of Lactation

There are those who cannot, those who will not, and those who know not how to breast-feed their infants.

Those who cannot I have already mentioned. They are a small group with physical faults in themselves or in their infants. Those who will not breast-feed their infants I shall not discuss, except to say that often the fault lies not in themselves but in those who advise them. It is due as much to ignorance as to selfishness. It is fostered by a belief that bottle-feeding is adequate and breast-feeding no longer necessary. Modern methods of advertisement are responsible, but the fault lies also in the readiness to receive advice and the desire which lurks in everyone to give advice about health and to appear possessed of occult secrets when giving it. The medical profession itself is not free from the influences of advertisement. No doctor receives a blotter once a week advertising breast milk. Too often do we hear of advice being given from within the profession that an infant must be weaned because the breast milk is not agreeing with it—advice portentously linked with a recommendation of a special brand of infant food, suggesting again the possession of a secret knowledge of the biochemical advantages of that brand of cow's milk over human milk for an infant who later may be found to be suffering from pyloric stenosis. More recently another kind of belief has arisen which encourages the weaning of babies. It is a belief

that has grown out of the publicity about malnutrition and extra nourishment. It was illustrated for me by a young wife living on a completely adequate diet, who told me that she could not breast-feed her infant because she was not receiving "extra nourishment" from a welfare centre. For this reason she had weaned her baby. The need for adequate nourishment of nursing mothers is obviously important, but here was a woman, typical of many in this country, muddle-headed by what she had read. In its effects this ignorance is the same as the selfishness of the young wife who will not feed her infant and explains it by saying that her husband wishes her to go about with him and does not like her to breast-feed—the wife who sacrifices the role of mother to that of mate.

It is those who know not how to breast-feed and fail in spite of their desire to do so who deserve our close consideration in this discussion. This failure ordinarily takes place chiefly in two stages. The first is in the lying-in period, through difficulties in establishing lactation. The second is shortly after the lying-in period, through difficulties in maintaining lactation.

I believe the chief cause of failure in establishing lactation is due to mismanagement. To explain this I can do no better than quote from a letter from Dr. Clifford Grulee: "My personal opinion is that all this talk of the modern woman being unable to nurse her baby is due very largely to the modern nurse's tendency to poke a bottle of milk in the baby's mouth, which of course is due to the indifference of the physician." He goes on to describe that in one of his hospitals they have two services for the newborn. In one, the out-patient service, 95 per cent. of the babies were being breast-fed at the end of the lying-in period. In the other, an in-patient department, less than 50 per cent. were breast-fed. They have been able to raise this to almost 90 per cent. simply by refusing to give the child a bottle in the first week of life. If fluid is required a little is given from time to time from a medicine-dropper. The attitude of the nurse at this stage is of supreme importance. I know of one maternity nurse who, after having been in practice for fifteen years, came to a household in which she was first enthused about breast-feeding and then instructed in overcoming the difficulties of establishing it. Prior to that more than half her babies had been bottle-fed. When seen a few years afterwards she proudly proclaimed that since her sojourn in that house she had never failed to establish breast-feeding. The essence of the faults in most hospitals and nursing homes is that they attempt too much to mechanize breast-feeding. They have institutional rules about the times of feeds, the amount of feeds, the weighing of babies, and the test weighing of feeds, to which they try to fit the patient. If this is not successful anxiety is aroused, and immediately the difficulty of establishing lactation is increased. I heard recently of a woman troubled much by insomnia throughout her pregnancy who was delivered of her child in the early hours of the morning and then fell into a satisfactory post-partum sleep, to be awakened at seven o'clock to have her teeth brushed. The lying-in room is becoming too much a combination of a sick-room and a flower-decked reception room. After lactation has started the mother should be allowed to fondle her child as often as possible. There should be no test-weighing of the feeds and no temperature-taking of the infant unless clinical observation indicates the need for it. And there should be no feeding of a healthy newborn baby with a bottle until the first week at least has passed and it is proved that the breast

milk is inadequate. Finally, in houses and hospitals each mother should have her own room. If this can be afforded for the inmates of prisons it should be possible to afford it for the mother of babies. In her own room she would be free not only from the contagion of bacterial disease but also the contagion of desire to bottle-feed which at times spreads from mother to mother in a big ward.

Probably the most important cause of failure to breast-feed among those who desire to do so is the temporary inhibition of lactation which occurs shortly after the lying-in period when the mother returns to her household duties. This is interpreted as a final disappearance of the milk, with the result that she resorts to bottle-feeding. This could be overcome to a large extent by allowing the mother to be out of bed for a few days in the hospital before returning home, and by warning her that the disappearance of the breast-milk will probably last only for a day or two and that it can be restored with perseverance. I shall quote one more example to illustrate the faults of the mechanization of breast-feeding. Some time ago I was summoned to the house of young parents to see a three-months-old infant. The father was a lecturer in science, the mother a recent graduate of a university. The bookcase in unstained oak, the bare off-white walls, and the weekly political journals denoted their type and tastes. She was an earnest woman, breast-feeding her infant and anxious to continue. The complaint was that the child had failed to gain weight for a month and was but little over its birth weight. It was much troubled by frequent green stools and restlessness. I suggested that the child had no disease, but was receiving too little nourishment. This was denied by the mother, who produced figures and charts to show that test weighing had been used for every feed since birth, and that the infant had received the exact physiological amounts of breast milk—so many ounces a day for each pound of its body weight. She quoted authorities at me to prove her point. I persuaded her to discard the test weighing and to feed the infant five or six times a day until he appeared satisfied. In ten days he gained a pound, and there was no more trouble and no more test weighing. This over-mechanization is again seen in the frequent appeal to know whether a baby should be fed at four-hourly or three-hourly intervals. I would submit that the reply to this should be that the mother should cultivate an instinctive recognition of her own baby's needs, that she should come to know when the baby is satisfied, and that she should then choose the times of feeding most suitable to herself and her child. Only in difficulties should professional advice be sought.

Conclusion

It appears that the incidence of breast-feeding is declining. The causes of this are our increasing indifference to the value of breast-feeding and a mismanagement of the mother in the early stages of lactation. The correction of the fault lies mainly in the hands of those who tend and advise the mother in and shortly after her lying-in. Big hospital wards and crowded child welfare centres do not provide an atmosphere which encourages breast-feeding. Better education of doctors and maternity nurses in the care of infants may help to correct the fault; and that the importance of this education is not sufficiently recognized is suggested by the recent authoritative order of the Ministry of Health that panel practitioners attending their refreshing postgraduate courses are not to receive instruction in diseases of infancy or childhood.

THE SPREAD OF STREPTOCOCCAL DISEASE

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Studies in the epidemiology of streptococcal disease are appearing with increasing frequency, and during the past ten years certain new principles have evolved concerning the prevention of these infections. Clinical practice has, however, been slow to apply these important principles. The obstetricians, stimulated by public anxiety concerning puerperal sepsis, have made valuable contributions to these studies, and the story of their success has recently been told by Professor Miles H. Phillips (1938); but the rest of the profession would appear to lag behind both in practice and in teaching. This is unfortunate, because in some quarters the obstetrician's particular interest in puerperal sepsis has given a specialist bias to a problem of general concern. For puerperal sepsis accounts for a small part only of the total morbidity and mortality attributable to *Streptococcus pyogenes*, and it seems not improbable that the practice of obstetrics is, in fact, less affected by the droplet spread of streptococci than are the other branches of clinical medicine and surgery. From the public health point of view it matters little through which portal the streptococcus or its toxins invade the body, and it is not always realized that what is written about the prevention of puerperal fever applies also to all disease spread by droplet contagion. But since puerperal fever has established itself as the classic type of grave streptococcal disease *sine eruptione*, it might be well for us to read again Phillips's historical note and add "*et alia*" after each mention of puerperal fever: for what applies to the classic type is equally applicable to scarlet fever, erysipelas, cellulitis, most wound infections and septicaemia, the bulk of nasopharyngeal and otic suppuration, many pneumonias and, probably, acute rheumatism and acute nephritis.

The crux of the whole matter is a paradox: an isolated case of puerperal fever is in itself evidence of an epidemic. It implies a widespread prevalence of streptococcal disease, and a slight rise in maternal mortality is paralleled by a much greater toll from other streptococcal accidents. If puerperal fever is preventable so are these other accidents, and information as to how they can be controlled is rapidly accumulating. Let us review some of the more recently established facts.

Bacteriology of Streptococcal Infections

Old nomenclatures are a hindrance. Okell's (1932) Milroy Lectures provide a good text. We are now concerned almost entirely with *Streptococcus pyogenes*, for this is the group most commonly pathogenic to man. *Str. viridans* and non-haemolytic organisms, apart from an occasional strain of *Str. pyogenes* which fails to give β haemolysis, are, except when they invade an unusual location such as a previously damaged endocardium or urinary tract, of little significance as disease producers and must be looked upon as part of the normal bacterial flora of man. The part played by anaerobic streptococci is not yet measured, but on clinical grounds it would appear to be of minor importance. The classification of haemolytic streptococci—and for our present purpose it is safe to say that we are almost entirely con-

cerned with those giving β haemolysis on horse-blood-agar plates—has been simplified by the introduction of serological typing. No longer does definition of a given organism depend on its morphological and cultural characters, which now become of academic interest only. We can forget such names as "*Streptococcus longus*," "*Str. brevis*," and "*Str. mucosus*." We can also forget *Str. epidemicus*, *Str. scarlatinae*, *Str. erysipelatis*, *Str. anginosus*, etc., and with them discard the "specificity" hypothesis which sought to associate a well-defined clinical entity with a particular and specific kind of organism. We now know that in any given epidemic a single strain of *Str. pyogenes* may produce angina, scarlet fever, erysipelas, cellulitis, lymphangitis, adenitis, otitis, sinusitis, meningitis, puerperal fever, septicaemia, etc. What Okell (1932) calls the "unitarian" hypothesis is now well tried, and must be accepted if we are to understand the very elements of streptococcal epidemiology.

The bulk of, but not all, haemolytic streptococci pathogenic to man are identifiable by a specific carbohydrate substance, and fall into Group A of Mrs. Lancefield (1928). This group is further subdivided into about thirty different "Griffith types" (Griffith, 1934), each characterized by a specific "M" substance upon which their identification by agglutination with absorbed sera depends. It is this typing technique which has made epidemiological studies and the proof of the unitarian hypothesis possible. A note of warning must be introduced here. These techniques are available in very few laboratories, and it is at present unfair to expect the majority of bacteriologists to undertake Griffith typing.

Epidemiology

The most striking epidemics of streptococcal infection are milk-borne. They are of comparatively common occurrence and are so impressive that they are believed by some to be the main source of spread. This is undoubtedly untrue, and in the epidemics about to be described no evidence of a food vehicle was found. Epidemiology is an ecological study, and the behaviour of an epidemic is influenced by its environment. For this reason one should hesitate to draw conclusions from isolated observations in time or space, and should be careful to pool as many experiences as possible before making deductions. The examples about to be described should be added to the pool, but as preliminary investigations they are of value because they deal with three distinct types of community. (1) *The semi-isolated community*: In this case a boarding school for boys in which contact with the outside world is limited and presumably the opportunity for introduction of new infection considerably restricted thereby. (2) *The general hospital*, in which the bacteriological environment of the inmates is particularly complex, since individuals living therein inevitably make contact with more diseased persons than they would meet with in their homes or elsewhere. (3) *The family*, which is probably the simplest unit of all and as such might well be the most satisfactory material for the study of a problem in clinical epidemiology.

Streptococcal Infection in a Boys' School

In Fig. 1 are given in graphic form the bacteriological findings from all upper-air-passage infections requiring more than twenty-four hours' exclusion from school in a community of about 320 boys during the years 1931 to 1934. The graph also includes the years 1929 and 1930,

but during this period bacteriological observations were incomplete. It will be seen that during the six years dealt with six different types of streptococcus became established and gave rise to the spread of disease. The main incidence of disease was in the Lent terms. In 1931 there suddenly appeared a new type of organism which gave rise to sixty-three cases. Nine other positive streptococcal cultures were obtained: one belonged to the type of which the school had had previous experience, and eight were unidentifiable. They may not have been Group A organisms. *Str. pyogenes* was not recovered from forty-one cases, and it was clear that streptococcus Type 18 gave rise to the bulk (60 per cent.) of the cases encountered in the school at this time. In the following term (1931, II) one case only of Type 18 infection was

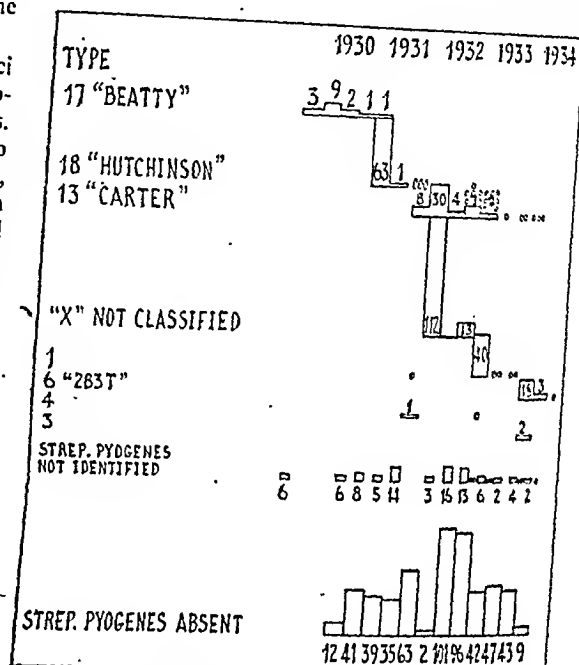


FIG. 1.—Serological types (Griffith) of *Streptococcus pyogenes* producing nasopharyngeal infections in a semi-isolated community (boys' public school, population 300 to 320).

found, although about the same number of non-coccal infections occurred in the school. Streptococcal fever had almost disappeared. In the third term of 1931 a new type of organism, Type 13, was first detected, and continued to produce disease for five consecutive terms. In the last two terms (1932, III; and 1933, I) a number of carriers of this organism were discovered, and were detected occasionally until the Lent term of 1934. (Their presence is indicated by a small circle "o" in Fig. 1.) Type 13, however, seemed to have either lost its power to become epidemic or the school was effectively immunized against it.

During the Lent term of 1932 another type of organism, which had at that time not been included in the Griffith classification and which is indicated in Fig. 1 as Type "X," made its appearance and gave rise to the bulk of the disease affecting the community. It appeared again at the end of the year, since when it has not been encountered. Type 1, a well-recognized scarlet fever strain, was first recovered from the throat of a new boy who showed no signs of disease, and it was not until fifteen months later that clinical cases of Type 1 infection

began to occur, and gave rise to an epidemic of forty cases of nasopharyngitis.

Although during the two subsequent terms four carriers of Type 1 were encountered, no further epidemic spread of this organism followed. At the beginning of the second term of 1933 a wave of non-streptococcal colds occurred. A month later, on June 11, in brilliant summer weather, a single case of scarlet fever appeared. Streptococci were not discovered in the throat, and the portal of entry appeared to be a trivial scratch on the boy's foot. It is interesting to record that a streptococcus giving a clinical picture very suggestive of Type 1 caused an epidemic in a neighbouring village during October and November, 1933, and there was some evidence that the infection had been carried by a school servant and had been kept going through the medium of one or two apparently sporadic cases of sore throat seen during the summer months. At the beginning of 1934 Type 6 gave rise to a small epidemic, and was detected in the school during two terms, after which it completely disappeared from the community; during 1935 and 1936 there was no epidemic spread of streptococcal disease, this organism having apparently been replaced by pneumococci.

It is tempting to speculate further upon the immunological implications arising out of Fig. 1. It was quite certain that infection with, let us say, Type 18 gave no immunity against infection with Type 13; in fact, there were some boys who reacted to all six types of infection. Other boys, although equally exposed, reacted to none. It is also possible that as the result of so many contacts with streptococci some form of group immunity had begun to result by 1933 and was effective in 1934 and 1935, when the health of the school was unusually good, but this improvement was more closely associated with a deliberate attempt to improve the hygienic conditions within the school by reducing, in September, 1933, the number of the community from 340 to 230 boys, and thereby attaining much more effective spacing in dormitories, classrooms, and playrooms.

The six epidemics described showed certain features which have now been seen so frequently that they may be considered almost characteristic of the epidemiological picture produced by the droplet spread of streptococci. Two of the epidemic periods have been described in greater detail elsewhere (Bradley, 1932a, 1932b), and can be compared with the observations of other workers (Glover and Griffith, 1931). Furthermore, one may conclude that streptococcal disease, unless milk-borne, spreads slowly and does not give rise to steeple-like epidemics or overwhelm communities with dramatic suddenness. The maximum incidence in the Lent term has already been referred to. Three or four weeks of a term often elapsed before cases occurred with sufficient frequency to cause anxiety of epidemic spread, and another month had passed before the epidemic had reached its peak, after which the decline in case incidence was gradual. The spread of infection was intensified by the simultaneous presence or previous occurrence of other catarrhal disease such as "influenza," non-coccal colds, or measles, the last-mentioned having a marked effect in elevating the passage of streptococci. The complications of influenza and measles were attributable to the streptococcal types producing coincident infection in the sick-rooms. On one occasion thirteen boys, with negative throat swabs at the time of admission to a sick-room for a non-coccal pyrexial nasopharyngitis, were brought into contact in the same ward with a boy suffering from primary streptococcal

fever. Five of the thirteen, occupying beds adjacent to that of the streptococcal case, contracted secondary streptococcal disease; and a sixth, occupying a bed on the other side of the ward, also became involved (Bradley, 1932b). This is one of many similar examples in which ignorance allowed grave disease to spread among already sick boys. A more enlightened physician would have prevented the introduction of a streptococcal case into a non-streptococcal ward, and so have avoided a fatality. At present such a mistake can be excused because it requires extensive clinical experience to distinguish between streptococcal and non-streptococcal nasopharyngitis without bacteriological evidence. There are, however, no practical difficulties, cost excluded, against the immediate application of simple bacteriological techniques to this problem. Failing such aid, and even in epidemic times, every boy with nasopharyngitis of unexplained aetiology must be looked upon as a danger to the community and nursed on the barrier system until it is proved that he is not suffering from an infection not already involving his fellows.

It will be seen how during each term one, and occasionally two, types of *Str. pyogenes* established themselves and gave rise to epidemic disease, so that towards the middle of the term the flora of the school had become fairly constant, and the bulk of infection encountered was attributable to one Griffith type. Some months later another type would appear and apparently overgrow its predecessor. The latter would be recovered occasionally only, was not the obvious cause of new disease, and was apparently residing in an immune carrier. Strangely enough, these carriers did not start off new epidemics—possibly because, in a closed community, they were living in an immunized population. If this suggestion is tenable it is strong evidence that a person immune to one Griffith type is not protected against invasion by another. He will, however, be partially or completely protected against the rash-producing Dick toxin, which is produced in varying amounts by most, if not all, types of *Str. pyogenes*. The incidence of scarlet fever is therefore fortuitous and is no measure of the extent of streptococcal parasitism.

It may be assumed that there were six emergency periods when new infection was introduced to the school, and it is probable that had intelligent action been taken when first these infections were detected much of the sickness in the school could have been averted.

Spread of Streptococci in a General Hospital

These studies have been attempted in a provincial hospital. They are not comprehensive, since it has at times been difficult to obtain information regarding the occurrence of P.U.O. or nasopharyngitis, and in certain wards the investigations have, for one reason or another, been partial or inadequate. It is, however, probable that Fig. 2 is significant for about 120 hospital beds, mainly in the medical wards. During the twelve months beginning November, 1936, six types of *Str. pyogenes* gave rise to multiple cases of infection contracted during the patients' stay in hospital. Fifty such infections were observed, in seventeen of which scarlet fever, due to four Griffith types, was diagnosed. Two deaths were directly attributable to these infections; two other infected patients died prematurely. The problem is therefore one of considerable importance. The obstetrical, and ear, nose, and throat wards were not included in the investigation, and scant attention was given to the surgical wards. Yet it is in the last that ward infections with *Str. pyogenes* are known to do most damage. The hospital under

observation is well spaced and well equipped; the hygienic conditions are above the average. Fig. 2 attempts to show the probable direction of spread, but it is obvious that some intermediaries between the homologous cases were not detected, and that the lines of spread indicated in

Yet the tendency was to relate the scarlet fever to a common source of infection, although, in fact, four distinct sources were responsible, one of which could be traced to a child admitted to the hospital with otitis media from a home from which two children had been removed to isolation with scarlet fever during the preceding fortnight. In three of the epidemics there was evidence that nurses had acted as intermediaries in the transmission, but there was nothing to suggest that nurses had been more active than other people in introducing the infection into the hospital in the first instance. Furthermore, where the spread was sufficient in amount to allow for deductions the evidence pointed rather to inter-bed spread. One of the most striking features of these infections was that they ended as suddenly as they began, although no special action was taken to control them. In two cases the spread came to an end immediately after dissemination to other wards had been observed.

Fig. 3 represents the picture from September, 1937, to January, 1938. During this period four and possibly five more infections were introduced.

We then tried to identify the source of the organisms, a fair picture of streptococcal flora of the hospital having been established during the previous months. Two cases of Type 25 infection followed the introduction of this type in a patient suffering from quinsy; a case of cellulitis gave rise to fifteen secondary cases of Type 6 infection. The routes of spread of Types 22 and 6 have been extracted from Fig. 3 and represented separately in Figs. 4 and 5. The Type 11 infection was apparently introduced by a patient with suppurating cervical glands; two of the secondary cases also had suppurating of the glands of the neck. It is not improbable that two Type

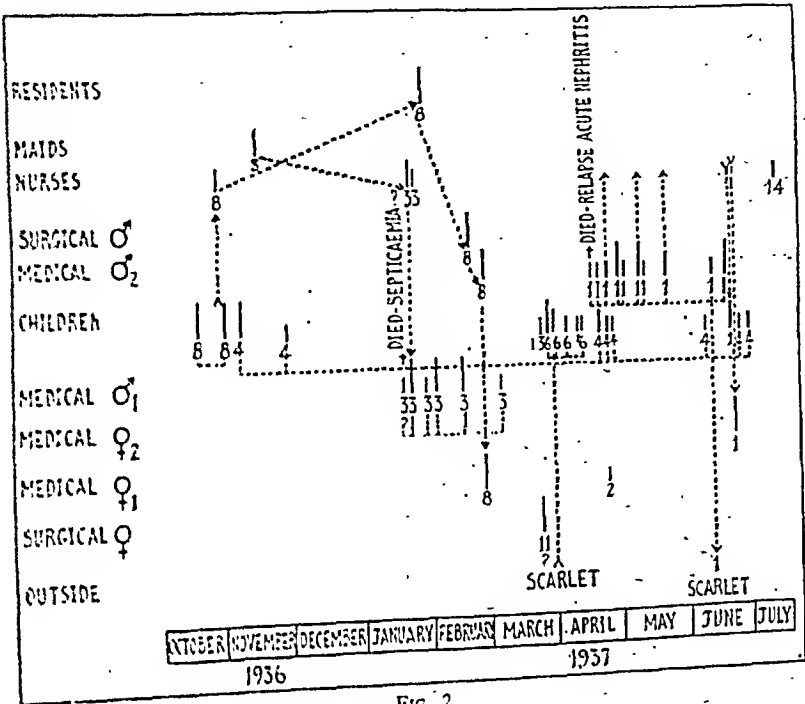


FIG. 2.

Scarlet fever
Scarlet, sine eruptione
Cold or sore throat
Griffith type of *Streptococcus pyogenes*

the diagram are in some instances guesswork. In the absence of an investigation of this type it would have appeared to a casual observer that scarlet fever was endemic in the hospital. Occasionally cases of scarlet fever were grouped, but more commonly it was impossible to associate them with other cases of this exanthem.

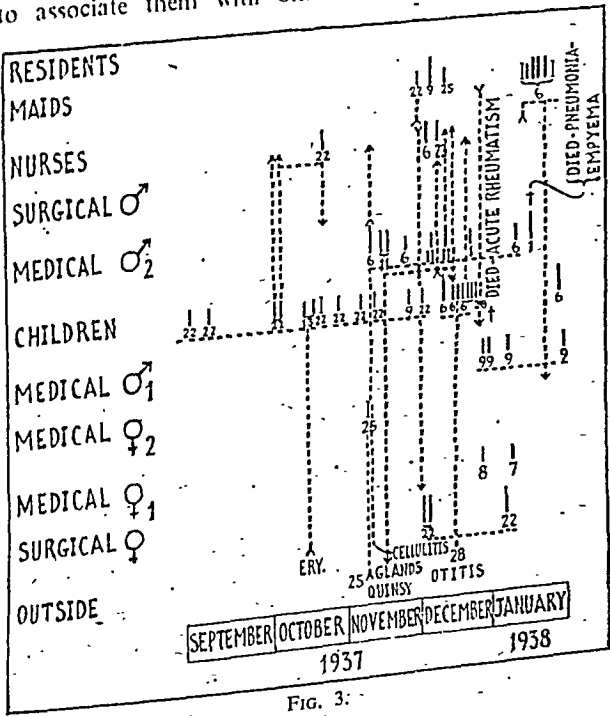


FIG. 3.

Scarlet fever
Scarlet, sine eruptione
Cold or sore throat
Griffith type of *Streptococcus pyogenes*

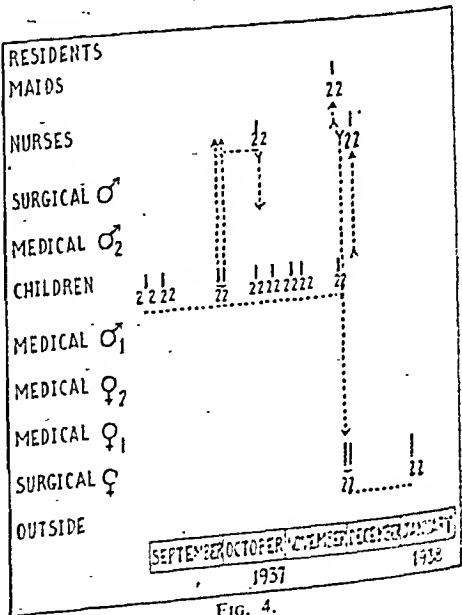


FIG. 4.

Scarlet fever
Scarlet, sine eruptione
Cold or sore throat
Griffith type of *Streptococcus pyogenes*

28 cases followed the introduction of this organism into the babies' ward by a case with otitis media due to the same type of streptococcus. A bacteriological "cross-section" of the hospital at this time, shall we say at the middle of December, would have shown an extremely complicated picture, since six types of infection were present, and it would have been impossible to draw conclusions from such an investigation. Other workers who have attempted to unravel this problem by serological methods have been disappointed by their results, not improbably because they have attacked the problem at a time when droplet infections of all sorts were particularly rampant. From Figs. 2 and 3 it is reasonable to conclude that the introduction of much of this disease to the hospital could have been avoided by the proper isolation of known cases of streptococcal disease, and that a considerable amount of dissemination could have been controlled had there been proper exclusion of nurses and doctors suffering from acute nasopharyngeal infections. At no time was there any need to postulate a chronic carrier, all spread being accounted for satisfactorily on the assumption that ambu-

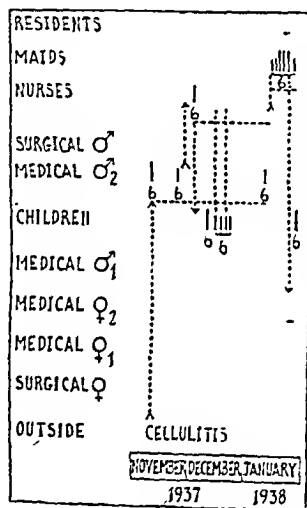


FIG. 5.

Scarlet fever
 Scarlet, sine eruptione
 Cold or sore throat
 6 = Griffith type of *Streptococcus pyogenes*

lant cases of or convalescents from acute nasopharyngitis were responsible. Again, in these hospital studies the slow tempo of streptococcal droplet spread is demonstrated. Three only of the fifty-one attacks of nasopharyngitis or P.U.O. represented in Fig. 3 were associated with erythematous rashes, and in none of these three cases was a diagnosis of scarlet fever made, although, of course, all the fifty-one cases (most of them being trivial in character) were potentially as dangerous to the community as fifty-one cases of scarlet fever.

In this connexion attention is drawn to Appendix A of Sir Arthur MacNalty's report on the state of the public health (1936), as it is probable that patients discharged from infected wards of a general hospital during epidemic times do considerable damage in their homes. Actually only three returned cases came to my knowledge. It will be appreciated that each small wave of infection was a separate problem, and that efficient prophylaxis at the very beginning of each wave would have made a considerable difference in the morbidity from these troubles.

Family Epidemics

There is considerable clinical evidence that the inhabitants of a small rural village will behave in much the same way as a semi-isolated community. In a larger population—for example, a county town—perhaps two or three types of streptococci will spread, while in a large city almost all the Griffith types may be encountered at different times during a period of twelve months. Thus the cultures obtained from fifty-six streptococcal infections in New York City during the first four months of 1936 fell into sixteen of the Griffith types (Bradley, 1937), and I am informed by Drs. Coburn and Pauli that during 1937 all the Griffith types were found to be producing disease in New York City. When, however, individual families are studied it is observed that the disease produced during a family epidemic results from one type of infection only, and many examples of this have been recorded elsewhere (Bradley, 1937). For the purposes of the present discussion one or two examples will serve to illustrate this point.

Case 1.—On February 20, 1936, a girl aged 12 contracted a pyrexial sore throat which lasted a week. On February 27 her brother, 15 months old, became ill, and later developed bilateral otorrhoea, and was under observation for mastoiditis. On February 28 another brother was taken ill with a cold, and ran a fever for three days. On March 3 the first patient, a known rheumatic subject, was admitted to hospital, where she developed an attack of carditis and polyarthritis which ended fatally. Type 6 streptococci were found in profusion in the throats of these three patients. Their mother had suffered a trivial sore throat on February 29, but throat cultures were free from haemolytic organisms by March 3.

Case 2.—In another family a girl aged 4 was removed to an isolation hospital on February 1, 1936, with a diagnosis of diphtheria, but was sent home on February 14, some doubt having been cast on the diagnosis. Two days later one brother developed a severe pyrexial cold with otitis, and after two more days another brother had a bad cold. The mother and a fourth child made no complaint of ill-health, but all five members of the family gave a profuse growth of Type 22 *Str. pyogenes*, and one boy developed an attack of rheumatism five weeks later, while still under observation.

Case 3.—On March 2, 1937, Gwendoline, daughter of a farm labourer in an English village, went to bed with a bad cold and felt ill until March 8. On March 7, however, she got up because her mother was delivered of a baby, the eighth in the family. She helped nurse her mother, who on March 10 became suddenly ill with puerperal fever associated with a scarlatiniform rash, from which she eventually died. Fourteen days after the onset of the mother's illness the father had "influenza," and Evelyn, aged 4, contracted a severe cold two days later, while still five days later, on April 1, Gladys, aged 17, had a cold, and on April 7 Fred, aged 14, contracted "influenza." On April 6 Gwendoline was troubled with pains in her lower abdomen, which persisted for three days. She was vaguely unwell until April 9, when her illness declared itself as typical rheumatic fever. Type 15/17 streptococci were recovered from the throats of four of these patients, but were absent from the mother's throat. A pure culture of this organism was, however, obtained from the pus in a pelvic abscess subsequently operated upon.

The mention of rheumatic fever in each of these histories results from the fact that the starting-point of an inquiry into these family epidemics was the study of that disease. A study of otitis media or scarlet fever or cervical adenitis might have called attention equally well to these family epidemics, and a similar state of affairs will be discovered in almost every family from which a case of streptococcal disease is admitted to hospital. Without doubt disregard for these apparently trivial colds and sore throats has defeated the existing legislation for the control of puerperal and scarlet fever, erysipelas, etc.

Discussion

This paper is mainly concerned with the epidemiological information forthcoming from the application of Griffith typing. Suggestions for the control of droplet spread are not made, for they depend to some extent on certain clinical aspects of the problem which will be discussed in a subsequent paper. Certain conclusions may, however, be drawn from the data presented:

1. The unitarian hypothesis outlined by Okell must be adopted.

2. With a few exceptions streptococci pathogenic to man fall into one group (Mrs. Lancefield, Group A), identifiable by a precipitin reaction with a carbohydrate "C" substance extracted with HCl. An organism not giving Group A "C" substance is in all probability, but not conclusively, not pathogenic to man. These human pathogens are divisible into about thirty Griffith types, which breed true in epidemics and are probably distinct and immutable antigens. They are identified by agglutination with absorbed sera, the latter reactions probably depending on a type-specific "M" substance. There is evidence that the clinical picture produced by some of these types varies in certain details from that produced by others.

3. The rash of scarlet fever must be looked upon as entirely fortuitous in its occurrence and as of little value in the assessment of streptococcal parasitism. The occurrence of rash depends on the coincidence of two variable factors: (a) a Dick-positive patient infected by (b) an organism with a high Dick-toxin content. The idea that scarlet fever is sometimes highly contagious and sometimes hardly contagious at all requires revision. The reason for this idea is now obvious.

4. Scarlet fever is, however, a most useful indicator of the existence of streptococcal disease in a community. Erysipelas, most puerperal fever, cellulitis, the bulk of otitis, and certain types of tonsillitis are similarly useful clinical indicators.

5. The aggregate of these indicators probably represents not more than one-half of the morbidity due to *Str. pyogenes* infections.

6. Present knowledge suggests that the great bulk of streptococcal disease (even when apparently sporadic and unassociated with a high incidence of *pyogenes* morbidity) is zymotic in character and associated with a raised carrier rate of streptococci, the enhanced parasitism being due to one type or, at most, a few types of organism in any one community at any given time.

7. Apart from occasional milk-borne spread, a striking phenomenon easily recognized in most instances, the bulk of streptococcal disease is transmitted by droplet. This common type of droplet spread has certain peculiarities. (a) It is a community disease. Spread within home, school, or other institution accounts for the greater part of the contagion. Casual contacts in street, vehicles, and shops, or from visiting relatives in the case of hospital patients, are relatively of minor importance. (b) Its tempo is comparatively slow, probably because transmission is mainly through immune carriers or subclinical cases. Often five and sometimes ten days elapse between the detection of even the most trivial infection in home or hospital ward. (c) The bulk of vector immune carriers are infected for a short period of time only. These transitory carriers must be distinguished from, and are probably of much greater importance than, persons suffering from chronically infected foci.

8. *Streptococcus pyogenes* is almost ubiquitous in temperate zones, and to many it presents an enormous and unassailable problem. These difficulties are simplified by the knowledge that a number of distinct serological types of organism are at work, each acting as a separate unit. Preventive measures might succeed in controlling some if not all, of these units.

9. In practice, investigation and prophylaxis will start with the detection of one of the many clinical indicators mentioned in conclusion No. 4. If adequate steps are taken at the time of detection of a new Griffith type in any family or community there is a reasonable chance of aborting epidemic spread.

10. Legislation exists for the quarantine and isolation of three only of these clinical indicators. The existing rules are notoriously ineffective, and new regulations with corresponding legislation must be evolved. Isolation and other hospitals admitting acute streptococcal disease are, under present conditions and because of cross-infection (Allison and Brown, 1937; MacNalty, 1936) a potential source for the dissemination of new infections throughout a community.

11. Knowledge of immunological problems relating to *Str. pyogenes* is very incomplete, but it is probable that little or no cross-immunity or group immunity is conferred by infection with any one Griffith type, although homologous immunity probably persists for a considerable time after infection. Immunity to Dick toxin does not imply immunity to streptococcal infection and invasion.

12. A type-specific epidemic tends to run its course through a community and to die out spontaneously. Persistence of an epidemic or the occurrence of relapses should suggest the presence of another type of infection.

13. Control over streptococcal disease will not be obtained until it is realized that *Str. pyogenes* is one of the more common causes of colds, sore throat, and "flu." On the other hand, *Str. pyogenes* tends to spread more rapidly in a community already involved in an epidemic nasopharyngitis due to some other cause—for example, measles. The occurrence of streptococcal complications in measles and similar non-coccal infections is almost without exception part of a separate epidemiological problem. The presence of the complicating organism depends on a zymotic infection coincident with, yet independent of, the primary measles or other nasopharyngeal infection. The bulk of recent evidence contradicts the idea that organisms producing complications were already present in the patient before the attack of measles, etc.

14. Control does not necessarily depend upon complicated bacteriological techniques. Clinical methods are of greater fundamental value and must not be ignored.

I am grateful to the Medical Research Council for a personal grant enabling this work, to Dr. F. Griffith and his colleagues at the Ministry of Health Laboratories for technical advice and assistance, and to the staff of Addenbrooke's Hospital for clinical facilities.

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GLUCOSE-TOLERANCE CURVES IN 500 OBESE CASES*

BY

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The series consists of 242 males and 258 females. All the subjects were definitely obese, but did not necessarily present themselves for examination from this point of

view; every case of obesity in which a glucose-tolerance curve was made during the last fifteen years has been included. No examples of gross endocrine disturbance, with the exception of diabetes, are given in this paper. It is possible that the series does not represent a fair sample of the obese population of the country, as the cases have, in the main, been derived from the better-off classes. A small proportion only have presented themselves because sugar has been found in the urine.

In discussing the question of obesity it is important to have some standard of normality from which to work. So far as it has been possible to ascertain, no such standard is available. One is therefore compelled to fall back on the weight tables published in the textbooks. These tables are not really tables of "normality," but have been compiled from people, apparently in good health, presenting themselves for insurance. The weight tables therefore express an average weight but not an index of normality. It is probable that the greater the age of the subject the greater the error. For example, a six-foot man at the age of 25 has an average weight of 11 st. 3 lb., while at the age of 42 a weight of 12 st. 3 lb. is given. There is thus a gain of one stone in under twenty years. This gain might be attributable in part to increased calcium in the bones, but could not be entirely due to this. It is likely there would be a loss of weight in the musculature with advancing years which would, to a large extent, set off the increase. It is hard to see how this increase can be explained except by the

increase in fat laid down as life advances. There would appear to be little real reason for a normal person to increase more than a few pounds in twenty years. The same argument can be brought forward in the woman.

There would seem to be the same fallacy in the textbooks with regard to blood pressures—a rise here as age advances is looked upon as normal, whereas it is really an average, and is in any case a degenerative condition. In the absence of normal weight tables the average weight tables have been employed here.

Technique of the Tests

The glucose-tolerance curves have all been arrived at by the method of Hagedorn and Jensen. A standard technique has been adhered to for obtaining the glucose tolerance throughout the whole period of fifteen years. The patients are encouraged to follow their usual unrestricted dietary regime until the night before the test is made. On the morning of the test a standard breakfast is given at 8 a.m.: one cup of tea with milk, with one lump of sugar if usually taken; one slice (about 1 oz.) of bread or toast, and butter. The glucose-tolerance test begins at 10 a.m.; 50 grammes of glucose in 300 c.cm. of water are given directly the initial sample of blood has been taken. Urine is collected at the start, and at one hour and two and a half hours after the glucose.

Analysis of Results

The curves obtained (Fig. 1) have been somewhat arbitrarily grouped under six headings, and are conventionally recorded in this table.

TABLE I

- Curve No. I.—A normal rise not above 180 mg. at the half hour and thenceforward a normal descent to below 120 mg. in the one and a half hours.
- Curve No. II.—A rise not above 180 mg., but a slow descent not reaching 120 mg. in the one and a half hours.
- Curve No. III.—A flat curve under 135 mg. throughout the two-and-a-half-hour period.
- Curve No. IV.—A peak at the half hour above the 180 mg. line, but a return to the 120 mg. line or below at the one-and-a-half-hour period.
- Curve No. V.—A peak at the half hour or one hour above the 180 mg. line, and failing to reach the 120 mg. line until the two-hour period.
- Curve No. VI.—A "diabetic curve": a considerable elevation above the 180 mg. line, 120 mg. not being reached at the two-hour period. This curve has been called "diabetic," but it does not mean to indicate that the author considers that a curve of this type is definitive of the clinical condition diabetes mellitus.

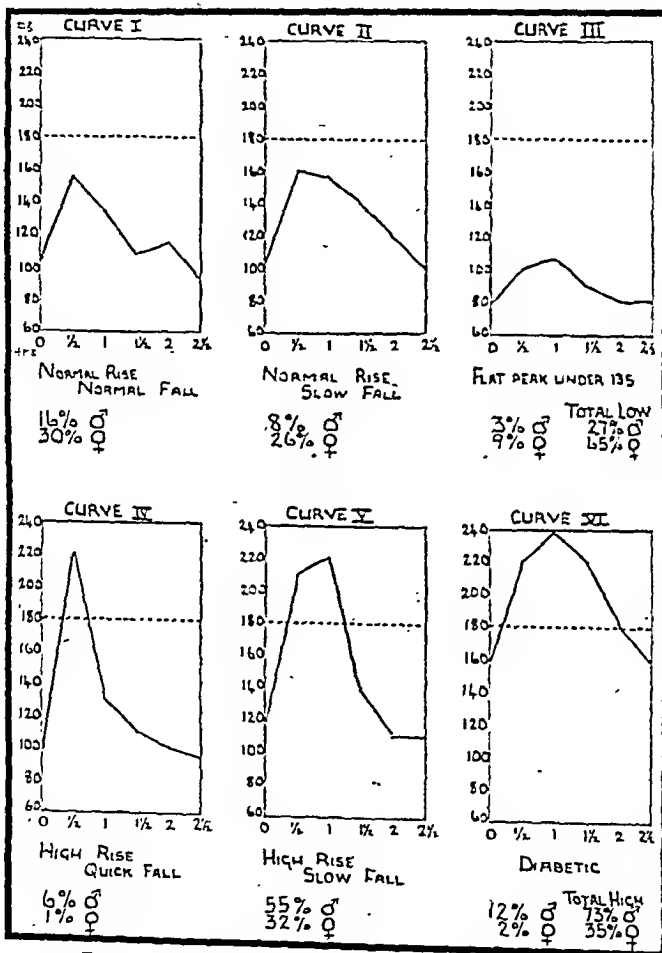


FIG. 1.—Glucose tolerance curves obtained in 500 obese cases.

* Read in the Section of Pathology at the Annual Meeting of the British Medical Association, Plymouth, 1938.

The most striking result from the analysis is the difference between the obese of the two sexes. The males show a total of 73 per cent. high curves for all ages, whereas the females show only 35 per cent. of high curves. This difference in response to glucose is still more pronounced if the percentage of high curves is plotted for

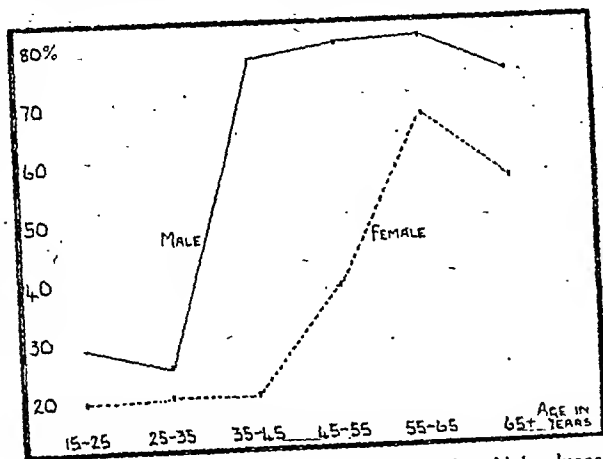


FIG. 2.—Percentages of obese cases showing high glucose-tolerance curves at various age groups.

the various decades, as in Fig. 2. Here we see that in the male up to the age of 35 years the percentage of high glucose-tolerance curves is below 30. After this age a sudden rise occurs, so that between 35 and 45 nearly 80 per cent. of obese males show a high glucose-tolerance curve, after which this high level is maintained up to the age of 65 and beyond. Obese women, on the other hand, show a very different picture. The percentage of high curves remains low until a decade later—45 years. The rise when it occurs is less sharp, the highest percentage of high curves (70) not being reached until the decade 55 to 65 years. From this it would appear that the condition underlying the obese state is different in the two sexes, or, what is more likely, a smaller number of women suffer from the defect commonest in men.

A striking difference is often evident in the post-mortem room. An obviously obese woman may be encased in layers of fat, but within this the body appears healthy and the muscles a bright red and not infiltrated with fat. In the male this is very rare, if it ever occurs, the musculature being heavily infiltrated with fat. With regard to the obese males showing normal or low curves, no distinct type could be picked out, but an analysis gives the following peculiarities:

| | |
|---|-----|
| Renal glycosurias | 34% |
| Thick-set; barrel-shaped chest, short thick muscular limbs; athletic, intelligent | 30% |
| Impotence; sex organ defects | 6% |
| Patients already on diets—namely, gastric and duodenal cases | 18% |

In Table II an analysis of these obese subjects is shown, in which the percentage of high blood-sugar curves is correlated with percentage of overweight. The figures for the males are not very regular, but it would not appear that a male is more likely to have a high blood-sugar curve if he is 50 per cent. overweight than if he is even more regular, with the exception of the first and last in the series, but give the same result. A woman 60 per cent. overweight is not more likely to show a high blood-sugar curve than one only 10 per cent. overweight.

TABLE II.—An Analysis of the Cases

| Percentage Overweight | Percentage High Glucose-Tolerance Curves | |
|-----------------------|--|---------|
| | Males | Females |
| Under 10 | 67 | 50 |
| 10 - 20 | 78 | 33 |
| 20 - 30 | 60 | 29 |
| 30 - 40 | 79 | 35 |
| 40 - 50 | 67 | 30 |
| 50 - 60 | 100* | 33 |
| Over 60 | 100* | 57* |

* Too few cases for accuracy.

Summary

In an analysis of 500 obese subjects (242 males, 258 females) it has been shown:

1. That high glucose-tolerance curves are obtained in 73 per cent. of males but in only 35 per cent. of females.
2. That up to the age of 35 high glucose-tolerance curves occur in only about 27 per cent. of males and 23 per cent. of females. Above this age about 80 per cent. of obese males have a high curve; but women always show a much lower percentage, only reaching a maximum of nearly 70 per cent. at the 55-65 age period.
3. That the percentage of high glucose-tolerance curves does not increase *pari passu* with an increase in the subjects' weight.

CORNEAL TRANSPLANTATION RESULTS OF A SERIES OF 56 OPERATIONS ON 48 EYES*

BY

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At the B.M.A. Annual Meeting held at Oxford in 1936 I read a paper on the results of corneal transplantation, including some references to those obtained by other surgeons (Thomas, 1937). In the present paper my own results will be given and classified, but space will not permit me to enumerate those of others. It is gratifying, however, to know that excellent results are now being obtained by many surgeons in all parts of the world. The technique I employ is similar to that which gave me the best results in experimental rabbits (Thomas, 1931) and was afterwards used for operations on man (Thomas, 1935); but since the 1936 paper it has been modified in two ways—namely, by using saline instead of oil for receiving the graft, and by so arranging the cross-stitches that the knots do not lie on the graft or on its margin. These modifications were described at the Oxford Ophthalmological Congress in 1937 (Thomas, 1938), and their adoption appears to be justified by the results obtained since 1936.

The results of all my corneal graft operations from the first one in 1930, nearly eight years ago, to the fifty-seventh operation, four months ago, are here given. The scheme described in 1936 (Thomas, 1937) is again adopted for the classification of eyes as "suitable" or "unsuitable".

* Read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Plymouth, 1937.

and for the tabulating of the results obtained. It is to be emphasized that the result is to be judged by the clarity of the graft, taking into account any membrane that may have formed on its posterior surface. Thus one might have a clear graft on an amblyopic eye which only sees fingers at one foot, the result being classified according to the clarity of the graft rather than the vision obtained. This actually happened in one of my cases, where the operation was performed in the knowledge that the eye was probably amblyopic.

TABLE I.—Classification of Fifty-six Operations on Forty-eight Eyes

| | Operations | Eyes |
|--|------------|------|
| Group A.—Suitable eyes in favourable patients .. | 26 | 23 |
| B. " " " unfavourable " " .. | 5 | 5 |
| C.—Unfavourable eyes, due to: | | |
| (a) extra-ocular conditions | 10 | 7 |
| (b) Intra-ocular conditions | 14 | 12 |
| (c) Extra-ocular and intra-ocular conditions .. | 1 | 1 |
| | 25 | 20 |

TABLE II.—General Results of Fifty-six Operations on Forty-eight Eyes

| | 56 Operations | 48 Eyes |
|--|---------------|------------|
| Successes { | | |
| Group 1: Clinically transparent | 8 | 8 |
| " 2: Slight opacity | 15 | 14 |
| " 3: Much opacity but less than original opacity | 12 | 10 |
| | 35 (62.5%) | 32 (66.7%) |
| Failures { | | |
| " 4: Opacity equal to or worse than before | 19 | 14 |
| " 5: Graft detached | 1 | 1 |
| " 6: Eye lost | 1 | 1 |

For the whole series successful results were obtained in 62.5 per cent. of the operations and 66.6 per cent. of the eyes.

TABLE III.—Cause of Opacity in Forty-eight Eyes

| | No. of Cases | Suitability Group | | | | |
|--|--------------|-------------------|---|------|------|------|
| | | A | B | C(a) | C(b) | C(c) |
| Interstitial keratitis | 9 | 9 | 0 | 0 | 0 | 0 |
| Chemical burns .. | 14 | 4 | 3 | 5 | 1 | 1 |
| Measles and ulcers .. | 14 | 7 | 1 | 2 | 4 | 0 |
| Explosions .. | 3 | 1 | 0 | 0 | 2 | 0 |
| Ophthalmia neonatorum .. | 5 | 1 | 1 | 0 | 3 | 0 |
| Iridocyclitis and sclerosing keratitis | 3 | 1 | 0 | 0 | 2 | 0 |

The results obtained in the nine eyes with interstitial keratitis were: Group 1 five, Group 2 one, Group 3 three, so that all nine cases were successes. The groups of chemical burns and measles and ulcers each showed nine successes out of fourteen.

TABLE IV.—Results of Twenty-six Operations on Twenty-three Eyes in Group A (Suitable Eyes in Favourable Patients)

| | 26 Operations | 23 Eyes |
|-----------------|---------------|------------|
| Successes { | | |
| Group 1 | 8 | 8 |
| " 2 | 9 | 8 |
| " 3 | 7 | 6 |
| | 24 (92.37%) | 22 (95.6%) |
| Failures { | | |
| " 4 | 2 | 1 |
| " 5 | 0 | 0 |
| " 6 | 0 | 0 |

The results of Group B showed one success out of five

The results of Group C(a) (extra-ocular unfavourable conditions) showed four successes out of seven, while those of Group C(b) (intra-ocular unfavourable conditions) showed four successes out of twelve. The one case in Group C(c) was successful (Result Group 3); this case was particularly gratifying, because the patient has obtained enough vision to see to move about and look after himself, in spite of the fact that his eye before grafting showed considerable adhesion of the iris to the cornea and bands of scar tissue passing from the conjunctiva on to the cornea, and was regarded as very unfavourable for operation. The operation, however, has been amply justified by the modest result obtained.

TABLE V.—Results of Grafts since 1936 (Modified Technique): Twenty Operations on Sixteen Eyes

| Results of Operations | Suitability Group | | | | |
|-----------------------|-------------------|---|------|------|------|
| | A | B | C(a) | C(b) | C(c) |
| Group 1 | 4 | 0 | 0 | 0 | 0 |
| " 2 | 3 | 0 | 2 | 3 | 0 |
| " 3 | 2 | 0 | 1 | 0 | 1 |
| " 4 | 0 | 0 | 0 | 4 | 0 |
| " 5 | 0 | 0 | 0 | 0 | 0 |
| " 6 | 0 | 0 | 0 | 0 | 0 |

TABLE VI.—Summary of Results of Twenty Operations on Sixteen Eyes

| Results | 20 Operations | 16 Eyes |
|---------------|---------------|---------|
| Group 1 | 4 | 4 |
| " 2 | 8 | 8 |
| " 3 | 4 | 2 |
| " 4 | 4 | 2 |
| " 5 | 0 | 0 |
| " 6 | 0 | 0 |

Successes in Group 1—that is, clinically transparent grafts—amounted to 20 per cent. of the operations and 25 per cent. of the eyes, compared with just over 13 per cent. and 15 per cent. respectively for the thirty-six operations on thirty-two eyes reported in the 1936 paper. The successes for Groups 1, 2, and 3 since 1936 are 80 per cent. of the operations and 87.5 per cent. of the eyes, compared with just over 58 per cent. and 65 per cent. respectively in the 1936 paper. These figures show improved results by the modifications in technique adopted in 1936.

TABLE VII.—Results of Four Eyes Regrafted Since 1936

| Suitability Group | No. of cases | Result Grouping | |
|-------------------|--------------|-------------------|------------------|
| | | Before Regrafting | After Regrafting |
| A | 1 | 3 | 2 |
| C(a) | 1 | 4 | 2 |
| C(b) | 2 | 3 | 2 |
| | | 4 | 4 |

The results of these four cases therefore show improvement in three and no alteration in one. Before the 1936 paper four cases—two in Group A and two in Group C(a)—were regrafted, the results showing no improvement in any of them. These facts lend support to the

view that the modifications in treatment since 1936 have increased the chances of success both in suitable and in unfavourable eyes.

Maintenance of Improvement after Corneal Grafting

Perhaps one can best obtain the facts necessary to estimate the chances of maintaining the results of corneal grafting by considering the thirty-two eyes operated on up to 1936 and then reported. The patients were operated on in the period between seven and a half and two years ago. Two died before 1936, and in the case of the remaining thirty, seven grafts are now classified under a new result grouping. Three out of four eyes (Suitability Group A) show deterioration to a lower result group: one from Result Group 1 to Group 2 and two from Group 2 to Group 3. The fourth eye showed improvement from Group 3 to Group 2. Three eyes (Suitability Group B) showed deterioration: one from Result Group 2 to Group 4, one from Group 3 to Group 4, and one from Group 4 to Group 6.

These figures show that out of thirty grafts one improved and six deteriorated, while twenty-three remained as before over a period of some years. Seventeen of the thirty grafts were recorded as successes in 1936, and now, after a period of years, 14 are still so recorded. It is of interest to note that the patient whose graft improved was a case of interstitial keratitis, and the patient whose eye had to be removed owing to ulceration, a long time after the graft operation, was a very intractable young child who was able to give her eye very little fair treatment. One of the patients whose graft deteriorated from Result Group 2 to Result Group 3 is well known to our president, Sir Stewart Duke-Elder, and there were perhaps a few special reasons to account for the deterioration, such as chronic conjunctivitis and a tendency to recurring ulceration. There was also the common factor in these cases done before 1936 that oil was used for the reception of the graft, and probably it contributed to the deterioration in this patient's graft. The eye was regrafted six months ago, and the result grouping has thereby been raised from Group 3 to Group 2.

Summary

In the whole series of cases 62.5 per cent. of the operations and 66.6 per cent. of the eyes operated on were successes. The nine cases of interstitial keratitis were all successes, five of them exhibiting grafts that were clinically transparent. Operations on favourable cases showed 92 per cent. successful.

The results of cases operated on since 1936 by the modified technique show 80 per cent. of the operations successful, while the nine classified as favourable cases were all successful, and four of them had clinically transparent grafts.

The latter group of figures show improvement on the 1936 results, as do the results of the four regrafting operations, three of them being beneficial. While it is a fact that some grafts will fail to maintain the initial degree of transparency, this paper shows that in a series of thirty corneal grafts observed over a period of years one actually improved and six deteriorated. Three of these were in favourable cases, and although they deteriorated were still successful. The other three were in unfavourable cases. It is anticipated that with the modified technique now used the deterioration of 20 per cent. of the grafts over a period of years will be con-

siderably reduced. At any rate, of those done before 1936 80 per cent. maintained their improvement.

In conclusion it is of interest to note that my best visual result is 6/9, and there are others with 6/12 vision, so that it is quite possible to obtain practically normal vision after corneal transplantation. One of my patients recently read four novels in ten days while on a voyage—two years after her operation.

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VITAMIN C IN THE TREATMENT OF WHOOPING-COUGH

BY

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The introduction of an effective treatment for whooping-cough is a matter of no little importance, since this disease now causes more deaths in this country than does any other infectious fever (Harries, 1938).

It seems true to say that although "nearly every newly discovered remedy in ancient and modern times has at one time been advocated for treatment of this disease" (Abt, 1937), there is not one that has been proved to have an appreciable effect on its course. Of vaccine or endotoxin therapy, lately so enthusiastically recommended, the conclusion of such an authority as Harries "that the more carefully the results are controlled the less impressive do they become" seems inescapable in the light of recent reports (Begg and Coveney, 1936; A. R. Thompson, 1937).

Earlier Experiences with Ascorbic Acid

The use of vitamin C or ascorbic acid as a remedy for whooping-cough was first reported by Otani (1936) from Tokyo. He found that ascorbic acid when added to a solid medium on which *H. pertussis* was grown inhibited the growth of that organism. The organism so cultured had impaired virulence when injected into rabbits (Apparently these results were not controlled by substituting for ascorbic acid some other substance having a similar powerful reducing action.) Grooten and Bezssonoff (1936) also found that ascorbic acid in concentrations as small as 0.008 per cent. inhibited the growth of *H. pertussis* in culture media, whereas it had no such effect upon other organisms at concentrations up to 0.5 per cent. Acetic acid in similar amounts was found to be inert. Otani also found that in the presence of ascorbic acid the intradermal injection of *H. pertussis* toxin produced a diminished reaction in the rabbit: the effect was noted either when the ascorbic acid was mixed with the toxin or when the animal received a previous large dose of the acid. From these experiments Otani concluded that ascorbic acid specifically antagonizes the growth of *H. pertussis* and also inactivates its toxin. Scant details are given of the results of treatment of eighty-one patients with whooping-cough who were given intravenous or intramuscular injections of 50 to 200 mg. of ascorbic acid every two to three days; sixty-six of these were thought to be improved and fifteen unaffected. Results were better when treatment was started within the first week of the paroxysmal stage.

Ormerod and UnKauf (1937) of Winnipeg independently reported favourable results with ascorbic acid. They showed that "unsaturation" with ascorbic acid was common in cases of whooping-cough, a fact which was suggested also by the observation of Woringer and Sala (1928) of four cases of scurvy developing in the course of the disease. Using the urinary excretion method of assessing ascorbic acid saturation they worked out a standard dosage sufficient to saturate every case within a few days, irrespective of age or weight, and to maintain saturation throughout the course of the disease. Twenty-seven patients so treated were described: twenty-two were children whose symptoms had been present less than three weeks—that is, cases comparable with my series. The average duration of symptoms was nine days before and a further fourteen days after treatment was started, giving twenty-three days as the average course of the disease—a figure which is decidedly below that usually found in this country. There were no controls in this series.

The Present Series

This communication gives the result of treatment of forty-one children with whooping-cough, twenty-one of whom were treated solely with large doses of vitamin C, and twenty served as controls. They were seen as out-patients once a week; they became "treated" or "control" cases according to the day of the week on which they were first seen. Only those cases are included in this series which satisfied one or more (in the majority at least two) of the following diagnostic criteria:

1. *H. pertussis* recovered from cough plate.
2. A typical paroxysmal cough witnessed.
3. A suggestive history combined with the presence of either a sublingual ulcer or a marked lymphocytosis.

Only those whose cough was of less than three weeks' duration when first seen are included. The mothers were asked to note down on a form the number of paroxysms occurring during each separate day and each night, thus making the assessment of progress and of cure as objective as possible. In this way there was little need to rely on the parents' impressions as to whether the child was better or not. When the night cough had entirely ceased and the day cough was either absent or, if present, was stated to be quite slight and lacking a paroxysmal character, the patient was discharged. Each child was also weighed weekly, for in a disease where vomiting and loss of appetite are often prominent symptoms the child's weight chart was found to be a valuable guide to progress.

The Dosage Used

Conditions precluded any urinary or other estimations; therefore the policy was adopted of giving each "treated" child very large doses of vitamin C. The results of Ormerod and UnKauf were utilized when deciding on a standard dosage which was sufficient to ensure the rapid attainment and maintenance of "saturation." The dosage adopted was: first week, 200 mg. daily; second week, 150 mg. daily; third and subsequent weeks, 100 mg. daily, given in divided doses. This dosage was independent of age or weight except that patients under 1 year were given half these amounts. (These doses compare with 25 mg., the approximate daily requirements of the normal child.) The total weekly dosage is almost the same as that found necessary by Ormerod and UnKauf to ensure "saturation," and is considerably more than

that employed by Otani. The form of ascorbic acid generally used was "ceetamin," a concentrate from natural sources; this was preferred to the synthetic product in view of the possibility that the latter is not identical in action with the naturally occurring vitamin (Elmby and Warburg, 1937). A few of the younger children received the synthetic acid (redoxon) as its smaller bulk was occasionally an advantage.

The controls were given cod-liver oil (15 per cent.) in malt in doses up to 1½ oz. daily, depending on age; and a mixture containing belladonna and bromide—drugs which are generally admitted to be without effect upon the duration of the disease (T. Thompson, 1929).

Results

The comparative results were as follows:

| | "Treated" | Controls |
|---|--------------|-------------|
| Number of cases | 21 | 20 |
| Average age | 2 yrs 11 mos | 3 yrs 4 mos |
| Average duration of symptoms before treatment | 10 days | 14 days |
| Average duration of symptoms after treatment | 25 " | 27 " |
| Average total duration of illness | 35 " | 41 " |
| Average total weight gained during treatment | 0.79 lb | 0.74 lb |
| Average weight gained per week during treatment | 0.22 lb | 0.20 lb |

The number of cases which were lost sight of before they had been discharged amounted to about 20 per cent. of the total, but as there was no appreciable difference between the number or type of cases lost from the "treated" and from the control series, it is considered legitimate to ignore this factor.

Complications.—The apparent incidence of complications is valueless where every case is not followed up, for it is just those cases which develop complications that may fail to report. Of the two cases of bronchopneumonia which are known to have occurred one was in the "treated" series (where it proved fatal) and one in the control series. These two cases are not included in the above results.

Summary and Conclusions

Twenty-one cases of whooping-cough have been treated with large doses of vitamin C. The illness lasted an average of thirty-five days, compared with forty-one days in twenty control cases, a difference which lies within the limits of statistical error.

The average rate of weight gained was practically the same in both the "treated" and the control cases.

These figures are in keeping with the general clinical impression that there was no striking difference in the course of the disease in the two sets of cases, and the assertion of Ormerod and UnKauf that the paroxysmal period of the disease is shortened "from a matter of weeks to a matter of days" was not confirmed.

In comparing these results with those of Ormerod and UnKauf it is seen that the average course of the disease in the cases treated with vitamin C was thirty-five days in the present series as compared with only twenty-three days in the Canadian series. The two sets of cases appear to be comparable in so far as the average period for which symptoms had existed before treatment was prac-

tically the same in both series. As there were no controls in the Canadian series, however, it is impossible to judge whether the natural course of the untreated disease varies in the two countries, or whether the considerable difference in the course of the disease in the present and in the Canadian series is due, for instance, to the application of a more rigorous standard of cure in the former series.

It is considered that the statement that the administration of vitamin C in whooping-cough has an effect upon the course of the disease is at present unproven.

My thanks are due to Dr. Donald Paterson for permission to publish these results relating to patients under his care and for his enthusiastic encouragement, to Dr. D. N. Nabarro for the haematological work, and to Dr. D. B. Bradshaw for the bacteriological work. Generous supplies of vitamin C preparations were given by Messrs. C. L. Bencard and by Messrs. Roche Products Limited.

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Clinical Memoranda

Recent Experience in Typhoid Fever

The following notes may prove interesting in connexion with the leading article in the *Journal* of May 21, and the papers by Fenton, Hay, and Felix in the same issue. An aberrant case of typhoid fever occurred in a small boarding house.

The patient, a commercial traveller, was infected while going his rounds in the West of England. He admitted feeling out of sorts for a week before December 1, 1937, when his illness started abruptly with fever and pain in the right side. Commencing pneumonia was diagnosed, but four days later typhoid was suspected on account of abdominal symptoms, including the passage of blood per rectum. Incidentally there was a history of gastric ulcer five years previously. At this time blood culture together with examination of faeces and urine and the Widal reaction were negative, nor was there leucopenia. A blood count on December 11 showed a slight relative and absolute increase of polymorphs, but a further Widal test on the same date was now strongly positive for *B. typhosus* (*B. typhosus* H = agglutination up to 1 in 2,500, and *B. typhosus* O = agglutination up to 1 in 1,000).

The patient was admitted to hospital on December 11 and died on December 23 from toxæmia and respiratory failure. On admission he was obviously very ill. He was delirious, his tongue was very dirty, there were signs of recent epistaxis, and he had a slight cough and was passing blood per rectum. The abdomen was moderately distended, with gurgling in the right iliac fossa. The spleen was not palpable, but there was tenderness in that region. A few rose spots were present on the lower costal margins and one to the right of the umbilicus. Although he gave a history of not more than twelve days' illness he was clinically in the third week. In addition to general treatment he received intramuscular injections of Lister Institute typhoid serum of 30 c.cm. each on December 14, 15, and 16 without any apparent benefit.

While in the boarding-house the patient was nursed by the owner's wife, who also prepared food for other residents, one of whom was a baker in a large establishment. It seemed likely that some of the household would be infected, and, apart from taking the baker off his work, the problem was what other steps were indicated.

We decided, with their consent, to give each of the six persons in the house 12 c.cm. of Lister Institute serum in order to produce, if possible, some degree of temporary passive immunity. A week and also a fortnight later this was followed up with the usual doses of T.A.B. vaccine (Lister Institute) with a view to producing active and more permanent immunity. We believe that there is a real danger of "provocation typhoid" if vaccine is used alone in such circumstances, and we suggest that pre-treatment with serum is logical, and may possibly be sufficient in itself. No secondary cases occurred and no ill effects followed the inoculations. The sixth member of the household was a temporary visitor and had serum only so far as we know. Unfortunately circumstances were not favourable for subsequent blood examinations of the contacts, but one of us is able to vouch for the efficiency of the vaccine from controls taken elsewhere.

Regarding sulphonamide in enteric fever, one of us has tried this drug by the mouth in one case of typhoid and in several of paratyphoid B. In the latter it appeared to have a favourable effect, but it must be admitted that cases of this disease which come under treatment early often run a mild course. The single case of typhoid was a severe one, but recovered eventually. The drug had no effect one way or the other, and as the patient was found to be a temporary urinary carrier in convalescence and was a chronic faecal carrier on discharge, it would appear that sulphonamide has no bactericidal properties in typhoid fever.

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Exeter.

Ether Convulsions, with Recovery

The use of evipan in ether convulsions was first described by R. F. Woolmer and one of us (S. T.) in 1936. Its value was independently discovered by J. S. Marr (1936), and one month later T. H. Chadwick (1936) reported his case. Dr. H. H. Pinkerton's recent account of the successful treatment of ether convulsions with evipan in the *Journal* (1938) prompts us to record two similar cases.

CASE RECORDS

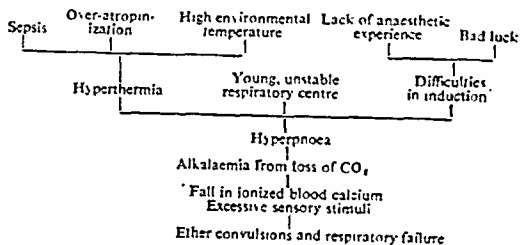
Case 1.—A child aged 4 years was undergoing operation for double mastoid suppuration. The anaesthetic was ether chloride, followed by open ether, then by ether vaporized with oxygen. When anaesthesia had been in progress for six minutes, and as the operation on the second ear was starting, typical ether convulsions began. The convulsions were relieved by oxygen and CO₂, and the removal of the clothes. Evipan was then injected intravenously, and when 8 c.cm. had been given the convulsions ceased. So too did respiration, and after half a minute of CO₂ and artificial respiration the pulse also stopped. Coramine, 1.5 c.cm., was then injected into the heart, and within a few seconds pulsation started once more. Artificial respiration was continued, and three minutes later spontaneous respiration began. The respirations increased in volume, and the child made a complete recovery. The operation on the second ear, however, was temporarily abandoned. The theatre temperature was 80° F., and the rectal temperature, after five minutes with no clothes on, was 101.5° F. The ether contained traces of aldehyde, but no peroxide. Ten days later the second operation was performed, with the same anaesthetic, but paraldehyde glass was given beforehand. There was no recurrence of the convulsions.

Case 2.—A girl aged 11 years was undergoing operation for a typical acute appendix (temperature 102° F., pulse 140). The anaesthetic was ethyl chloride, followed by open ether and oxygen. There was no struggling during induction, and no CO₂ was given. After forty-five minutes, as the peritoneum was being closed, typical ether convulsions began. These were unrelieved by oxygen, CO₂, and chloroform. After three minutes of convulsions, evipan having been prepared, 2 c.cm. injected intravenously stopped them at once. They did not recur, and the patient made a complete recovery.

In the first case an overdose of evipan was undoubtedly given, probably because the injection was continued steadily until the convulsions ceased. Had 2 or 3 c.cm. only been injected and a short time allowed for this amount to circulate, it would almost certainly have been enough. We suggest that when 2 or 3 c.cm. have been given the anaesthetist should pause for at least one minute, and only inject more if at the end of that time convulsions have not stopped.

AETIOLOGICAL FACTORS

We venture to offer the following diagram, summarizing the known aetiological factors in ether convulsions and providing a provisional theory of their cause. It is rare for all the aetiological factors to be present in one case.



It is well known that ether convulsions are prone to occur in acute septic cases (see the above diagram), and we wish to draw attention to a paper by Rosenow and Tovell (1936). These workers took nasal swabs from patients during ether convulsions, and from them grew streptococci. These were injected into rabbits, which, when anaesthetized with ether, in their turn developed convulsions. Nasal swabs from the same patients, taken some days later, gave a growth of the same streptococci, but this time the injected rabbits failed to convulse under ether. They suggest, therefore, that a streptococcal nasal infection plays some part in the production of ether convulsions. This work appears to have been done very carefully, and we feel that it is worthy of repetition whenever the opportunity occurs.

In spite of the efficacy of evipan as an anti-convulsant we think that the best "cure" for ether convulsions is their prevention. We suggest, therefore, that when acute sepsis in a child or young adult demands surgical intervention, open ether is not the anaesthetic of choice. It would be safer to rely on gas and oxygen with a minimum of ether or, better still, cyclopropane if a general anaesthetic is considered necessary.

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Reviews

DEFICIENCY OF VITAMIN A AND OF VITAMIN E

On Deficiency of A-Vitamin and Visual Dysadaptation. II. By C. Edmund and Sv. Clemmensen. (Pp. 52; 5 figures, 7 tables, 3s. 6d. net.) Copenhagen: Levin and Munksgaard. London: Humphrey Milford, 1937.

Effect of Chronic Vitamin E Deficiency on the Nervous System and the Skeletal Musculature in Adult Rats: A Neurotropic Factor in Wheat Germ Oil. By Larus Einarson, M.D., and Axel Ringsted, M.D. (Pp. 163; 95 figures, 2 plates, 12s. 6d. net.) Copenhagen: Levin and Munksgaard. London: Humphrey Milford, 1938.

The first of these two volumes is a report of recent investigations by Drs. Edmund and Clemmensen into the relation between vitamin A deficiency and visual dysadaptation. The subjects were pregnant medical patients, patients examined before and after administration of carotin oil, hospital nurses and male hospital attendants who receive a comparatively good diet. The authors confirmed their previous estimate of the "normal" power of distinction, and, taking this as the standard, they found that only fifty-two of their medical patients in the spring showed dysadaptation. There was a certain amount of seasonal variation in the subjects who received a comparatively good diet. These later findings were decidedly lower than those previously reported, and the authors conclude that this may be accounted for by the recent agitation in Denmark for diets rich in vitamins, and particularly by the inclusion of vitamin concentrates in margarine. Intramuscular injections of carotin oil were slow in acting, taking twelve to forty-eight hours to show any effect, whereas similar injections of vitamin A from liver oils brought about an effect in two minutes and oral administration in less than twelve hours. An investigation of the diet of a certain prison indicated that each prisoner received about 1,225 international units of vitamin A per day. These prisoners showed seasonal variation in their power of distinction. Others who received an additional 150 units per day in the form of fresh milk did not show the seasonal variations. Hence an allowance of 1,370 international units of vitamin A per day was considered to be necessary for an adult. It is a useful attempt to determine by the aid of experiment how much vitamin A is required by a healthy adult. Previous estimates of the adult's need have mostly been made by the examination of "typical diets" of apparently healthy human beings.

Drs. Einarson and Ringsted have reinvestigated the findings of one of them (1935) that adult rats fed on a vitamin-E-free diet for a long time exhibited certain neurological disturbances. Until they can use vitamin E in a pure form the authors will not claim to have proved that these disturbances are due to vitamin-E deficiency, but vitamin E and the neurotropic factor have so many similar biological and chemical properties that they conclude that the condition noted in the rats is indeed caused by a lack of vitamin E. Full details of the feeding and care of the animals are given. It was found that the neurotropic factor present in wheat-germ oil was stored in the organism in depots and withdrawn relatively slowly. Paresis appeared in the rats after feeding on the vitamin E diet for a few weeks. If treatment with wheat-germ oil was begun within the first six weeks of this special feeding, paresis did not develop; but if treatment was begun after eight weeks of this feeding paresis appeared six to eight weeks later. Wheat-germ oil

could not cure the paretic condition, but it could prevent its further development. The development of paresis is gradual; the hind legs show a pronounced straddling in walking, there is distinct atrophy of the musculature of the hind quarters and lower extremities, but the forelegs are normal. Later the hind legs are kept greatly abducted, and finally the rats are quite unable to walk about, but may drag themselves forwards with the forelegs. Death does not result even after twenty to twenty-four months of this condition. A very detailed account is given of the methods adopted for the histological examination of the tissues. There are ninety-five figures in the text and two plates, all well reproduced. The detailed descriptions of these are given in the text. The authors deal fully with the normal anatomical conditions and with the structures as influenced by the dietary deficiency. There is a full discussion of the possible (or impossible) relation of these conditions and those of animals depleted of other vitamins—A, B₁, or B₂.

A FRENCH TREATISE ON PSYCHIATRY

Psychiatrie Médicale, Physiologique et Expérimentale. By H. Baruk. (Pp. 828; 125 figures. 220 fr.) Paris: Masson et Cie. 1938.

This large treatise on psychiatry by one of the foremost French psychiatrists is welcome as an exposition of modern work in that country. The first part is concerned with a discussion of the anatomical-clinical approach which tends to seek localizations for various lesions and syndromes. While this may be more or less profitable in neurology, in psychiatry there is a tendency for those who adopt this approach to forget the fact that in its higher functions the cortex, and indeed the brain, tends to work as a whole. To illustrate this Dr. Baruk refers at length to his own work on the psychomotor syndrome of catatonia. However produced—in the course of schizophrenia, as a result of toxæmia, or by the administration of bulbo-capnine—it must be a diffuse cerebral lesion, since it is associated with deliria, with inhibition of the will, and disturbances of all sorts of psychic as well as motor functions. It is, in fact, a suspension of initiative. Using the same methods the author discusses hysteria, and believes that this is due to certain analogous physiological disturbances less profound, and therefore more readily reversible, than those found in catatonia. In the light of these ideas the duality of organic and non-organic syndromes may be resolved, the organic series being represented by changes which are more localized and irreversible, and non-organic or functional syndromes by those which are more diffuse and more superficial.

In the second part the author discusses psychiatric diagnosis and classification, and deprecates the insistence on hard-and-fast nosological entities such as those suggested by Kraepelin; he would prefer to talk of simple reactions to different aetiological factors. These reactions differ according to the localization and intensity of the neurological dysfunction. On this basis the author formulates a classification arranged in accordance with disturbed function. This point of view helps to explain the remarkable variations met with in many psychoses, their remissions, relapses, and spontaneous cures, etc.

The third part deals with treatment and management. Dr. Baruk again protests against rigidity in diagnosis and against absolutism in prognosis, which paralyzes efforts at treatment. He lays special stress on a thorough investigation of the psychological background of each patient and all the possible aetiological accidents to which he has been exposed, and considers that such investigation will demonstrate opportunities for therapeutic intervention.

Finally, he discusses certain imperfections in the French law of 1838 dealing with the treatment of mental patients, and gives his notions of the proper organization of psychiatric treatment, in which one of the most important factors is the correct "moral atmosphere."

The book is illustrated by numerous tables, curves, and statistical data, and is furnished with a comprehensive bibliography. It is certainly deserving of close study by British psychiatrists, who cannot afford to neglect the ideas of their Continental colleagues.

DUKE-ELDER'S "OPHTHALMOLOGY"

Textbook of Ophthalmology. Volume I. The Development, Form, and Function of the Visual Apparatus. By Sir W. Stewart Duke-Elder, M.A., D.Sc., St. And., Ph.D., Lond., M.D., Ch.B., F.R.C.S. Second Impression, with Corrections and Additions. (Pp. 1136; 1022 figures, including 7 coloured plates. 63s. net.) London: Henry Kimpton. 1938.

In our review of the first volume of Sir Stewart Duke-Elder's *Textbook of Ophthalmology* (July 23, 1932, p. 149) we recorded high appreciation of the work in words that we cannot do better than repeat: "This first volume is in our judgment a great book. It is great by reason of its bulk, for it exceeds a thousand pages; it is great in its conception, and also great in its achievement. The author may well be congratulated upon such a piece of work—upon his ability to produce it and his industry in producing it. Whichever way this book is examined its high standard is confirmed."

It must be a source of gratification both to the author and to the publisher that after so short a time a second edition of this work has been called for. Such a fact confirms the widespread recognition of its value to all English-speaking ophthalmologists. In his new preface the author states that advantage has been taken of the reprinting to correct and make additions to the first edition. In certain sections fundamental advances in knowledge have rendered the original text misleading, such as those relating to ocular pigment and the neurogenic origin of pigmented tumours, the biochemistry of the eye, the nature of the intra-ocular fluids, the physicochemistry of the vitreous body, and the chemical and electrical reactions in the retina. We wish this new impression as complete a success as the first.

FITNESS AND NUTRITION

The Wheel of Health. By G. T. Wrench, M.D. Lond. (Pp. 146; frontispiece. 6s. net.) London: C. W. Daniel Co. Ltd. 1938.

The relation of nutrition to physical fitness and the maintenance of health is to-day receiving much emphasis. Indeed, perhaps one of the most remarkable features of recent progress in medical science is the recognition that many pathological conditions, whose origin had previously been obscure, are primarily the result of nutritional defects. In his book *The Wheel of Health* Dr. Wrench has given expression to this reorientation of views in regard to the causation of disease which is also being experienced by many of his fellow-workers. The author takes as the text of his essay the Hunza people of Northern India. These people are relatively secluded in the fertile Hunza valley, and have impressed many observers with their fine physique and their comparative immunity from many of the diseases which affect their neighbours. They are capable of almost incredible feats of physical endurance, and obviously provide an excellent opportunity for the study of those conditions of life which allow the most perfect development of human physique and the maintenance of

bodily health. From a consideration of the Hunza people Dr. Wrench passes on to a brief review of the classical studies of Sir Robert McCarrison, studies which may rightly be regarded as the starting-point for the inquiries into the relation of diet to health which have been carried on since with increasing intensity. Reference is also made to the diet and health of other races of mankind, to the observations on the health of the Danish population during the late war when rationing had to be extensively controlled, and to the work of McGonigle and others in this country.

The evidence which the author collates in support of the primary function of effective nutrition in the maintenance of health is very impressive. He concludes, indeed, that "disease is the censor pointing out the humans, animals, and plants who are imperfectly nourished." If at times he lays himself open to the criticism of over-emphasis on nutritional factors, there are many who would agree to-day that this is an excusable fault. His case is so strong, however, that it in no way lessens the importance of his argument to suggest that what is most required now is to differentiate possible genetic factors which may complicate nutritional problems. It is well known that different individuals show a different susceptibility to dietetic defects, and recently in the laboratory a Mendelian variety of rats has been obtained which succumb to rickets when the vitamin content of the diet is lowered more readily than normal rats. How far can such genetic factors account for differences in physique in different groups of mankind? Dr. Wrench lays considerable stress on the physique and health of the Hunza people, but he also states that these people are "unique in racial characteristics." Hence, to the reader it seems at least possible that genetic racial factors may be contributory to observable differences in physique.

Dr. Wrench writes in a pleasant and stimulating style. He has done good service in bringing together in this essay the results of some of the best and most illuminating studies on nutrition in man and in pointing out the importance of these researches to social problems of to-day.

W. LE G. C.

ELECTROTHERAPEUTICS

Electrotherapy and Light Therapy. By Richard Kovacs, M.D. Third edition, thoroughly revised. (Pp. 744; 307 figures; 1 coloured plate; 57 tables. 35s. net.) London: Henry Kimpton, 1938.

Dr. Kovacs has been called upon within five years to produce a third edition of his book on electrotherapeutics. This follows the lines of the previous two, with additions and fresh chapters where progress in one particular line, such as hyperpyrexia, has taken place since the last edition. The work remains an admirable textbook written in attractive style, and is really valuable to English practitioners—an exceptional merit in a book written on electrotherapeutics by an American practising physician. Indeed, it seems certain to be recognized as a standard textbook for many years to come, and will therefore pass through further editions. The present seems therefore to be an opportune moment to put forward some constructive suggestions.

The book would undoubtedly gain if it were cut down considerably; the author's desire for clarity of explanation and completeness in all techniques has made it become "almost encyclopaedic in character." Some of the illustrations serve no useful purpose; an indistinct view of the outside of Messrs. So-and-So's diathermy or short-wave apparatus teaches nothing. Every illustration in a book of this kind should impart definite information, either on

the physical side or on that of technique. In the chapter on the results of accidents during electrotherapy there should be careful and detailed suggestions for treatment, especially for diathermy burns. Dr. Kovacs emphasizes that prevention is better than cure, but even in highly skilled hands burns do occur, and help from the experience of such an expert as the author of this book would be valuable and comforting. His electromagnetic spectrum table on page 414 is good, but could be improved by making it possible for the student to appreciate more readily the relationship between Angstrom units, which he does not understand, and centimetres, which he does. On pages 493 and 494 Dr. Kovacs's references to the Finsen treatment need revision; he appears to be unaware of the great advance made in the treatment of lupus by the introduction of the Finsen-Lomholt lamp. The book remains, however, an indispensable standby for all who employ the standard currents and methods of electrotherapy and light.

Notes on Books

Though the medical profession and the public are far more conscious than they were of the nurse as a human being and a valuable member of society, few of those who have not been through the mill have much idea of the details of her daily life: of the incidents of her training or of the job for which she is trained. *Through a Ward Window* by H. L. MONTGOMERIE (Chapman and Hall, 8s. 6d.) is the work of a nurse who trained at an easily recognizable London hospital, and it is written with real humour, sympathy, and imagination in the form of letters from the heroine to her best friend. Those who deprecate the use of this device may be assured that it is very suitable to the somewhat fragmentary narrative that such a book is bound to be. The best thing in the story is the waylaying and hair-combing of the senior honorary surgeon by the probationer who mistakes him for a newly admitted patient. The reader will not only be anxious to read to the end but at the end will really know something about what life means to the probationer nurse. It can be specially recommended to girls or their parents who are anxious to know what they are in for.

British Periodicals of Medicine: a chronological list by Mr. W. R. LEFANU, Librarian of the Royal College of Surgeons of England, has appeared in two parts in the *Bulletin of the Institute of the History of Medicine*, Johns Hopkins University, and is now reprinted in book form by the Johns Hopkins Press, Baltimore, at \$1.25. Part I attempts a survey of medical periodicals issued in all British lands from the seventeenth century to the end of the nineteenth, including those which continued into the twentieth but began publication before 1900. Part II gives a list of the periodicals which began publication during the present century. At the end of each part is an alphabetical index of titles. In all there are more than 1,360 separate items, each being arranged in chronological order under its earliest year date. For every item Mr. LeFanu has tried to indicate at least one library where a copy of the journal is filed; failing this he states the source of his information. In his preface he notes the "large infant mortality" among journals devoted to medicine and its specialties.

A Textbook of Histology for Medical Students by Dr. EVELYN E. HEWER (Heinemann, 15s.) is, as the author states, primarily written for the use of medical students, and in this respect admirably fulfills its purpose. It consists of a straightforward description of the essentials of human histology, and serves as a brief but authoritative

introduction to the subject from the purely medical standpoint. Where necessary, allusions are made to the bearing that the matter under consideration has upon general pathology: for example, the repair of fractured bone or the after-effects of injury to the nerve tissues. The author has wisely refrained from entering into any controversial questions, and, while giving the usually accepted or orthodox view, refers the reader, in cases where there are differences of interpretation of microscopical appearances, to special treatises for further information. The illustrations, three hundred and forty in number, are of two types—(1) photomicrographs, showing the general structure of the tissues or organs under a low power of magnification, many of which are excellent and form a valuable record of the specimens selected, and (2) rough diagrammatic sketches indicating the principal features of the individual cell elements under high magnification. The book contains a large amount of useful information, much of which is quite recent, and it constitutes a valuable guide to the study of one of the most fundamental subjects of the medical curriculum.

The Pharmaceutical Pocket Book (thirteenth edition) is published by direction of the Council of the Pharmaceutical Society and has been prepared by the Codex Revision Committee of that society (London: The Pharmaceutical Press, 1938, 5s., postage 6d.). A considerable proportion of the volume is in the form of tables, which provide a wide variety of information of importance to pharmacists—for example, doses, B.P. formulae in Imperial system, solubilities, etc. It also contains much information of interest to medical practitioners which is not readily obtained elsewhere—for example, a dictionary of synonyms and trade names, an account of the Poisons Law and Rules. Sections of the volume deal with subjects of general physiological interest. Thus there are articles on the vitamins and on the endocrine organs; though relatively brief, these give the essential information. A high standard of accuracy is maintained throughout the volume, and it provides a surprisingly large amount of varied information for the moderate price of 5s.

Preparations and Appliances

A SIMPLE AMBULATORY METHOD OF TREATING FRACTURED CLAVICLE

Dr. MONTAGUE DIXON (Melton Mowbray) writes: The following is an account of a simple and inexpensive method of treating fractured clavicle, with apparatus that is always easily available.

Material required: novocain 2 per cent., and a 20-cm. Record syringe; zinc oxide strapping, two inches wide; some fine string; a packing needle; a three-inch elastoplast bandage; a six-inch bandage; Gamgee tissue; talc powder.

1. Inject the haematoma at the fracture with the 2 per cent. novocain solution to procure analgesia and resulting relaxation.

2. Measure the vertical sagittal circumference of the shoulder round the axilla, opposite the coracoid process. Let this measurement be called x inches. Cut four strips of the two-inch strapping $x + 6$ inches long to make two double strips of plaster, one for each of the two rings required. Each of these strips will have one surface sticky. Place them on the table sticky side uppermost. Cut four further strips, two to be four inches less than half the length of the double strips and two to be two inches less than this length. Place the longer of these, in each case, at the end of the double strip to eliminate the sticky part by putting sticky portion to sticky; and the shorter of them four inches from this longer one, to reach to two inches from the other end. The resulting strips will be threefold except where their surfaces are sticky,

uncovered by the final strips, the sticky parts being a median portion four inches long and a terminal portion two inches long, indicated by the shaded areas in Fig. 1.

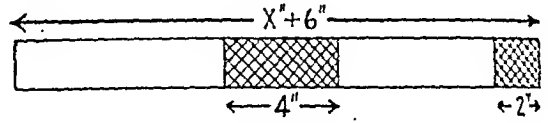


Fig. 1.

3. Make two circular rings of these strips by bringing the ends together, the terminal sticky two inches being applied to the other end of the strip. This junction should be fortified by stitching the ends together by means of the fine string and the packing needle. A quadrilateral stitch, four holes being made, will suffice (Fig. 2).

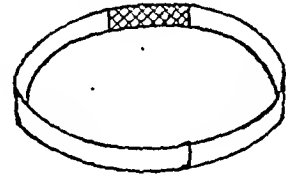


Fig. 2.

4. Cut twelve pieces of the strapping, each four inches long; take six of them to make a pad for each shoulder, six layers thick, which should be placed over the coracoid tip vertically in front of the outer fragment of the clavicle, to take the pressure of the ring (Fig. 3).

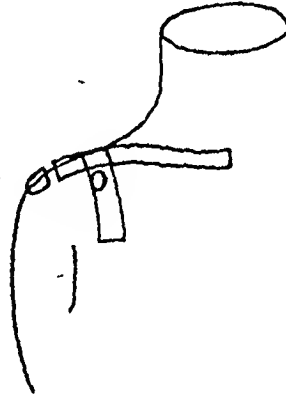


Fig. 3.

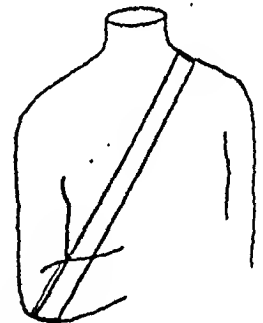


Fig. 4.

5. Now place the rings over the shoulders, and pull the shoulders outwards and backwards to reduce the overlap of the fragments, fastening the rings towards each other by the six-inch bandage, which should be tied in a bow for future adjustment. The rings will have been so applied that the sticky middle portions rest upon the six-layer pads. When the rings are tied the axilla should be liberally powdered to prevent the hairs sticking and dragging; it is better to powder as soon as the sticky middle has been accurately placed and pressed down upon the protective pads; but take care that no powder interferes with the adhesion of the sticky middle of the rings to the pads. Thus the rings will never slip during the course of the treatment.

6. Place a thick pad of folded Gamgee tissue under the knotted six-inch bandage behind.

7. It only remains to defeat the downward pull of the weight of the forequarter by means of the elastoplast bandage, which should be passed from the shoulder of the sound side round the elbow, where it holds the proximal end of the ulna, and again to the sound shoulder; this should go twice round for firmness and strength. Fix the bandage at the elbow with additional strips of zinc oxide strapping at its edge (Fig. 4).

8. A narrow sling can be worn except when the hand is being used.

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AIR RAID CASUALTIES

We as a profession, in common with the country, pray for peace in our time. But if we are to be granted no more than a respite from war we are resolved that we shall not again be caught unprepared. In particular we are concerned with the arrangements for casualties in the event of air raids on London. For some years hospitals and their staffs have asked, and asked in vain, what would be required of them in the event of war. It was therefore with a sense of relief that the profession read, early in June this year, the Home Secretary's announcement in the House of Commons that he had appointed a committee with Sir Charles Wilson as chairman to advise on the casualty organization for London. The personnel of that committee was in itself an assurance that a workable plan would be thought out without waste of time, and it is understood that the committee did present within six weeks of its appointment an interim report to the Minister of Health containing apparently the gist of the whole matter. In drawing up its report the committee received invaluable assistance from a careful survey of the available hospital accommodation in the country made by the Ministry of Health and from the census of the profession compiled by the British Medical Association. An account of the Association's part in mobilizing medical man-power for war will be found in the *Supplement* this week. The work of the head office at Tavistock Square in this connexion has been of the greatest help in shaping a plan for dealing with personnel.

The Wilson report was, we understand, accepted by the Ministry of Health, but it has never been published, and since the committee was appointed only in an advisory capacity we have no assurance that its recommendations have been carried out. We know that certain preparations have been made by London hospitals for the reception of casualties. But it is not in the hospital arrangements that a breakdown may be anticipated. The casualties have first to be removed from the streets and taken to the nearest hospital. Is there in existence an adequate body of stretcher-bearers or is it merely

a figure on paper? And have effective transport arrangements been made for taking casualties to the nearest hospital? These are the foundations of any plan, and unless they have been firmly laid the whole scheme must break down. Further, since the casualties must be removed from the danger area as soon as possible, a large number of beds in base hospitals in the home counties is necessary. Has sufficient provision been made for these outlying beds?

The advisory committee, as we have said, reported in July, and we understand that Sir Charles Wilson has paid a warm tribute to Dr. Hebb and others at the Ministry of Health who spent August and September, when others were on holiday, giving effect to the committee's recommendations. But the first secret of administration is devolution, and there is a feeling abroad that the Ministry in tackling a vast job when time was everything would have been well advised to seek more help from outside. At any rate, when the international situation deteriorated late in September the casualty organization was not ready for a war which appeared to be imminent. The hospitals were asked to prepare for the reception of casualties, and we know some of the steps that were taken in their conversion into casualty clearing stations. Some of them, such as St. Bartholomew's, St. Mary's, the Middlesex, and the London appointed a member of their staff as commandant. Preparations were rapidly made for adapting old buildings to new purposes and for the evacuation of as many of the sick as possible either to their homes or to base hospitals. But there cannot have been effective co-ordination of this effort, for when some hospitals were ready to take casualties others had scarcely begun their preparations. Moreover, the efficiency of a hospital, for whatever purpose it is used, ultimately depends on its staff, and it was everywhere found impossible to appoint a war-time staff in the absence of the necessary information about financial assistance from the central authority. The teaching hospitals, for example, cannot expect to retain their present staffs in their entirety. They will have to rely on a skeleton staff in the manner of the casualty clearing stations of the great war, the remainder of the staff being required elsewhere. In practice, some at least of this skeleton staff will probably have to devote all their time to the service of their hospital. But the hospitals are still in ignorance as to whether the State is prepared to pay salaries to these whole-time workers. Further, since the brunt of a raid may fall on some particular part of London while the rest escapes, it is necessary to organize mobile surgical teams, and so far as we know this has not yet been done.

It would not be difficult to multiply examples of the absence of adequate preparations. It is plain from the experience of the great war that medical schools ought to carry on in the event of war, but the schools do not yet know whether their students would be conscripted, if and when there is conscription. They are still in ignorance of the Government's policy, and they cannot begin to make arrangements until they know that policy. Further, when there is talk of filling the teaching hospitals entirely with casualties, they wonder how they are to train their students in the clinical years in the absence of ordinary ward material. Men returning from summer holidays report that there is scarcely a hamlet in the land without an elaborate organization for dealing with gas casualties, though the odds against a bomb, much more a gas bomb, disturbing the sylvan peace must be about one in a million. And while the depths of rural England are busy with this minute preparation, London, which must expect no such immunity, postpones the most vital preparations to the eleventh hour or later. It is idle to deny that such a lack of proportion and of horse sense is disquieting. Between two and three million civilians are to be evacuated out of London and billeted in town and village, so that in many places there will not be a vacant room. Have arrangements been made for the medical care of these refugees? Questions of that kind are on everyone's lips. Men ask, Are there enough stretchers, blankets, beds?

It is a time for plain speaking. The committee for casualty organization, announced in Parliament in June for the purpose of allaying public misgivings, and saddled in the minds of the profession with the responsibility of producing a plan which would work, was not permitted to finish its task. It has not apparently met since it presented an interim report in July. Why? If this procedure is to become the practice of Government departments difficulty will be found in persuading responsible members of the profession to come to their assistance. Out of these misgivings a moral emerges. In the great war the combatant services appointed consultants to assist in an advisory capacity. If there is unhappily to be another war London will be the front line. The arrangements for coping with casualties from air raids will concern millions of its inhabitants and a considerable fraction of the medical profession. It is unthinkable that any Government department would attempt the solution of a problem on this scale relying only on its own resources, considerable as they may be; it would certainly seek the assistance of the best brains in the medical profession. The public and the profession could be content with nothing less.

SEASONAL PERIODICITY IN MALARIA

Seasonal periodicity is a familiar phenomenon in both the vegetable and animal kingdoms. When it is remembered that the aetiological cycle of malaria involves no fewer than three animal forms—man, the mosquito, and the parasite—it is perhaps not so surprising that this disease should be almost as regular in its vernal and autumnal manifestations as the blossoming and fruiting of trees. Our knowledge of the causes of seasonal variation in malaria and the expression of this variation in an exaggerated form as epidemics is still, however, very imperfect. Explanations on accepted lines often fail to satisfy when subjected to close examination. In *The Seasonal Periodicity of Malaria and the Mechanism of the Epidemic Wave*¹ Colonel C. A. Gill deals in a very informative way with this aspect of malaria. Malaria exhibits itself under very different phases in different localities, but there is a general similarity, according to the author, in many of its features as seen in the temperate, subtropical, tropical, and equatorial zones. Thus malaria in a temperate zone represents malaria in the absence of the malignant tertian parasite and has many features due to the peculiar property of the benign tertian parasite of lying dormant and relapsing after long intervals. The spring epidemic characteristic of malaria in this zone, it is now known, takes place at a time when there are practically no anophelæ and is due to the delayed effects of infection contracted in the previous autumn. Malaria in a subtropical zone is exemplified by conditions in South Italy. There are two epidemic periods, one in the spring and another, the more important, in the autumn. The delayed primary attack of benign tertian, so conspicuous in Holland, is here less common and most of the spring cases are relapses in persons who have already suffered in the previous autumn from an actual attack of fever. Further, where the mean temperature during the hottest months is not less than 20° C. (for example, South Italy) manifestations of malignant tertian give special features to the autumnal rise. Tropical zone malaria is very similar in its general features to the last-mentioned type, but differs in the great intensity of the autumn effects as shown by morbidity and mortality and also by the fact that, whereas in subtropical zone malaria the determining factor is mainly temperature, in tropical zone malaria it is humidity (rainfall). Equatorial zone malaria, again, shows spring and autumn periodicity, but here both epidemic periods are of equal amplitude, and instead of rainfall drought is the chief determining factor. The distribution of these different epidemiological

¹ London: J. and A. Churchill. 1938. 10. 6d.

types of malaria, their distinctive characteristics, and the mechanism of the epidemics associated with them, so far as known, are clearly set out with some very good illustrative charts and a map of the world giving the limits of the zones. An extremely interesting and instructive analysis is given of the European types of seasonal prevalence which has been made possible by the very thorough researches carried out more especially in Holland and Italy. The characteristic features of the North Indian type of epidemic and the Ceylon epidemic are also closely studied. The most puzzling problem with which Colonel Gill has to deal is one that has already been prominently brought forward in discussions relating to the last-mentioned epidemic—namely, the nature of the mechanism by which malignant tertian malaria becomes so rapidly prevalent at the beginning of an epidemic. Practically all authors agree in regarding malignant tertian malaria as not exhibiting the long relapse seen in benign tertian malaria, and we have ample evidence that in the beginning of such epidemics there is very little infection in the form of gametocyte carriers to explain the remarkably rapid rise of infection with its resulting morbidity and mortality. Colonel Gill puts forward the view, for which he gives certain evidence, that the seasonal epidemic wave, even with malignant tertian, is initiated by a seasonal wave of relapses. He thus hypothesizes that there is some cause at present unknown bringing about such a seasonal wave of relapses. In a short appendix he clearly tabulates the mean monthly figures for temperature and humidity of a number of selected localities in the different malaria zones which should be very useful for reference. Even though his conclusions may not always be accepted, the very clear exposition of what is at present known regarding seasonal effects in malaria and the mechanism of epidemics makes the book one that every malariologist should read.

SUDDEN "EXHAUSTIVE" DEATH IN EXCITED PATIENTS

Shulack¹ has recently drawn attention to a problem which has puzzled psychiatrists for a long time, and has been the subject of a number of recent German publications. Young and healthy persons suddenly fall ill with a grave psychosis having as its main symptoms extreme motor excitement, aggressiveness, and a tendency to ruthless self-destruction (for example, by self-castration, bashing the head against the wall, etc.). The excitement resists all treatment by sedatives, of which only restricted use can be made because of the rapidly appearing disturbances of circulation. There is often

a short rise in temperature, and after a few days the psychosis ends fatally. The impression is often gained that the patient dies of exhaustion due to continuous struggling and excitement. The post-mortem findings offer no explanation for the malignant course, and no definite cause of death is found. Shulack collected 364 cases of this kind from the literature, adding twelve of his own. Stefan² collected 148 patients, and Stauder³ twenty-seven from the Munich Psychiatric Clinic. This, however, gives an exaggerated idea of the frequency of this syndrome: Scheidegger⁴ was only able to collect forty-three cases from the records of twenty-eight years in the Zurich Clinic. Whereas the German papers are well documented with post-mortem findings, a necropsy was carried out in only two of Shulack's cases. Examination of the histological findings in the brain is indispensable for excluding barbituric poisoning as a cause of death. All kinds of sedatives, especially scopolamine, are extensively used in severe excitement, and their combination with exhaustion, refusal of drink and food, and psychomotor excitement provides a most obvious, though as yet unsubstantiated, explanation of the fatal course. Swelling of the brain, hyperplasia of the thymus and other endocrine anomalies, and under-development of the whole circulatory system have all been found in individual cases. Jahn and Greving⁵ found erythropoiesis in the marrow of the femur and other signs of accelerated new formation of the red blood cells in five cases, and drew a parallel between these findings and the effect of histamine poisoning in animals. According to Scheid⁶ these findings also are not of general application. All ordinary physical explanations, therefore, are as yet premature; and one is faced by the question whether death can be directly caused by the emotions. In this connexion Shulack suggests that the vegetative centres in the hypothalamus and the vital centres of the medulla may be the seat of a disturbance of unknown nature or the point of attack of a hypothetical toxic substance. No pathological changes have, however, been found in these regions. Most of the authors regard their cases as schizophrenic, though Derby⁷ speaks also of manic-depressive psychoses taking this course. Stauder thinks these cases constitute a special clinical group of "fatal cataonia," and thus revives under a new name the "delirium acutum" of the psychiatry of last century. Scheid, on the other hand, considers them pronounced examples of the schizophrenic illness in which the bodily symptoms otherwise are latent and difficult to assess. He describes similar "febrile cyanotic episodes" as transient phases in schizophrenia, and regards them as critical states comparable to coma in diabetes. It is difficult to see how the ambiguous and obscure pathological changes found in these acute psychoses can be of any help in investigating the pathology of schizophrenia, but there is always the temptation in medicine to explain the unknown by the unknown.

¹ *Z. ges. Neurol. Psychiat.*, 1935, 152, 480.

² *Arch. Psychiat.*, 1934, 102, 614.

³ *Z. ges. Neurol. Psychiat.*, 1929, 120, 587.

⁴ *Arch. Psychiat.*, 1936, 105, 105.

⁵ *Febrile Episoden bei schizophrenen Psychosen*, Leipzig, 1937.

⁶ *Psychiat. Quart.*, 1933, 7, 436.

⁷ *Psychiat. Quart.*, 1938, 12, 282.

DURATION OF IMMUNITY AFTER DIPHTHERIA PROPHYLAXIS

The degree and duration of immunity produced by any form of preventive vaccination can be measured either by estimating antitoxins or other antibodies circulating in the blood of the vaccinated person or by determining whether the expected incidence of the specific diseases among the vaccinated individuals is reduced during a short or long period following immunization. In estimating the protection conferred by immunization against diphtheria the first of these methods has served well. The second method has been mostly used in the case of small-pox, and among people who are constantly exposed to the chance of infection with small-pox it is the custom in some places to vaccinate in infancy and revaccinate perhaps on two occasions, at seven and fourteen years after the first inoculation. Is there any need for periodic revaccination against diphtheria? The question has been asked many times, and has been discussed by Parish and Wright.¹ S. Frant² has shown that in New York, where immunization has been employed on a very large scale during recent years, the proportion of cases of diphtheria in patients over 15 years of age has increased, though a substantial number of these patients had been inoculated earlier in life. It is not clear that all the children had been tested after inoculation and proved to be negative to the Schick test, but probably this assumption is near the truth. Dr. Frant has suggested that children should be actively immunized in the first year of life and subsequently Schick-tested, a second Schick test being undertaken three years later, apparently just before the child goes to school. If this second test gives a positive result, his suggestion is that one further dose of prophylactic should be administered. D. T. Fraser³ made a somewhat similar proposal in 1936. The ideal policy would be immunization in infancy with periodic tests every four or five years, but this would be troublesome and would almost certainly prove impracticable. Most doctors would steer a middle course between the present practice of one immunization against diphtheria in infancy and periodic revaccination, as is customary against typhoid fever or small-pox. A child who has once been vaccinated against diphtheria has, even after he may have reverted to the Schick-positive condition some years later, a vivid "potential" immunity, and will quickly become Schick-negative again after the injection of one dose of prophylactic or after a sub-clinical infection. As Chesney and others have shown, the injection of two doses of potent alum toxoid, separated by a proper interval, produces the Schick-negative condition in virtually all children injected; thus the Schick test—except for purposes of research and periodic control—might well be omitted when this antigen is used. This would reduce the work of the administrator considerably, and the saving of a visit by the mother and child at this stage might well make them more responsive to the suggestion that it would be a simple form of insurance to bring the child again

for one injection of prophylactic just before starting school life, with its greater risk of exposure. Where some such policy is not adopted the medical officer of health, if there is evidence that a severe wave of infection is occurring locally, as part of his immunization scheme should consider urging the injection of one dose of prophylactic in the case of all children who have been immunized in infancy.

SULPHANILAMIDE AND SERUM

Most of the infections amenable to the action of sulphanilamide were previously treated with serum. Where serum treatment was always of doubtful value, as in the majority of streptococcal infections, it has already been almost forgotten; on the other hand, in some types of pneumonia and in meningococcal meningitis, where the efficacy of serum treatment was fully established, it has now become an important question whether chemotherapy is merely to reinforce or completely to supersede it. There is both experimental and clinical evidence that the two treatments combined are more effective than either alone. This is to be expected, but it does not follow that both should be employed in favourable cases; if one specific remedy will serve it is a mistake to employ two, especially if the second is expensive, difficult to administer, and apt to cause unpleasant after-effects. In severe and desperate cases every available therapeutic weapon should be brought to bear, and what this may achieve is well illustrated in a report by M. Finland, J. W. Brown, and A. E. Rauh⁴ on ten patients with pneumococcal meningitis treated with both sulphanilamide and serum, of whom six recovered. It seems to be beyond question that 2-(*p*-aminobenzenesulphonamido)pyridine ("M and B 693") is much more effective in pneumococcal infections than is sulphanilamide, and it is arguable that favourable cases of pneumonia may justifiably be treated with this drug without resort to serum. The contrary attitude to this has recently been voiced in this *Journal* by Fleming,⁵ who has also published evidence based on *in vitro* experiments that the combined action of this drug and of serum is greater than that of either alone. A further plea for combined serum and chemotherapy is now made by E. F. Osgood⁶ on somewhat similar grounds. Osgood has previously advocated the use of a bone-marrow culture medium for studying chemotherapeutic action on streptococci, and he has now employed this method for the pneumococcus. What his experiments show is that the growth of this organism is suppressed to a greater degree in this medium by anti-pneumococcal serum and sulphanilamide together than by either acting separately. These, and more particularly some further experiments in broth, would carry more conviction were it stated that the serum used contained no preservative. These experiments raise another question of wider interest. Their object is to imitate

¹ *Lancet*, 1938, 1, 882.

² *Quart. Bull. Dept. Hlth. N.Y.*, May, 1938, 56.

³ *Canad. publ. Hlth. J.*, 1936, 27, 597.

⁴ *New Engl. J. Med.*, 1938, 218, 1033.

⁵ *British Medical Journal*, 1937, 2, 37.

⁶ *Lancet*, 1938, 2, 74.

⁷ *Arch. intern. Med.*, 1938, 72, 181.

far as possible *in vitro* the conditions which obtain in the body, the test mixture containing not only the therapeutic agent under investigation, a suitable nutritive fluid, and bacteria, but living leucocytes. Similar conditions are secured by the "slide-cell" method employed by Fleming, in which drug or antiseptic in different dilutions and bacteria are mixed with fresh blood. If the results obtainable by these proceedings are valid, as they doubtless are in principle, it is desirable that a standard method of this kind should come into more general use.

IDENTICAL CANCERS IN IDENTICAL TWINS

An interesting addition to the records of cancer in identical twins is reported from the Mayo Clinic by Phillips.¹ One twin had a carcinoma in the right breast in 1927 and another carcinoma in the left breast eight months later. The other twin had a lump in the right breast for which a simple mastectomy was performed; in 1932 there was a recurrent carcinoma on the right side and another carcinoma was present in the left breast. Radical operations were performed on both twins, who are now well and apparently free from cancer of the breast. In 1937, however, the first-mentioned twin developed bilateral papillary adenocarcinoma of the ovaries. Will ovarian cancers develop in the other twin? The immediate problem for the surgeon is to decide what should be done to safeguard the second twin. Phillips suggests prophylactic oophorectomy or deep x-ray treatment, but does not feel justified in advising hysterectomy. Usually, if a cancer develops in one of a pair of identical twins, the other twin has a cancer of the same type in the corresponding organ, either at the same time or soon afterwards, but Phillips quotes a case of Kaplan's in which carcinoma of the breast had not been reproduced in an identical twin after six years. In the future drastic preventive measures may be advised without hesitation; the accumulation of carefully observed instances will supply the guide.

FATALITY RATES IN TUBERCULOSIS

In an interesting analysis of the present trend of case fatality rates in tuberculosis² Drolet shows that the ratio of deaths to new cases of tuberculosis reported in various communities has varied little in the past twenty years, a period during which the incidence and mortality of the disease have been declining steadily. Similarly, no variation was found in this ratio when it was calculated on the basis of the new cases reported and the survivors two years after notification, the period during which most of the deaths occur. Since the ratio of deaths to cases is comparatively high in children under 5, low in the age-period 5 to 15, and then rises steadily with age, the possible influence of a change in the age distribution of the populations had

to be eliminated. Drolet shows that the differences between the age of patients or age at death now and formerly are not great enough to modify materially the fatality rates of the communities investigated. Persons dying from tuberculosis now are, on an average, slightly older than formerly. Passing to the influence of treatment on the fatality rates, Drolet finds that the mortality ratio to the total discharges among cases treated in sanatorium or hospital since 1910 has tended to fall in New York. In England, on the other hand, the mortality ratio in "approved residential institutions" was 11 per cent. in 1927, and has risen steadily to 19 in 1936. The proportion of all tuberculosis cases "isolated" in hospitals is several times greater now than it was some time ago: in the United States it has risen from 4 per cent. in 1915 to 25 in 1934; and in England, from 8 per cent. in 1921 to 17 in 1934. This he considers the most important factor in the fall in the tuberculosis mortality. Finally, Drolet says that sanatorium or surgical treatment of pulmonary tuberculosis would seem so far to have had little effect upon the case fatality rates of the entire tuberculous population in the communities he has studied. But this finding in regard to the surgical treatment (including artificial pneumothorax) of pulmonary tuberculosis in no way detracts from the value of collapse therapy, for correctly applied collapse therapy is still too recent a measure to allow of the study of its influence on case fatality.

THE MEDICAL REGISTER: UNTRACEABLE PRACTITIONERS

We publish in the *Supplement* this week, at the request of the General Medical Council, a list of the names of those medical practitioners who have not replied to the Council's inquiries as to the accuracy of their postal addresses. Any practitioner, wherever resident, whose name is included in this list should communicate at once with the Registrar of the General Medical Council, 44, Hallam Street, Portland Place, W.1, or, if originally registered in Scotland, with the Registrar of the Scottish Branch Council, 44, Queen Street, Edinburgh, 2.

The second W. E. Dixon Memorial Lecture will be delivered by Sir Frederick Banting, F.R.S., in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole Street, W., at a meeting of the Section of Therapeutics and Pharmacology on Tuesday, October 11, at 5 p.m. The subject of his lecture is "The Immunity Aspect of the Tumour Problem."

The Harveian Oration before the Royal College of Physicians of London will be delivered on St. Luke's Day, Tuesday, October 18, at 4 p.m., by Sir Edward Mellanby, M.D., F.R.S., whose subject is "The State and Medical Research."

¹ *Proc. Mayo Clin.*, 1938, 13, 209.

² *Amer. Rev. Tuberc.*, 1938, 37, 125.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

INFECTIONS OF THE HAND AND FINGERS—II

BY

NORMAN C. LAKE, D.Sc., M.D., M.S., F.R.C.S.

Mode of Infection

Infection may reach the fingers and hand in many ways. The most obvious and important is by penetrating and lacerated wounds, especially those produced by the prick of needle or pin or other sharp-pointed instrument. The reason why penetrating wounds of this type appear to be more prone to the development of infection than others is probably because the organisms are implanted along the long narrow track through which the natural flushing of protective serum and exudates is impossible. There can be little doubt that a large number of organisms are mechanically removed during the penetration of the tough superficial layers of the skin, especially on the volar aspect, otherwise infection would be even more frequent. Extensive lacerated and incised wounds of the hand, too, are probably more likely to lead to infection than in many other regions of the body. This may be due to the fact that many of the divided structures retract well away from the wound, and so carry organisms into parts which are neither flushed by the natural transudation of lymph nor easily reached by such primary antiseptic measures as may be used.

The second mode of origin of infection is from small superficial skin lesions, especially around the nails. In particular a "hang-nail" is a common portal of entry. Dermatological lesions of the skin also may form the primary source of infection, and these, of course, not infrequently prove to be of vocational origin. The question of blood-borne infection of the fingers and hand is a moot one, since minute portals of entry can so easily be overlooked. There are, however, exceptional cases in which it appears beyond doubt that the infection reached the part from some other focus via the blood stream. In all cases of apparently spontaneous infection the suspicion must arise of an underlying constitutional condition, such as diabetes, or of a pyaemia. These suspicions must obviously be confirmed or confuted before any surgical means of treatment are entertained.

Spread of Infection

It will be readily recognized that infection of one part or tissue may arise by spread from another; thus infections of the palmar spaces often follow a primary infection in the finger. In many instances this spread is a continuous one, the infection extending along the subcutaneous tissues or in the thecal sheaths, which latter may subsequently burst at their proximal ends into the cellular tissues of the palm. It is because extension of this type tends to be, at least temporarily, controlled by certain anatomical features that so much attention has been paid to these in the previous section. In other cases the spread is a discontinuous one. Here the organisms travel from the fingers along the lymphatic spaces or vessels, are arrested in the palm, or even higher, and there set up a new zone of infection. Spread may occur

distally as well as proximally; the classic "Kanavel hand" arises when deep palmar suppuration extends distally along the lumbricales to the web spaces, there to discharge spontaneously through multiple sinuses.

Sometimes infection is complicated by the retention of foreign material in the wound; in these circumstances its detection and removal may constitute an important part of the treatment. Metallic foreign bodies are obviously easily displayed and localized by radiography. Cloth, leather, etc., can only be discovered by thorough exploration of the wound. A very common foreign body is glass: the coarser varieties contain enough lead and other heavy materials to render them more opaque than the body tissues to the rays, but the finer varieties may give such a poor shadow as to be easily missed. Wood, another common foreign body, is as easily penetrated by the rays as the body tissues, and therefore cannot easily be detected by this means. Luckily, splinters of wood often have a coating of paint or other opaque material, which aids greatly in their detection.

Infections arising from injury may also be complicated by lesions of tendons, nerves, vessels, or other bones. Such complications must be recognized in the early stages, since they may necessitate considerable modification of the treatment otherwise proper to the case.

Chronic Infections

Chronic infections of the hand fall outside the scope of this article, but as they may enter into the question of differential diagnosis it is necessary to state here the chief ways in which chronic infections manifest themselves. In syphilis the primary chancre may appear on the finger-tip, especially in dentists, doctors, nurses, and others having to deal with these cases. The palm of the hand is a common site for the appearance of the secondary rashes, but as these are always bilateral they rarely occasion mistakes. Tertiary lesions in this situation are exceedingly rare, but gummata arising in the periosteum of the bones and even from the soft tissues have been recorded.

Tuberculosis may affect the hands in three chief ways. The skin may be the seat of a local tuberculous process due to direct implantation of the organisms in surgery, pathologists, and the like. This gives rise to the well-known verruca necrogenica. In children a tuberculous osteitis of the metacarpals or phalanges produces the so-called tuberculous dactylitis (spina ventosa). The diagnosis of this condition is confirmed by radiography, an unusual feature being the laying down of fresh bone under the periosteum, even in the absence of a secondary infection. In later life tuberculous infection of the palmar bursa may arise.

In this the exudation distends the whole palmar space, and so appears as an hour-glass swelling, partly distal and partly proximal to the annular ligament, and through fluctuation. In this variety of tuberculous tenosynovitis the production of numerous "milk-cream" ("rice") bodies is usual.

Other chronic infections have been known to appear in the hands, but their incidence is so rare that they are ignored.

Diagnosis

The diagnosis of infection of the hand and fingers is usually self-obvious. The determination of its site and anatomical localization, however, is much more difficult and of far greater importance. It has already been pointed out that the position of maximum swelling is not necessarily a guide to the location of the infection. Thus in inflammation of the palmar and thenar spaces the maximum swelling is always seen in the dorsum of the hand. The position of maximum tenderness is of greater value, but even this gives no indication of the depth of the infection. In the more superficial infections—that is, subcuticular, subcutaneous, or subungual whitlow—the limits of the infection are usually clear. When the thecae are involved there is swelling corresponding to the anatomical limits of the particular sheath involved, and there will be pain upon all movements of the digit, both active and passive. It is extremely important to note the range of movement over which pain is elicited, for pain upon movement in one direction only may arise when the infection lies outside the sheath if the inflamed part is compressed by the movement. In these cases, however, movement in the opposite direction usually brings relief, which of course is not the case when the theca is involved. Inflammation in a joint, too, may give rise to pain on all movements, but here the localization of the swelling to the vicinity of the joint enables the distinction to be made. In this instance pressure along the longitudinal axis of the digit is painful, whereas this is practically painless when the theca only is involved. End pressure upon the nail elicits local pain in the case of onychia or when the terminal phalanx is affected. Suppuration in the nail bed can often be seen through the translucent substance of the nail: a greenish-yellow area indicates the site of the pus.

Infections of the palmar and thenar spaces produce a fullness of the corresponding site of the palm, with obliteration of the normal hollow (cup of the palm) and local tenderness. If the anatomical limitations of these spaces be remembered there will be little difficulty in detecting which space is involved, but in addition the situation of the swelling in the web spaces and on the dorsum of the hand will afford corroborative evidence. The inner three web spaces are affected when the palmar space is involved, the first web space and sometimes the second when the thenar space is involved. If the thecae are not also infected a limited degree of movement of the fingers is possible without pain.

Infection of the palmar bursa (common flexor sheath) also causes fullness in the palm, best marked on the ulnar side. This can be distinguished from infection of the areolar space by noting that the swelling extends above the annular ligament, and that the movements of all the fingers are extremely limited and painful in the early stages. A swelling proximal to the annular ligament may be due to infection of the deep space of the forearm by extension from the palmar space. This is distinguished from a bursal swelling by the fact that it is less well defined and arises at a later stage of the disease when the palm is already extensively involved.

To complete the examination a search must be made for the presence of lymphadenitis in the axillary glands, rarely in the epitrochlear also, and for lymphangitis. The superficial lymphatic vessels for the most part travel in a spiral fashion, passing from below upwards and inwards around the forearm. The red, tender, and indurated streaks of a lymphangitis follow this course.

Finally, the general condition of the patient must not be overlooked. The extent of increase of temperature and pulse and the occurrence of rigors are all important diagnostic features.

Pre-operative Considerations

The foregoing section has dealt with the anatomical limitations of an infection, but before rational treatment can be undertaken it is necessary, in addition, to form a conception of the type and virulence of the infecting organisms: the conduct of the case will depend upon this as well as upon anatomical considerations. The organisms most commonly found are, of course, staphylococci, streptococci, and more rarely *B. coli*. Of the former the *aureus* variety has a special virulence which may approach that of many streptococcal infections; it may produce a lymphangitis not unlike that of a streptococcus. The well-known predilection of this organism for bone will naturally arouse a suspicion of some bone involvement, but in the hand this distinction is of less importance than it would be in many other regions. A lymphangitis can, however, usually be accepted as evidence of a streptococcal infection, especially if it be associated with a widespread infection which displays little tendency to localization or suppuration, if the patient develops rigors, or if his general condition appears to be unduly bad in proportion to the extent of the lesion. Sometimes, when a wound is already present, the actual organism may be identified by bacteriological examination, and when possible this should be done. Frequently, however, the nature of the infection has to be decided from clinical observation only. In the presence of lymphangitis, lymphadenitis, high temperature, and rigors the infection may be assumed to be a streptococcal one and treatment instituted accordingly. If involvement of bones or joints is suspected, a skiagram should be taken before the diagnosis is considered complete. A similar precaution should also be observed when the possibility of a foreign body arises. In the case of lacerated wounds a careful search must be made for evidence of damage to nerves or large blood vessels.

It cannot be too strongly urged that the preliminary examination should be thorough, for only in this way can a complete picture be formed that will enable one to deal with the case efficiently. It has already been remarked how important the hand is from the economic point of view; if the maximum of function is to be retained in an infected hand there must be no hurried surgical intervention before the case has been studied completely.

It has for long been customary to classify whitlows into subcuticular, subcutaneous, subperiosteal, subungual, and thecal, but, although this subdivision has its virtues, it conveys an idea of detachment that is quite alien to the general tendency to spread from one structure to another which these infections display. Such a detached pathology is apt to lull one into an unjustified sense of security, which may cause delay in the recognition of important extensions and so produce tragic results.

Treatment

The treatment of these cases depends upon the localization and the nature of the infecting organism. The general principle of rest to an acutely inflamed part, however, is applied to all, whether operative treatment is necessary or not. Rest tends to limit the spread of the infection, and is particularly useful when the thecae are threatened or involved. It is achieved by appropriate splinting. Often the best form of splint to use is that

constructed of stout wire bent by the surgeon to suit the individual requirements of the case while allowing the necessary dressings, baths, etc., to be carried out without disturbance. There is no need here to detail the construction of these splints: their efficacy is often a measure of the mechanical ingenuity of the doctor. In some instances plaster slabs may be moulded to immobilize larger parts; they, too, must be applied in such a way as to allow the dressing to be carried out without movement of the joints or tendons.

If the suspicion arises that the case is due to infection with a streptococcus, special caution is necessary in its conduct. Owing to the fact that violent streptococcal infections, here as elsewhere, are associated with some degree of septicaemia in the earlier stages, and that there is little tendency to localization, operative treatment, with certain exceptions to be mentioned later, should be avoided. The old idea of making multiple incisions into the infected areas "to relieve tension" has little to recommend it, and may be definitely harmful by helping to spread the infection and breaking through any resisting barrier which may be forming. In the initial stages the treatment of such cases may be along general lines. The recent introduction of drugs of the sulphonamide group has placed in our hands a potent weapon for dealing with streptococcal infections. Since, in reasonable dosage, they appear to be devoid of any serious untoward effects, their use is justified in suspected cases, even before the nature of the organism has been definitely proved. The original materials, given by injection, have been largely supplanted by others for oral administration. Prontosil, prosectasin, streptocide, etc., may all be given in $\frac{1}{2}$ -grain doses four times a day. Sulphaemoglobinaemia and albuminuria have both been reported following the use of these drugs, but the special precautions to be taken will be considered in a future article in this series. Antitoxic streptococcal sera are also of proved value in these streptococcal cases, and should be used when other means fail to arrest spread. Lymphangitis and lymphadenitis are similarly dealt with. If the infection is a very superficial one (erysipelas) it may be reached by ultra-violet irradiation, which has a definite limiting effect and is of considerable value.

The rule that streptococcal infections are not to be treated by operation is subject to two important exceptions. If the vitality of a digit is threatened by the extreme tension of the exudate, which is obviously interfering seriously with the blood supply, some small incisions into the subcutaneous tissues are proper in an attempt to reduce the tension and so save the finger. In cases of this type the simultaneous administration of the sulphonamides is advisable to avoid blood-stream infection. The second indication for operation arises in the later stages, when frank suppuration has occurred. The appearance of localized pus in a streptococcal case is a sign that the patient's resistance is dealing adequately with the infection, and in these circumstances drainage may be instituted as for other infections.

With these important exceptions infection of the hand and fingers should receive energetic surgical treatment in as early a stage as possible. Damage may be done both by delay and by too vigorous and extensive initial treatment, but there can be no doubt that the commoner errors are those of delayed and timid surgery. An early infection is sometimes dealt with by a minute incision under an ethyl chloride spray which lets out a bead of pus but fails to arrest spread at the periphery. The surgeon probably thinks that a larger incision will take a long time to heal, forgetting that a widespread infection, inadequately treated, will take much longer still and may

lead to great disability. These cases must be attacked in no half-hearted way; but as a corollary to this it is most important that the surgeon should have a clear idea of the aim of the operation and of the anatomy of the parts, so that he may design his incisions to produce proper drainage without endangering any important structures, spreading infection, or producing disability by his very procedure. Every case must be carefully worked out on its merits, but there are certain general rules which form a valuable guide in the majority of instances. It must be stressed that all operations of this type should be performed deliberately under full general anaesthesia, with good illumination, and, preferably, in a properly equipped operating theatre. To attempt to drain an infected hand or finger, other than a very superficial infection, in the surgery or the casualty ward under a short gas anaesthesia is courting disaster. Local anaesthesia is not usually suitable for these cases, with perhaps the exception of the terminal phalanx, where regional anaesthesia may be produced by circumferential infiltration at the base of the digit. The use of the ethyl chloride spray, even for fairly superficial infections, is not to be recommended: the local freezing devitalizes the parts and facilitates the spread of infection. Gas-and-oxygen or evipan anaesthesia is quite adequate for these cases, and should supplant all local measures.

A tourniquet should be used only with the greatest of reluctance for fear of devitalizing tissues; if it is employed at all it should remain on for a short time only, and in no circumstances should Esmarch's bandage be applied.

(To be continued)

MEDICAL DEFENCE UNION

At the annual meeting of the Medical Defence Union, held on September 27, it was announced that during the year 1,627 new members had been elected, and that in July last the total membership stood at 21,231. The number of cases handled during the year was 1,814. The investments now amount, at market value, to over £102,000.

The Matrimonial Causes Act

One matter to which the Council of the Union has given careful consideration during the year has been the application of the Matrimonial Causes Act, 1937. The Council aligns itself with the British Medical Association in the view that when a practitioner is approached for an opinion by a declared prospective petitioner as to the incurability of the mental condition of the respondent or as to a medical condition existing at the time of marriage, he would be well advised to decline to express such an opinion, except at the direction of the court, or to a guardian *ad litem* if appointed though he might conceivably place his records of the case at the disposal of an independent medical expert nominated by the petitioner or by his authorized legal adviser. It is anticipated that there will be developments affording practitioners a fuller degree of protection than they now possess, and permitting the proper operation of the Act without the risk of an action for defamation being brought against the practitioner. One suggestion is the establishment of a panel of medical examiners, as at present in nullity suits. Another is that Section 16 of the Mental Treatment Act, 1930, should be applied to preclude any person starting an action against a certifying practitioner until the court is satisfied there is substantial ground for his contention.

Allegations of Negligence

The annual report includes a useful series of typical cases dealt with during the year. It illustrates incidentally the

variety of methods adopted by patients when they want to evade payment of a doctor's account. One of the most common is to quote another doctor's diagnosis as evidence of improper diagnosis and treatment. Of the 184 cases handed over to the Union's solicitors (Messrs. Hempsons) to be dealt with, about half involved charges of negligence, the majority of these being raised by way of set-off or counterclaim, but in no case did the set-off or counterclaim succeed. In one or two cases actions have been threatened on the ground of complications following an operation, after which there had been non-absorption of a stitch. The Council has always felt that this is a matter for which the surgeon cannot in any way be held responsible, as it is due to a defect in the material which he cannot anticipate.

Unauthorized Examinations

An unauthorized operation, save in an emergency, or even an examination may constitute an assault in law, and members of the Union are advised to make sure when instructed to examine a patient on behalf of a third party that the person to be examined is fully aware of the circumstances and that they have his permission to examine him and to report to the person on whose behalf the examination is made. A case is related in which action was threatened against a practitioner who carried out the examination of a man without his sanction. The practitioner was medical officer to a football team and was instructed on behalf of the management to examine a player whose transfer was under consideration. At the time the man was suffering from pneumonia, and at the suggestion of the man's wife, who said that her husband would be distressed about the contemplated transfer, the doctor unwisely pretended to be deputy for his ordinary doctor. In due course the man discovered the deception, and raised an ingenious claim on the ground that the examination had been harmful to him in that he had been disturbed and his body uncovered. When it was realized that the Union was prepared to defend any form of action, however, the claim was abandoned.

Commutation of Subscriptions

At the annual meeting the president, Mr. E. L. PEARCE GOULD, mentioned among other matters the scheme, recently introduced, whereby members can commute their remaining annual subscriptions by making one payment related to the length of their previous membership. Although the scheme had been published a short time, several members had already availed themselves of it.

The President referred also to the volume of work falling upon the Council at its monthly meetings, resulting in prolonged sessions. He told the meeting how the Council had decided to establish a Council Committee, to which would be delegated all the business and routine matters, leaving the Council free to deal with live and important cases, for the conduct of which the solicitor (Mr. Hempson) is personally responsible. This alteration in the allocation of the business of the Union, dividing it between two separate bodies—the Council Committee and the Council—has resulted in the Council being able to conclude its business in the afternoon at a reasonable hour, and also enabled it to give fuller consideration to urgent affairs requiring immediate attention.

According to the *Bombay Chronicle* the Government of Bengal and the Public Health and Local Self-government Department have decided to establish a model health unit at Singur in the district of Hooghly during the current year with a staff of one medical officer of health of the status of first-class health officer, one lady doctor, four health visitors, eight midwives, four sanitary inspectors, and two clerks and menials. The average annual cost for maintaining the unit (including contingent charges) is estimated at about Rs. 30,000, towards which the Rockefeller Foundation has offered a contribution for the first five years.

Nova et Vetera

AN AMERICAN "PHYSIOLOGICAL" SOCIETY OF 1837

Those familiar with the history of the Physiological Society in this country and the jubilee of the International Congress of Physiologists this year will probably be startled by the opening sentence of an article by Dr. Hebbel E. Hoff and Professor John Fulton of Yale: "A hundred years ago the first physiological society in the world was founded in Boston, under the name of 'The American Physiological Society.'" The explanation is simply that it was not on the lines of a serious scientific body of investigators. It was founded in 1837 by William Andrus Alcott, who after one year's work obtained a diploma from the Medical Institution of Yale College, was a keen educationist, and became president of the society, and by Sylvester Graham, who among other occupations had been the general agent for a temperance society, a clergyman, and a public lecturer on the "science of human life," in which he advocated abstinence from all drink except water, a vegetable diet consisting principally of bread at least twelve hours old made from scarcely ground wheat, and a cheerful atmosphere at meal times. The advertised object of the society was to acquire and diffuse a knowledge of the laws of life and of the means of promoting human health and longevity. One attempt only, and that quite abortive, was made to advance the knowledge of physiology by means of experiment. The society did not last more than three years, and half-way through its life had a membership of two hundred and fifty-one, including ninety-three women; in Alcott's words, most of the members "were more or less feeble, and a very large proportion of them were actually suffering from chronic disease when they became members of the society. Not a few joined it, indeed, as a last resort, after having tried everything else."

SALE OF A CHILD FOR DISSECTION

Under the heading "Singular Depravity," the *Annual Register* for July 27, 1838, contains a record of the following remarkable case.

"A very singular trial took place at the Cork Assizes. A woman was found guilty of offering to sell a child (which she had for some time supported out of charity) for the avowed purpose of dissection. The medical man to whom she made the extraordinary offer arranged a second interview at which he had a policeman concealed. She entered again deliberately upon the bargain, whereupon she was taken into custody. It appears that she was perfectly sober, but she had made the unfortunate child drunk, and when it became alarmed and cried she urged the doctor to give her something at once that would settle her, telling the poor creature that the gentleman would give her something sweet. She was found guilty. Death is the penalty provided by the statute. The judge, however, held out hopes of mercy. We do not exactly see on what grounds."

The issue of the case is not recorded.

John Wolcot, the bicentenary of whose birth occurs this year, took the M.D. Aberdeen in 1767, and two years later was ordained priest. As physician in general to horse and foot in the island of Jamaica he failed to achieve success or popularity through his frank assertion that the doctor can do little more than watch Nature and give her a shove on the back if he sees her inclined to do right. Returning to England, he soon exchanged physic for poetry, writing numerous coarse satires under the name of Peter Pindar, "a distant relative of the poet of Thebes." He died in 1819.

Hoff, H. E., and Fulton, J. F. (1937). "The Centenary of the first American Physiological Society, founded at Boston by William A. Alcott and Sylvester Graham." *Bull. Inst. Hist. Med.*, 5, 687.

OPENING OF THE NEW SESSION

NEW MEDICAL SCHOOL AT ABERDEEN

ADDRESS BY LORD DAWSON OF PENN

The new Medical School at Aberdeen University was opened on September 28 by Viscount Dawson of Penn. The school is at Foresterhill, on the outskirts of the city, on the 117-acre site of the joint hospitals' scheme, where the Royal Infirmary, the Hospital for Sick Children, and the Maternity Hospital are concentrated. Lord Meston, Chancellor of the University, presided at the opening ceremony, and among others present were the Lord Provost, the Marquis of Aberdeen, Dr. Thomas Fraser, President-elect of the British Medical Association, and Dr. G. Mitchell, President of the Aberdeen Branch. Lord Meston said that four centuries of progress looked down upon their University—centuries of steady progress from mediaeval empiricism to a humane and intelligent treatment of human suffering—and yet they might be now only on the threshold of medical knowledge and surgical skill. The present ceremony was one of rededication, and their earnest prayer was that the new building would help them to serve mankind as their forefathers with dimmer lights and narrower means had striven to do.

A Wider Comprehension of Medicine

Lord Dawson began by congratulating Aberdeen on its enterprise, saying that its regional hospital scheme should be a pattern for Great Britain in the mapping of areas. The site offered an opportunity for giving reality to the wider comprehension of medicine. Curative and preventive medicine were still separated too much into compartments. They should be brought together, taught together, and practised side by side. At present preventive medicine was inadequately taught, and was nothing but a postscript to the student's career. Such a site as that at Aberdeen offered a basis for the broadening of medical education to the profit of the community. It would be easy for the city, if in its wisdom it were so minded, to erect on the site a building which would house the most important communal clinics. Thus from the very first the students would breathe the atmosphere of preventive medicine. He pointed to the value of the team work rendered possible by such a plan, and also to the economy in expenditure.

Contrasting the conditions as they existed to-day with those obtaining a few years ago, Lord Dawson said that there had been, taking the country as a whole, a gradual growth of medical and hospital services which, however individually excellent, had become a medley of separate efforts. These services fell under the headings of communal services and clinics, voluntary hospitals, and municipal hospitals. The communal services represented a fine achievement which stood to the credit of local authorities and their medical officers and conferred substantial benefits on the common health. Their isolation and divorce from the general body of doctors in the district was a disadvantage. They needed to be brought into the texture of medical practice. It was useless to expect the general practitioner to think in terms of constructive health unless the clinics and similar services were open to him.

With regard to the voluntary hospitals, these were living societies which had grown up with the British people. Provided the "dead wood" was periodically cut out, to allow them to languish for want of material support or to let them and all they stood for die by absorption into local authorities would be alien to our genius for social evolution and a damage to our national well-being. The faults of the voluntary hospitals in recent days had been their slowness to widen their horizon so as to include

preventive medicine and its ideals. Nor could they stand as disconnected institutions; they must play their part in a comprehensive scheme of medical services. It could not even be claimed that the possession of teaching schools conferred the right to exclusiveness, for the function of teaching had been extended to the municipal hospitals and clinics.

The municipal hospitals had come into existence during the last eight years, were steadily growing in numbers and importance, and were serving the community well. But their existence had intensified the necessity for co-operation. With voluntary and municipal hospitals working side by side, it meant that there were two sets of hospitals and two sets of doctors in the same community, and confusion and conflict must result.

The remedy was suggested by that enterprise at Foresterhill. There the communal services would soon be represented by the ante-natal clinic, and, he hoped, a municipal wing to the maternity hospital. An orthopaedic service run jointly by the city and the university would be very desirable; and thus the scheme would grow. Here was a medical college fully equipped for the teaching of the sciences basic to the art of medicine, and an assemblage of special hospitals gathered round the Royal Infirmary. What finer opportunity for clinical training could there be?

Lord Dawson concluded with some remarks on the duty of leadership by medicine in regard to improvement of the human stock. The smaller the birth-rate the more it was necessary to select for quality if the race was not to deteriorate.

On the proposition of Principal W. Hamilton Fyfe, seconded by Professor David Campbell, a vote of thanks was accorded to Lord Dawson for his address.

WESTMINSTER HOSPITAL

DR. HUTCHISON ON THE MEDICAL CAREER

The inaugural address at Westminster Hospital Medical School was given (for the first time in the handsome new building in Horseferry Road) on October 3 by Dr. Robert HUTCHISON, P.R.C.P. He compared the medical career to a race, and as one who had been over the course, offered some advice on the points where new entrants might "take a toss."

The reasons for entering upon a medical career, Dr. Hutchison said, were various, but whatever they were in the case of the young fellows before him, he congratulated them on their choice. He did so on the mundane ground that medicine was an interesting, intriguing, even amusing occupation, in which, although with all its labours and languors they might often know fatigue, they did at least escape boredom. It also gave opportunity for the exercise of all one's powers, physical, mental, and moral, and offered an admirable field for the study of human nature in the raw. Further, the prizes in the race were quite substantial. On the whole, doctors were well paid, and they had the further advantage, that their skill, once acquired, was marketable all over the world. Some of them, starting the race, might be dismayed by the number of competitors. When he himself started half a century ago there were 400 men in his year at Edinburgh. Large though the number of entrants had been in recent years, saturation point did not seem to have been reached, and the scope and amount of medical work were always increasing. Dr. Inge had said that, though democracy might starve the clergy and practitioners of the arts, it would always demand doctors.

Handicaps and Hurdles

This medical "race" was a handicap. Some carried weight all through the course because of poor health, lack of intelligence, inborn laziness, shyness, or a bad manner. Others might be burdened by poverty. Perhaps that was not a burden, but a spur. Poverty was the only advantage which a rich parent could not give his son. The race was not really very long. Eight laps of five years each would see the end of it for most—a long time to look forward to, but short in retrospect. The first lap was a hurdle race, the hurdles being the examinations. These were inevitable, no one had suggested any substitute for them, and, rightly regarded, they added interest and even excitement to the race. The business of the student was so to run as to take them in his stride, and this he could do easily enough if he went steadily on, not in a succession of spurts.

Dr. Hutchison refused to diverge into a discussion of "that boring subject" medical education, but if he himself had any guiding principle in teaching the medical art it was summed up in the saying, "You can't have the terriers too soon at the rats"—in other words, get as early into contact with patients as possible. None the less, teaching was of importance, and considering that members of hospital staffs were appointed chiefly for professional and not pedagogic skill, it was surprising that on the whole it was so good.

Short. Cuts

He deprecated the shirking of the last hurdle or two by being content with a simple qualification to practise instead of going on to a degree. He knew the reasons commonly advanced for the short cut. It was praise-worthy of a young man to desire not to be a charge on his parents for longer than he could help, but he thought it mistaken. A parent who had maintained his son to the age of 23 could surely continue doing so to the age of 23½. To suppose otherwise was to believe him capable of "swallowing the cow and choking on the tail." And the public liked "the good old M.D."

Many blind alleys awaited the young graduate—"research" posts of one kind or another, and small institutional jobs. He advised them to shun the lure of the laboratory unless they felt the curiosity and restlessness of the born researcher. Another danger against which he felt it useless to warn them, and yet warn them he must, was the premature engagement. He knew the sentimental argument—"someone to work for," and so on—but at this stage of the race he travelled fastest who travelled alone. Here "a young man married was a young man marred." As Osler used to say, they must learn to keep their emotions in cold storage.

Having escaped these and other hazards, the newly qualified practitioner had to choose his line of country, and, as the German proverb said, "*Wahl macht Qual*" (choice is torture). It was as well to have a look round first and get experience by holding resident appointments, but such posts should not be held for too long. "Don't become an appointments addict." In the house of medicine there were many mansions, but the majority, he supposed, would run the race in general practice. The general practitioner was the soldier in the front line, withstanding, often single-handed, the first assault of disease. He was all the more to be envied on that account. "A man in a good country practice particularly is a real doctor, not a mere sorting machine, for consultants or hospitals, and is probably living as full, useful, and happy a life as our profession offers."

Dr. Hutchison put in a word of warning about the quack—the man who got on to the course without having first jumped the hurdles. They might say to such, as Christian said to Formalist and Hypocrisy, who came from the land of Vainglory, "You walk by the rude working of your fancies." The quack should never be regarded as a real competitor, or his methods be imitated. He might

beat the qualified man sometimes in treatment, for patients still liked magic, but in matters of diagnosis the qualified man would always leave the quack standing.

The Winning Post

What made for success in the race? Not knowledge or manners, for a doctor might achieve a large practice without either! The French had a saying, "*Un peu de savoir, beaucoup de savoir faire, et assez de faire savoir*" (which he interpreted as a little knowledge, much tact, and a fair amount of advertisement). It sounded cynical, but it contained some truth. Possibly the power of inspiring confidence was the one thing needful. Some estimated success in terms of money, and it was foolish to say that that did not count. Some thought honours to be the hall-mark, but these were of little value unless bestowed by one's competitors. Perhaps Johnson was right when he said that "happiness at home" was the ultimate object of all ambition. So far as practice was concerned, that man had succeeded who had gained both the affection of his patients and the esteem of his colleagues. A friend of his, a suburban doctor, fell grievously ill and complete quiet was necessary. As soon as this was known his patients organized amongst themselves a rota of traffic controllers who, taking turns day and night, diverted all vehicles in the neighbourhood of his house for more than a week. He died before his time, but to have inspired such devotion was to have succeeded triumphantly.

But this was, after all, a race in which there were many kinds of success and no one winner, and perhaps it was not so much where one came in as how one ran that mattered.

"They win who never near the goal,
They run who halt on maimed feet.
Art has its martyrs like the soul—
Its victors in defeat."

After Sir STANLEY WOODWARD had moved and Dr. PULVERTAFT had seconded a vote of thanks to the orator, a report upon the progress of the school was given by the Dean, Dr. ADOLPH ABRAHAM. He referred to the building of the new Westminster Hospital. It might seem, he said, that the new surroundings were out of all proportion to the demands. Though the school was several times larger than in its old premises in Caxton Street, the number of students must be limited to a rigid maximum. Overcrowding did not occur at Westminster and never would occur.

ROYAL DENTAL HOSPITAL SCHOOL

MR. EASON'S ADDRESS

At the annual prize distribution of the Royal Dental Hospital (London) School of Dental Surgery on October 4 Mr. H. L. EASON, M.S., F.R.C.S., Principal of the University of London, gave an address on dental education and practice.

Mr. Eason pointed out that dentistry is essentially a technical profession, that what the public demands of it is expert technique and mechanical and professional skill. In this respect it differed from medicine but resembled surgery. In choosing a surgeon, a patient—especially if himself a doctor—wanted to be assured that the surgeon was an expert in the technique of the operation to be performed, and he was comparatively unaffected by any consideration as to whether the surgeon was distinguished in writing, teaching, or research. All he wanted to know was whether the operation could be performed skilfully, rapidly, and successfully. The same sort of question arose in dentistry. The dentist would make his living by his manual dexterity. At the same time he owed it to himself and to his profession to keep abreast of all advances in the knowledge of his subject and to maintain the academic ideal. The aim of dental education was to give to every

dental practitioner such a basic training in the elementary sciences and in the main elements of medicine, surgery, and pathology that he would be able to recognize from what affection the patient was suffering, also to recognize whether it was necessary or desirable for him to perform any operation within his province, and, finally, to know what to do and how to do it. The first two requisites would depend upon the thoroughness of his general education; the third upon his technical training and skill.

Should Every Dentist have a Medical Qualification?

Desirable as it was that every dentist should have a medical qualification and be a specialist in the same sense as an ophthalmologist, Mr. Eason said that this was impracticable at present. The number of dentists required for the service of the public was so great and the combined course of study for a medical and dental qualification so long and expensive that it would be hardly possible to find an adequate number of students with the necessary time and money. To the further question, whether it was desirable that every dentist should have a university degree in dentistry, he answered "Yes." The reason why so few students, in dentistry as in medicine, took a university degree as compared with the number taking the qualification of the licensing bodies was twofold, professional and economic—the longer and harder course of study for a degree, and the need for earning a living as soon as possible. But it would be found in practice that if the course for the degree were entered upon at the beginning of the student's dental career, it would not require more than ordinary energy and determination to get the distinction. Mr. Eason was referring in particular to the course of study for the B.D.S. of the University of London.

He went on to emphasize the need for postgraduate study. "Every self-respecting dentist should make an effort to take a course of postgraduate instruction at regular intervals throughout his professional life." He also paid a tribute to the dental surgeons who, during the last forty years or so, had done so much to raise the standard of dental education. It must be remembered that in dentistry there were practically no consultants; they were all practitioners, and the better a dental surgeon taught and the more time he devoted to teaching, the less time he had for his own practice and the more competitors he created. In medicine and surgery, on the other hand, the man who got a post on the staff of a teaching hospital and became a consultant got not only an acknowledged status in his profession but reaped a material profit. His students of to-day provided him with his living of to-morrow, and the better he taught the greater would be his reward.

Mr. Eason concluded with some reference to the work of the Dental Board in respect of education and discipline. As to the future, he expressed himself uncertain whether the numbers entering the dental profession were sufficient to provide for the growing needs of an increasing population or for the inevitable wastage from the *Register*. This latter would rapidly increase during the next twenty or thirty years, for of the 14,000 dentists on the *Register* no fewer than 40 per cent. were "Dentists 1921" who would not be replaced. It seemed clear, therefore, that there was a good prospect of a successful career for all students studying dentistry at the present time.

NEW INSTITUTE OF MEDICINE AT GLASGOW

THE GARDINER GIFT

With the opening on September 28 of the new Gardiner Institute of Medicine a fresh chapter has begun in the history of medicine at Glasgow. As Professor T. R. Elliott said at the opening ceremony, no medical school could retain its greatness unless, in addition to the duty of training practitioners, it sought also "to nourish those who had the zest for research in medical science." Sir Daniel Stevenson, Chancellor of the University, who presided at the ceremony, said that Sir Frederick Gardiner and his brother, Mr. W. G. Gardiner, were great benefactors of Glasgow University, especially on the medical side, and when new accommodation for the department of medicine was found necessary some two years ago it was the immediate and generous help of Sir Frederick and the trustees of his brother that had made the new Institute possible.

"Unit" Laboratory System

Professor J. W. McNee described the Gardiner Institute, which is fortunate in its site in that it leads off directly from the wards under the care of the Regius Professor of Medicine at the Western Infirmary, Glasgow. There are three floors. The third, or top, floor consists of a complete clinical unit, with separate rooms for patients, a complete dietetic kitchen (which will also be used for training dietitians), and full nursing facilities. Several laboratories are arranged at one end, but they are equipped in such a way as to allow of their easy conversion into bedrooms if necessary. The second or middle floor contains the three main laboratories, one equipped for all general methods of clinical research, one for chemical work, and one for physiological work. The laboratory equipment, supplied by Messrs. Baird and Tatlock of London, is on the new "unit" system. All the drainage, water, gas, and electrical supplies run in easily accessible but covered channels below the floor, and the laboratory benches, made up in short lengths or "units," are only lightly fixed to the walls so that they can be readily moved and connected elsewhere to the drainage and other services. The disposition of the equipment can thus be altered to suit new types of work with a minimum of expense. The ground floor is divided into two parts. On one side is the library and the professor's suite of rooms, consisting of a secretary's room, office, and combined consulting room and laboratory. There is an arrangement whereby the professor is allowed to see private patients in his own department, not only saving his time but also ensuring that he has all his equipment around him. On the other side is a small but complete out-patient department, opening on to the main out-patient entrance of the hospital. Here patients who have been resident in the main wards or in the top floor of the Institute will be "followed up" from time to time. This is an important facility allowing complete and continued survey of patients and their diseases with all equipment at hand. A small record office completes this out-patient department.

The Highest Aim of a University Faculty

In his concluding remarks Professor Elliott said that despite our skill in clinical practice and our possession of leaders of world-wide renown in physiology, pathology, and biochemistry, Scotland and England had been regrettably behind other countries in bringing these ancillary sciences into close co-operation with medicine. The practical skill of British doctors in the care of individual casualties was surpassed by none, but in the great war they had shown themselves sometimes unable to help in the general answers to new problems that arose. Since the war many young physicians and surgeons had spent a period of training abroad. They were not attracted to

A. R. Lozano (*Rinascenza med.*, 1938, 15, 548) reports that among 1,752 infants under 1 year admitted to the Municipal Institute in Madrid there were 155 subjects of habitual vomiting, of whom twenty-seven had undoubtedly or very probable and ten probable syphilis. As, however, the proportion of cases of congenital syphilis in subjects of habitual vomiting is not higher than 25 per cent., syphilis cannot be regarded as the only or as the most frequent cause of this condition.

the glamour of seeing the laboratories where insulin was discovered or the men who had found out the life-saving treatment of pernicious anaemia. They sought an experience of the system which had produced these wonderful gains for medicine. That system did differ from ours—though it had ceased to differ in London, Oxford, Cambridge, Edinburgh, and Aberdeen, and henceforward would cease to differ in Glasgow—in this point: that the study of medicine had been brought under the influence of that spirit of accurate scientific inquiry which was the highest aim known in a university faculty.

The opening ceremony was performed by Lady Gardiner, who wished Professor McNee and his assistants every success in the work to which they were so devoted. She said that the inspiration in making this gift was due to Sir Robert Muir, to whom her husband had always turned when he wished to do anything for the University. Among others present were the Principal of the University, Sir Hector Hetherington, Sir Robert Muir, Sir Henry Mehan, Sir George Mitchell, Dr. John Henderson, and Dr. D. J. Mackintosh.

Local News

SOUTH AFRICA

Health of Rand Miners

The report for 1937 of the Central Mining—Rand Mines Group—Health Department reflects credit on its able chief medical officer, Dr. A. J. Orenstein, and his staff. The organization now includes thirteen full-time medical officers, one part-time medical officer, and one research medical officer. During the year under review the mortality rate for diseases reached the record low level of 6.82 per 1,000. The morbidity rate for accidents due to employment, 226.18 per 1,000, is the lowest figure in the records of the group. Accidents not arising out of employment are stated to have increased again. It is hoped, however, that the removal of one of the worst slum areas, where illicit liquor selling was rife, and the building of municipal beer halls, where natives can obtain Kaffir beer, will have a beneficial effect. With regard to pneumonia, which constitutes a serious problem for the health authorities, the collected data after three years' inoculations with the "community anti-pneumonia vaccine" from the South African Institute for Medical Research were submitted for analysis to J. P. Dalton, Professor of Mathematics at the University of the Witwatersrand. His analysis, with a most interesting series of tables and graphs, is included in the report. The conclusion is obvious that, in the present state of medical knowledge, prophylactic inoculation against pneumonia cannot be relied upon to reduce markedly the incidence of the disease. Since it has been found, as a result of twenty-three years' experience, that the incidence of pneumonia almost always shows an upward trend during the cold months, the collaboration of the Government Meteorological Division was secured with a view to determining which of the meteorological phenomena, if any, played the dominant role. It appeared that pneumonia was most prevalent during the months of highest wind velocity, least rainfall, and lowest temperature. The curve of wind velocity corresponded most closely with the curve of the incidence of pneumonia. It would seem, therefore, that protection of the individual from the effects of the chilling winds is a matter of importance. To this end warm jackets have been issued to the natives, and shelters have been provided at the shaft heads on some of the mines. The report stresses the importance of these shelters as a preventive measure, and suggests that they should be provided at all shafts, that they should be adequate in size, and so constructed as to keep out wind and cold effectively.

ENGLAND AND WALES

Leeds Medical School: Retirement of Vice-Chancellor

Sir James Baillie, who has been Vice-Chancellor of Leeds University since 1924—a post to which he came from the professorship of moral philosophy at Aberdeen—retired at the end of September, and at the graduation ceremony held in the Medical School on September 23 occasion was taken to express to him in the name of the Medical Faculty the sense of gratitude he had evoked for his constant interest and help in medical education in the capital of the West Riding. In a brief farewell address Sir James Baillie offered to his colleagues on the medical staff his warm good wishes for their future and for the prosperity of the medical school. He would always retain, he said, the happiest memories of the various occasions on which he had been associated with the work of the several departments and of the loyal support which the staff had always given him in his efforts on the school's behalf. "No sphere of the University's activities has been to me of greater interest, no development in the University in recent years has afforded me greater pleasure and satisfaction than that of the Medical School; for in certain significant respects I regard the Medical Faculty as the most important and the most difficult domain of pure and applied science in the whole range of the academic curriculum." He went on to say that the high standing of the school in the eyes of the medical world was publicly acknowledged on the occasion of the centenary of the foundation in 1931. With the ampler and more appropriate accommodation secured in recent years, with the enlarged scientific staff and the greater financial resources, the school had entered upon a career of extended service to the vitally important cause of medicine. There was much still to be done, but the future, he was sure, was safe in the hands of those he was addressing to provide a new inheritance of knowledge for their successors and to give an added distinction to the University. He also expressed the hope that the growing community of interest between the members of the Medical Faculty and the whole University would be strengthened and increased as the years went on, for it was one and the same spirit of knowledge animating the whole life of the University which was the inspiration of every part. The Dean of the Faculty (Mr. Harold Collinson) expressed the general regret at Sir James Baillie's departure. By his retirement he said that the University lost the services of a man who had devoted himself heart and soul to the furtherance of its interests, the increase of its activities, and the cause of University education in the North of England. During his reign as Vice-Chancellor the development of the University had been phenomenal. In the department of medicine he had invariably encouraged and supported any suggestion for improvements in teaching and facilities for research, and in certain instances had initiated them himself. Any scheme suggested by the department had always been received by him in a sympathetic and understanding manner, and his wise counsels had been of the utmost assistance. As the head of the University in the wider field of public life, his dignity and eloquence had everywhere maintained and enhanced its prestige and influence.

King Edward VII Welsh National Memorial

The opening and dedication of the Hall of Nations at Cathays Park, the civic centre of Cardiff, will take place on November 23. The hall has been built by Lord Davies at a cost of £62,000, and apart from its work in connexion with the League of Nations Union will become the headquarters of the King Edward VII Welsh National Memorial Association, the organization which has done such valuable work in Wales in the prevention and treatment of tuberculosis, and of which Lord Davies is president. It will be remembered that Lord (then Mr. David) Davies and his sisters were responsible for founding this association in 1910. Following the Insurance Act of 1911 the functions of the association were extended to

include the administration of sanatorium benefit, then in 1921 the seventeen county and county borough councils of Wales delegated to the Memorial Association their obligations under the Public Health (Tuberculosis) Act of 1921, so that now, while the Association retains its voluntary character, it has become a semi-public service representing all the contributory authorities in the Principality. So comprehensive is its machinery, that with the numerous hospitals, sanatoria, and clinics administered by it, maintenance expenditure alone amounts to nearly £300,000 a year.

Chadwick Lectures

The following Chadwick Public Lectures have been arranged on Tuesdays and Thursdays at 5.30 p.m.: October 11, at Niblett Hall, 3, King's Bench Walk North, Inner Temple, E.C., Mr. Roland Burrows, K.C., "The Development of Public Health Law during the Past Fifty Years"; October 27, at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., Dr. Norman Macfadyen, "The Evils of the Congestion of Population and the Way Out"; November 8, at the Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W., Sir Stanley Woodward, "The Rise and Fall of Certain Diseases Concurrent with the Progress of Sanitation and Hygiene"; November 24, at the Royal Institute of British Architects, 66, Portland Place, W., Malcolm Morris Memorial Lecture by Mr. W. W. Wakefield, "Playing Fields and the National Fitness Movement"; December 13, at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., Dr. Leonard Colebrook, "The Control of Puerperal Fever."

Correspondence

Medical Man-power in War

SIR.—The authorities have drawn up various schemes for utilizing the services of the medical profession in time of war. While I appreciate the good points of these schemes, and have no wish to be unduly critical, yet such schemes are drawn up largely as the result of experience of the last war and do not provide for certain obvious differences in modern warfare. I would therefore invite attention to the following points:

1. Assuming that no expeditionary force is dispatched, at any rate to begin with, the Territorial base hospitals will be standing idle if only used for military wounded. Yet these hospitals will be staffed by men receiving pay and in many cases busily employed in private practice.
2. In London and similar places there may be heavy civilian casualties as the result of air raids—which were only in their elementary stages in the last war. The voluntary hospitals will be flooded with such cases. If the honorary staff deal with these cases in a really conscientious manner they will, immediately after an air raid, have little time for their private practices. Are they to carry out this work on an eleemosynary basis? If so, it seems rather hard on these honorary staffs, especially in view of 1.
3. In areas not actually raided but receiving the evacuated sick of London a similar state of affairs to 2 will exist.
4. It is hoped that efforts will be made to use the medical profession in an economical manner. Should Territorial divisions be mobilized and held for any time more or less idle in camps in England, I would suggest that, except for a small nucleus, the regimental medical officers and officers of field ambulances might be seconded for service in dealing with air raid casualties, or other work of national importance, rather than sitting about in camps awaiting events.
5. I would also remind readers of the gross waste of medical services in the last war in the hope that such waste may be prevented in the next. I will content myself with two examples of such waste. In the Eastbourne R.A.M.C. train-

ing centre a medical officer was employed as a riding instructor! In 1917, when there was a real dearth of doctors for dealing with civilian sick in England, I was detached from a field ambulance in France and put in charge of a laundry on the outskirts of Bethune!

I am sure that all of us are ready and willing to do our bit in a national emergency, but such eagerness would be increased and the sacrifices involved borne more cheerfully if we were convinced that the burden was evenly and sensibly distributed.—I am, etc.,

H. J. MCCURRICH, M.S., F.R.C.S.

Hove, Sussex, Sept. 29.

* It will be noted that this letter was written before agreement was reached at Munich. We publish it because the plans which were then incomplete will have to be completed in case of future emergency, for reasons set out in a leading article at p. 749 and in the opening pages of this week's *Supplement*.—ED., B.M.J.

Organization of Trained Nurses in Emergency

SIR.—The British Medical Association, at the request of H.M. Government, has compiled a register of doctors; and from the same source a request has been made that the College of Nursing should organize similar machinery for nurses. The object is to set up a reserve composed of State-registered and certificated nurses, having no other obligations, who would be available in time of national emergency to augment the present health services. It is felt that throughout the country there must be many who, either married or retired from active service, would be anxious to link up with some organization through which their skill could be utilized. Many hundreds of extra nurses will be required to supplement the staff of hospitals, district nursing associations, and other institutions, and I would ask every nurse coming under the categories mentioned above to get in touch, immediately with the headquarters of the College of Nursing, 14, Henrietta Place, London, W.1, or any of its local branches (lists of these may be obtained from headquarters). Nurses have ever been ready to serve their country, and I feel assured that this appeal will meet with a ready response.—I am, etc.,

FRANCES G. GOODALL, S.R.N.,
Secretary, College of Nursing

London, W.1, Sept. 29.

Social Pathology

SIR.—In view of the tragic happenings in the world and the series of convulsive crises through which civilization is passing, it seems strange that our profession, so used to dealing with disease both physical and mental, has no theory of the pathology of society to offer. Is it not obvious that a civilization which within these last few days has been on the verge of suicide must be in a diseased condition? And if so, should not its malady be susceptible of scientific study, like the diseases of an organism? I hope some readers of the *Journal* will agree with me that the medical profession, above all others, is that qualified to deal with social pathology, and that it is indeed its duty to study it. Why then does it not do so? In the hope of stimulating interest in this matter I venture to advance one preliminary conclusion at which I have myself arrived.

In view of the constant accretion of social services in all countries of Western civilization, how is it that this civilization is becoming not more but less healthy, as evidenced by its recent tendency to disintegrate altogether? I suggest that in multiplying the social services we have been merely treating symptoms, and that, our attention being thereby increasingly engaged, we have been

and more neglecting the underlying disease. In other words, civilization is breaking up precisely because it has been deserted by the "qualified practitioners" and handed over entirely to the frank and self-confessed empiricism of politics.

Do any readers agree with me that the doctors, by virtue of their peculiar experience, are the very people who should study social pathology and who would be most likely to discover its laws and so lay the foundations of rational treatment and prophylaxis? The Westminster and Whitehalls in all countries have made a sad mess of the whole business. What about the humble general practitioner stepping in now? If this letter awakens any kind of response I should like to submit one or two further generalizations which I think might prove of use.—I am, etc.,

North Queensferry, Fife, Sept. 30.

A. J. BROCK.

The Prognosis of Anxiety States

SIR,—The article by Dr. Arthur Harris in the *Journal* of September 24 (p. 649) is a valuable and valiant attempt to assess the imponderable. It is valuable since many people would deny the right of medical psychology to call itself a science precisely because it does not lend itself to exact measurements, and in spite of the marked change in the attitude of the profession during the past ten years or so psychology still stands in need of all the backing it can get, to win the approval of those whose good fortune it is to have to deal only with disorders which have as a basis a demonstrable lesion.

The method of grading adopted by Dr. Harris is certainly useful and practical so far as it goes, but a neurosis is such an individual condition that it is impossible to apply any general standard of measurement. It represents the reaction of the individual to his environment, and the environment is something far more subtle than the financial or family worries which Dr. Harris mentions. My own experience is leading me to the conclusion that, whereas fear is the reaction of the organism to anything which threatens its physical fitness, anxiety is the response to a threat to the integrity of the personality. There is the adolescent whose urge to fulfil himself comes up against the restrictions and taboos of family and society. There is the husband or wife who has been reduced to a cipher and robbed of all initiative through being constantly exposed to the assertiveness of the other partner. There is the girl whose devotion to a parent is robbing her of her birthright of marriage, and the married man or woman whose urge to parenthood is being thwarted by the selfish caution of the other. The prognosis of a neurosis depends primarily upon what I should call "the worth-whileness" of the patient—that is, the willingness of the patient to contribute to life—and, secondly, upon the degree to which those in close touch can be brought to co-operate. I cannot see that we shall ever be able to sum up such factors in a formula.—I am, etc.,

Birmingham, Oct. 1.

R. MACDONALD LADELL.

Allergy and Immunity

SIR,—In your review of the recent important researches on allergy and immunity in ocular tuberculosis carried out by the staff of the Wilmer Ophthalmological Institute (*Journal*, September 17, p. 627) you indicate the support this work lends to the contention of Rich and his associates that allergy and immunity are two distinct processes.

It is unnecessary to detail the controversies that have developed in the past in order to emphasize the sharp

differentiation of current opinions into the two opposed schools—the first teaching that the allergic state is an essential part of the immunological mechanism accompanying recovery from infection, and the second which adopts the contrary view on the grounds that allergy and immunity may exist independently, and considers that their association in many natural infections is entirely fortuitous. The latter view has met with increasing acceptance during the past few years, due chiefly to the researches of Rich and his co-workers.

It is my considered belief that much of this conflict of opinion is due to a failure to realize (1) that there is more than one form of bacterial allergy, as there undoubtedly is of immunity, and that any given relation between one form of allergy and immunity does not necessarily hold for the other forms; and (2) the impropriety of attempting to formulate generalizations from the study of a restricted aspect of the subject.

Recently I have attempted to analyse the relation between immunity and allergy in rabbits with reference to the pneumococci and their products, and also to correlate my results with those of other workers (*J. Path. Bact.*, 1935, 41, 491; *ibid.*, 1937, 45, 257). In brief, rabbits were treated with pneumococcal vaccines by various routes and their skin reactions to (1) SSS (specific carbohydrate), (2) NP (nucleoprotein), and (3) intact organisms, together with their serum agglutinins, anaphylactic and protective antibodies, and degree of active immunity, determined by appropriate methods. The conclusions were as follows. The three types of cutaneous allergy—namely, to SSS, NP, and intact organisms—are immunologically independent.

(1) *Allergy to the SSS* is closely related to type-specific immunity and to SSS anaphylaxis, and it was concluded that these three forms of immunological reaction are probably expressions of the same basic mechanism—namely, the union of the type-specific antigen or its haptene with the homologous antibody, and that the apparent differences are only quantitative variations of the common mechanism: "type-specific immunity" when the antibodies react *in vivo* with small amounts of antigen in the test dose of living organisms and render the latter vulnerable by the host; "anaphylaxis" when the reaction takes place between the same antibodies and the antigen haptene in the tissue cells; and "allergy" when it occurs in the skin. (2) *Allergy to NP* is dependent on the presence of circulating NP antibodies, is unrelated to type and species immunity, and is essentially an antigen-antibody reaction between the NP and its antibody. (3) *Allergy to the intact organisms* is independent of type and species immunity and is not even type or species specific, being elicited by *Streptococcus viridans*. It appears to depend on an increased reactivity of the tissue cells as opposed to an antigen-antibody reaction, and the allergic state is not capable of passive transfer to normal animals by the injection of serum from the allergic individual, in contradistinction to the states of allergy to the SSS and NP, which are capable of such transfer since they depend on the presence of antibodies of the "circulating" type.

Thus, while the deductions of the Baltimore school may afford a true representation of the problem with reference to tuberculosis, the data obtained from the study of the pneumococcus makes it clear that no broad generalization on the relation of bacterial "allergy" to "immunity" is possible in view of the existence of different forms of bacterial allergy bearing different relations to anti-bacterial immunity.—I am, etc.,

DAVID HARLEY.

The Laboratories of the Inoculation Department,
St. Mary's Hospital, Sept. 20.

Academic versus Clinical Anatomy

SIR,—It seems that the tables have been turned upon the academic anatomists who are for ever hiding behind the barricade of their changing terminology. The clinician has been to blame for increasing the students' tasks by talking in pre-war terms. It comes as somewhat of a surprise to find new and revised editions of standard anatomical textbooks enlarging upon the primitive streak and yet completely ignoring the works of clinical research in the more coarse matters of anatomy. It is seven years since the Medical Research Council published the work of Dr. Ormond Beadle on the intervertebral disks. It was shown conclusively by this author, working under Professor Schmorl, that the epiphyseal plates of the vertebral bodies ossified from several peripheral centres placed in the radial ridges of the cartilage and occurring in numbers from two to seventeen according to the level of the vertebra. This is taken as a basis to the understanding of some of the diseases of the adolescent spine. Reference is made to this multicentric ossification in one standard orthopaedic textbook at least (by Mercer, 1936; Arnold). The conclusions are accepted, I believe, by the great body of orthopaedic surgeons and radiologists. In fact, in a recent edition (*Surface and Radiological Anatomy*, by Appleton, Hamilton, and Tchaperoff; Heffer, 1938) a fine radiograph of an adolescent spine is shown exhibiting these centres of ossification at the anterior edges of the epiphyses. In spite of this, the latest edition of such a famous anatomical textbook as *Gray's Anatomy* boldly states and illustrates that the plate has one centre of ossification.

Maybe this is a silly pretext for a letter, but it does show how far apart the academic and applied aspects of one subject can be divorced—further, indeed, than the mere difference of terms.—I am, etc.,

London, S.W.1, Sept. 27.

D. F. ELLISON NASH.

George III and his Physicians

SIR,—I was greatly interested in Dr. Walter R. Bett's notes (September 24, p. 664) on the mental illness of George III and his reference to two of the great pioneers in the more humane treatment of the insane—Pinel and W. Tuke, the latter of whom founded the York Retreat in 1796. At the moment I am writing a short history of the six medical and lay pioneers in this great work, covering the years from 1784 to 1844, years of great and tragic interest. In an excellent account of the York Retreat written by Mr. Harold Hart (at one time steward of that great institution) and edited by the present medical superintendent, Dr. Neil McLeod, mention is made of the Bristol Quaker, Dr. Edward Long Fox, who in 1795 owned a private asylum at Cleve, near Downend, which in the next year was removed to Brislington House. He was requested to meet in consultation the physicians then attending George III with the view that His Majesty should be a resident patient at Brislington House. He declined both honours. His descendant Dr. Edward Long Fox of Clifton was a valued friend of mine through my early years of medical practice. I had been his clinical clerk when he was physician to the Royal Infirmary, Bristol, and I frequently called him into consultations during my twelve years of general practice. He was President of the British Medical Association in 1894 when the Annual Meeting was held at Bristol. He was always proud to speak to me about his ancestor of Brislington House, and delighted to inform me that he was the first medical super-

intendent of a private asylum to introduce religious services in accord with the Church of England for his patients.

George III's mental illness was remarkable for two reasons: one the length of his illness—fifty-two years; secondly, the very clear lucid intervals he had during those years. I fear he was subjected to unkind treatment, and history tells us that not only was he in mechanical restraint but on two occasions was knocked down "flat as a pancake" by an ill-tempered and cruel attendant. It was at this time that Phillipe Pinel in 1792, in spite of much opposition and at danger to his life, released fifty-five lunatics at the Bicêtre, Paris, from chains and manacles, many of them having been so restrained for years and lodged in dungeons without a glimpse of the blue sky or the healing rays of the sun. This great work of humanity can never be forgotten, and no one can rob Phillipe Pinel of the honour of being the first pioneer of the more humane treatment of mental diseases. His name will be ever blessed by all interested in the welfare of the insane.—I am, etc.,

Bournemouth, Sept. 26.

LIONEL A. WEATHERLY, M.D.

SIR,—May I add a few words to the interesting account given in the *Journal* of September 24 (p. 664) on the many illnesses of George III, as I have what is probably a unique contemporary document connected with Dr. Willis and his high-handed treatment of the medical men in charge of the King.

Dr. F. Willis came to Kew early in December, 1788, and obtained from the Queen permission to treat the King in the same manner as he practised on his private patients. On obtaining leave he immediately dismissed all the attendants and put in his own. He then placed a notice on the "outer door" as follows:

No one except the Pages are to be suffer'd at any time to go into his Majesty's room unless they are introduced by, or have leave from one of the Dr. Willis's.

Jan. 2, 1789.

I have a copy of this order copied by my great-great-grandfather, Dr. Henry Revell Reynolds, who was one of the King's physicians and in constant attendance. This order was copied on the back of a note that runs:

My dear Doct^r,

His R.H. the P. of Wales commands me to inform you that a motion will be made in the House of Lords that the King's Physicians may be examined at the bar of the House

yrs sincerely G. BAKER

Jermyn Street.

4 Jan. 1789.

I have little doubt that he wrote on this letter because it happened to be the only piece of paper he had with him.

In evidence before the Lords Dr. Willis tried to throw the onus of this order on the Lord Chancellor. Dr. Reynolds stated in his evidence that he saw the original order on the 4th, a Sunday. "I took a copy of it," he said, though as a matter of policy he had taken no note of it.—I am, etc.,

Oxford, Sept. 26.

BERTRAM M. H. ROGERS

Parental Whole Blood as Measles Prophylactic

SIR,—May I endorse Dr. T. D. Culbert's recommendation (*Journal*, October 1, p. 705) to use adult whole blood in the prophylaxis of measles in preference to serum or immune globulin. I have repeatedly obtained complete protection with 15 to 20 c.cm. injected during the first week after exposure. There are no reactions. The procedure is simplified in family practice if the blood is citrated to prevent clotting. A 20 c.cm. syringe is charged with 2 c.cm. of isotonic (3.8 per cent.) sodium citrate.

solution from sterile ampoule or rubber-capped bottle and then filled with parental blood. This can now be taken into another room and without haste injected into the child's buttock. Experience on large numbers is still required, and should enable us to obtain the desired grade of attenuation.—I am, etc.,

London, W.1, Oct. 1.

F. E. LOEWY.

Maternity "Flying Squad"

SIR,—In the light of thirty years' experience of semi-rural practice I suggest that a maternity flying squad is unnecessary. Given really careful ante-natal work two general practitioners, if one is well experienced, can do all that may usefully be done in a cottage. Surely cases of eclampsia should always be moved, and if Caesarean section becomes unexpectedly necessary it is quicker and better to move the patient straight from ambulance to theatre. The one thing the experienced general practitioner does want is to have at immediate call a transfusion service, since excessive haemorrhage has often taken place before even he arrives.—I am, etc.,

Kington, Herefordshire, Sept. 27.

G. W. DRYLAND.

Vitamin C in Milk

SIR,—In answer to Dr. J. H. Lloyd's query in the *Journal* of September 10 (p. 597), dark amber or red glass bottles would be suitable to protect vitamin C from destruction by light, but there would obviously be great economic (and aesthetic) difficulties in changing the current type of milk bottle. Amber bottles have been on the market and were disliked by the consumer. Cartons, which are unobjectionable from a bacteriological point of view when properly dealt with, are definitely better than clear glass bottles regarding the stability of vitamin C. It is, however, widely believed that at present they could not compete on a large scale with glass bottles on account of cost.—I am, etc.,

National Institute for Research in Dairying,
Shinfield, Sept. 27.

S. K. KON.

Ménière's Disease: Personal Experience

SIR,—A sufferer from Ménière's disease, I was interested in Dr. W. Russell Brain's paper on vertigo in your issue of September 17 (p. 605), and also the one by Dr. Wright published in the *Journal* of March 26 (p. 668), and am tempted to record a personal experience.

About eight years ago I had my first definite attack—faintness, giddiness, inability to stand, nausea, vomiting, and profuse perspiration. After a night's rest I was normal again. Thereafter I had many attacks at varying intervals of a few months to a few weeks, but gradually lessening in severity. Many of the attacks came on just as I was sitting down to a meal. One end of the table would appear to sink to the floor, always on the right side; I would grip the edge of the table and forthwith fall to the floor on the left side; then would follow the usual symptoms—faintness, perspiration, nausea, and sickness, and, after a sleep, recovery.

I must confess that I had no great faith in any medicinal treatment, and did not care to submit to any operative procedure. However, I read an article by Dr. Ramsbottom of Manchester University in vol. ii of *Modern Technique in Treatment* (1926) in which he recommended small doses of quinine with or without bromides. His prescription was: quinin. sulph. $\frac{1}{2}$ grain, acid, hydrobrom. dil. 15 minims, tinct. aurant. 20 minims, water to half an ounce. I took this mixture with the addition of $7\frac{1}{2}$ grains of potassium bromide twice daily for several years, and, indeed, am still taking it rather irregularly.

From various sources I gathered useful hints, such as reducing fluid intake to a minimum, cutting down tobacco to one ounce a week, no alcohol except an occasional glass of sherry. I also had a carious incisor tooth and two or three roots extracted.

It is gratifying to me to find that the two doctors I have named, Dr. Wright and Dr. Brain, approve of the line of treatment I adopted, the former especially stressing the importance of looking for a septic focus.

And now the sequel. I have not had an acute attack for three years. I am quite deaf on the right side and the hearing is not too good on the left, but my general health is good.—I am, etc.,

Boole, Liverpool, September 23.

JOSEPH WALKER.

Tuberculosis Dispensaries or Chest Clinics?

SIR,—As the existence of tuberculosis dispensaries has been widespread for twenty-five years, is it not rather late to worry about the name? In so far as dispensaries have effectively carried out one of their primary functions—namely, education of the public—they ought through personal instruction and their work as treatment centres to have spread abroad two well-established facts. (1) Tuberculosis, if diagnosed reasonably early and properly treated, can frequently be arrested or cured. (2) Many persons with unsuspected chronic phthisis carry out their daily tasks more or less efficiently for years, and only break down as the result of strain or some intercurrent illness in middle life.

Where new buildings are concerned there may be something to be said for dropping the word "tuberculosis," but in the case of old-established dispensaries the arguments are less valid; the buildings are, or ought to be, known for what they are. Recently at my five dispensaries this has actually been done, and we have not so far noticed any change in the attendance or demeanour of patients.

Much depends upon the knowledge and attitude of the general practitioner. By wise and tactful handling suspects can often be induced to visit dispensaries "to make sure that they are all right," as tests and examinations are nowadays general. A matter-of-fact manner combined with a simple statement as to the present improved facilities for diagnosis and treatment can do much to allay the fears of the timid. Indeed, candour is the surest way to gain or retain confidence.—I am, etc.,

Leigh, Lancs, Oct. 1.

G. JESSEL.

SIR,—Judging by the letters of Dr. G. Gregory Kayne in the *Journal* of September 17 (p. 634) and of Dr. E. P. Edmonds (October 1, p. 722), I do not think that they appreciate Dr. P. Ellman's main point sufficiently, and that is that by calling the dispensary a chest clinic more patients will be willing to attend for examination.

By this method, in my opinion, more early cases will be seen. It is much better for the patient, psychologically, to be told by his doctor that in order to complete his examination he is to be sent to the chest clinic, where he will be x-rayed and his sputum examined, than to tell him that he is going to a tuberculosis dispensary.

In my own practice in East Ham, where, as Dr. Ellman says, the name of chest clinic is given to the "dispensary," I have rarely had a patient refuse to attend, and my general impression is that patients are only too pleased to find that all investigations are being carried out.—I am, etc.,

London, E.6, Oct. 1.

C. RUTTER.

* * This correspondence is now closed.—ED., *B.M.J.*

Obituary

L. S. T. BURRELL, M.D., F.R.C.P.,

Physician to the Brompton Hospital and to the Royal Free Hospital

We regret to announce the death at the age of 55 of Dr. Lancelot Stephen Topham Burrell on September 28.

Dr. Burrell was educated at Eton and Trinity College, Cambridge, and completed his medical studies at St. Thomas's Hospital. He qualified for the practice of medicine by taking the Conjoint Diploma in 1908, in the same year as he proceeded to the M.A. degree at Cambridge. Two years later he took the M.B., B.Ch., and in 1913 the M.D. He was elected Fellow of the Royal College of Physicians in 1924. After acting as medical registrar and



resident assistant physician at St. Thomas's, his first important post outside his hospital was his appointment in 1913 to the staff as physician to out-patients at the Brompton Hospital. This appointment proved a most happy one for both the hospital and himself, for it gave him the opportunity for adding special experience to a general knowledge of clinical medicine. That special experience and opportunity have left their mark on the treatment of pulmonary tuberculosis. At a time when

a few tentative trials were being made in this country in the first form of collapse therapy—namely, by artificial pneumothorax—Burrell's inquiring mind determined him to make an extensive research into its clinical possibilities. Starting this work soon after his election to the staff it is probable that the first induction of a pneumothorax at the hospital was done by him, and not even then without some misgivings as to its desirability being entertained by his more senior colleagues. Artificial pneumothorax treatment has progressively and ever increasingly gone ahead at the hospital from this small beginning, and special clinics for "refills" are needed daily for the out-patients requiring it while continuing, in very many cases, at their work. It would be justifiable to claim that his was recognized as the most authoritative opinion on artificial pneumothorax therapy in pulmonary tuberculosis in this and any other country. The Brompton Hospital will ever be the better for having acquired his services.

Dr. Burrell's rising reputation as a specialist in diseases of the lung led to his appointments on the medical staffs of Midhurst, Ventnor, and Benenden Sanatoria, and of Papworth Village Settlement. Then at the age of 44 he received the rare distinction of an invitation to accept the vacant post of a senior physician in one of the teaching hospitals of London and one with which he had never before been associated. His appointment of physician to the Royal Free Hospital was made in 1927, and he was its senior physician at the time of his early death. He always maintained what he regarded as a necessary balance between his special work on diseases of the lung—an associated office in general medicine. Before going to the Royal Free he had carried this out for some years as a physician on the staff of the West London Hospital. The pressure of

his work caused him to relinquish this appointment when he transferred to the Royal Free. He was also Physician to the Lord Mayor Treloar Cripples' Hospital. Burrell was Editor of the *British Journal of Tuberculosis*, co-author of a clear and concise textbook, *Diseases of the Chest*, published in 1930 and still the best of its kind. His contributions to discussions on almost any of the pulmonary diseases were numerous, whether at a congress or at ordinary medical societies. This was perhaps at the penalty of fame and a well-known kindly nature.

To his contemporaries Burrell was always considerate, courteous, and tolerant, and no junior could wish for a more friendly and helpful senior. He was incapable of attributing an unworthy motive to anyone, and was widely regarded with real affection. Lenient to an unusual degree, he could be firm when a matter of principle was involved.

In no way was he more fortunate or more to be envied than in the happiness of his family life with his wife and two daughters. He married Ruth, eldest daughter of Dr. R. Rose Clarke. It was ever a joy to his friends to see him so serenely happy in his home.

Burrell was vice-president of the Section of Tuberculosis at the Annual Meeting of the British Medical Association in Winnipeg in 1930, and again at the Centenary Meeting in London six years ago.

Sir Arthur MacNalty writes:

For nearly thirty years Lancelot Burrell and I have been friends. I first knew him as a slight, good-looking boy when I was resident medical officer at Brompton Hospital and he came there as a house-physician. Eton, Cambridge, and St. Thomas's Hospital had trained and developed his intellectual powers, and of these schools there can have been few better products. Even in those early days Lancelot Burrell was marked for high place in his chosen profession. Later on we had many contacts, both professional and social. He served with me on the Tuberculosis Committee of the Medical Research Council, where his wide clinical experience and knowledge were of great assistance. Together we planned and wrote in 1922 a report on artificial pneumothorax, published in the Medical Research Council Report Series which I have reason to believe stimulated interest in and led to more general adoption of that form of treatment in pulmonary tuberculosis. The major share of that contribution belongs to Burrell. His writings on tuberculosis always displayed knowledge, interest, and original observation, while in consultation on a case his skill in diagnosis and selection of the best treatment for the individual patient betokened the competent physician. Burrell always worked at high pressure. He spent his great gifts freely for the good of others. He made no enemies, but countless friends. I know of a thousand acts of kindness which he did without fee or reward. He endured and faced a distressing and protracted illness in his last days with wonderful resignation and indomitable courage. Our deep sympathy goes out to his widow and family.

Dr. Halliday Sutherland writes:

The untimely death of Dr. L. S. T. Burrell is a great loss to the anti-tuberculosis campaign. Yet we should be grateful that he accomplished so much during his five years of life. As a medical student he had learned the limited outlook on the aetiology, prevention, and treatment of tuberculosis, best summarized in that now obsolete word "phthisis." All that has disappeared. Radiography has now its place in diagnosis; artificial pneumothorax and other surgical methods have their place in treatment. To Burrell more than to any other man in London

reason of his work at Brompton Hospital, should we be grateful that these methods, with the exception of major surgical operations on the chest, are now rightly regarded as coming within the province of physicians who specialize in tuberculosis. At one time there was a danger that these methods of diagnosis and of treatment might be claimed by other branches of medicine, and that the expert in tuberculosis would become an *entrepreneur*. By his colleagues on the Medical Committee of the Queen Alexandra Sanatorium Fund he is remembered as a most kindly man, very tolerant, and always willing to consider the opinions of others. Before his long and distressing illness, one of his last remarks to myself was this—"Let's meet and have a talk about tuberculin." *Ave atque Vale.*

[The photograph reproduced is by Elliot and Fry, Ltd.]

C. G. RUSS WOOD, F.R.C.S.

Consulting Ophthalmic Surgeon, Royal Salop Infirmary

We regret to announce the sudden death on September 26 at the age of 69 of Cyril George Russ Wood, O.B.E. He was the only son of Mr. Cyril J. Wood of Bath. His medical studies were pursued at Bristol University, and he obtained the M.R.C.S., L.R.C.P. in 1892 and the F.R.C.S.Eng. in 1902. At first his main interests were devoted to the study of pathology, but shortly afterwards he came under the stimulating and inspiring influence of the late Mr. F. Richardson Cross, who turned his thoughts to ophthalmology and led to his appointments as honorary ophthalmic surgeon to Southport Infirmary and Southport Eye, Ear, and Throat Hospital. In 1900 he was appointed honorary surgeon to the Eye, Ear and Throat Hospital, Shrewsbury, and it is to his lasting credit that in the exceedingly full and busy life that followed he gained his Fellowship, though among other difficulties it involved a visit twice weekly to Birmingham University for the study of practical anatomy.



His devoted services to the hospital in Shrewsbury were the means of raising its status to a very high level, and his name soon became widely known and respected in Shropshire and Mid-Wales, not only as an ophthalmic surgeon but also as an otolaryngologist. He added to

his appointments those of honorary ophthalmic and aural surgeon to the Royal Salop Infirmary, the Shropshire Orthopaedic Hospital, Wrexham Infirmary, the Montgomery County Infirmary, and Much Wenlock and Broseley Hospitals, to all of which he held the position of honorary consulting ophthalmic surgeon at the time of his death. His connexion with the British Medical Association dates from 1892, and he was from 1900 to 1931 an active member of the Shropshire and Mid-Wales Branch, being elected president in 1925.

Since the institution of the Oxford Ophthalmological Congress in 1909 Mr. Russ Wood, as one of its founders, had always been one of its keenest and most active members. He was elected honorary secretary in 1928 and became Master in 1935. He served as president of the Midland Ophthalmological Society, being elected to deliver the Middlemore Lecture in 1927, and he was also a member of the general committee of the *British Journal*

of *Ophthalmology*. On his retirement from practice in Shrewsbury in 1931 he was elected assistant surgeon and pathologist to the Oxford Eye Hospital, and later consulting surgeon, while at the same time he became lecturer in the Oxford postgraduate course in ophthalmology and examiner in ophthalmology to Queen's University, Belfast.

Mr. Russ Wood had a very wide knowledge of the literature of his subject, and his contributions, though comparatively few, were essentially practical. Outside his professional work he had many interests. In his earlier life he was a keen amateur actor, was a great walker, and was never happier than when "doing something to the car." He was a reader and student of history; his conversation was always stimulating, revealing the wide range of his knowledge. In 1898 he married Fanny Mein, daughter of Dr. Charles Steele of Clifton, and had three daughters, to whom he was not only a father but a friend. To his wife's support and devotion he freely acknowledged much of his success, and from her death in 1935 he was never quite the same man again. He will perhaps be remembered best as a great organizer, a man of enormous industry and capacity, his work being characterized by soundness and good judgment. His personality attracted a wide circle of life-long friendships and his loss will be deplored by many.

Dr. HERBERT DEVAS EVERINGTON of Sanderstead, near Croydon, who was killed on September 23 in a motor accident at the age of 64, was a native of Dereham, Norfolk, and from Westminster School entered St. Bartholomew's Hospital, taking the English Conjoint diplomas and the M.B.Lond. in 1899. His early appointments included those of clinical assistant at St. Bartholomew's, house-surgeon at the Royal Free Hospital, and resident medical officer at the Royal Waterloo Hospital for Children and Women. During the war he served for a year as temporary lieutenant in the R.A.M.C. Dr. Everington had practised for many years at Sanderstead, and was a past-president of the Croydon Medical Society. He had been a member of the Croydon Division of the British Medical Association since 1902.

Dr. FREDERICK BOILEAU TREVES, O.B.E., who died on September 30, aged 58, was the son of the late William Treves, whom he succeeded in practice at Margate, and nephew of the late Sir Frederick Treves, the eminent London surgeon. He studied medicine at Caius College, Cambridge, taking his B.A. in 1901, and at St. Thomas's Hospital. He qualified with the English Conjoint diplomas in 1906, and took the M.B., B.Ch. degrees at Cambridge in 1909, after acting as clinical assistant in the throat department at St. Thomas's and house-surgeon to the West London Hospital. At Margate Dr. Treves became honorary surgeon to the Cottage Hospital and the Victoria Home for Children, and honorary surgeon to the Royal Sea Bathing Hospital. He served with distinction during the war, and reached the rank of lieutenant-colonel commanding the South-Eastern Mounted Brigade Field Ambulance. After the armistice he became medical referee for Margate under the Ministry of Pensions. He had been a member of the British Medical Association since 1908.

We regret to announce that Dr. HERBERT JOHN ROPER died from a cerebral haemorrhage while on holiday in Cornwall. Dr. Roper qualified M.R.C.S., L.R.C.P. in 1887, and he was in general practice in Leeds for forty-seven years. He studied medicine at Leeds, where he had a distinguished student career, obtaining medals in anatomy (senior and junior), materia medica, midwifery, surgery, and medicine. He won the Thorpe Prize for medicine and hygiene. During the war Roper acted as a civil surgeon to the 2nd Northern General Hospital. He was an examiner and a life member of the St. John Ambulance Association. He was a keen member of the British

The address by Sir StClair Thomson on "Lister at the College and Hospital," announced in this column in 6th of September 24 to be given on October 4, has been postponed until Tuesday, October 11, at 4 p.m.

Medical Notes in Parliament

Foreign Policy Debate: Air Raid Precautions

During the debate on the foreign situation in the House of Commons on October 4 Mr. ATTLEE urged that time should be given to discuss the whole question of air raid precautions, the extent to which they had been effective, and the extent to which the provisions were going to be continued. This question, he said, was interesting the mind of the country and the minds of members of the House, and he could see no reason why the House should propose to adjourn on Thursday, October 6. Mr. CHAMBERLAIN said he would consider what Mr. Attlee had said, and he would make a statement in the course of the day.

Mr. H. MORRISON said he did not think there was reason for general satisfaction with regard to the preparations for A.R.P. which were made by the Government.

Later Mr. CHAMBERLAIN said the debate on foreign policy would conclude on October 6. It was proposed that the House should then adjourn until November 1. Power would be given to the Speaker to call the House together at an earlier date if the public interest so required.

Mr. ATTLEE said that the Labour Party did not acquiesce in the adjournment of the House till November 1.

Sir THOMAS INSKIP said on October 4 that the test of last week had revealed grave defects in the national defence arrangements, and that both civil and military provisions would be improved. Steps had already been taken for that purpose.

Medical News

Queen Mary will open on October 21 the new Albert Dock Hospital established by the Seamen's Hospital Society. It contains sixty-four beds and a model fracture clinic and rehabilitation centre.

The Voluntary Hospitals Emergency Bed Service announces that a full twenty-four hours service, every day in the year, will be in operation as from October 8. Further particulars can be obtained from the secretary, 10, Old Jewry, E.C.2, telephone number Metropolitan 8781.

Lord Horder will deliver the inaugural address before the Edinburgh Philosophical Institution on Tuesday, October 11. His subject is "Medicine and Religion."

Under the auspices of the British Homoeopathic Association Dr. F. H. Bodman will give a lecture on "The Present-day Confirmation of the Homoeopathic Approach" in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole Street, W., on Thursday, October 13, at 5 p.m., with Sir John Weir in the chair.

The presidential address to the British Institute of Philosophy, entitled "Twenty Years After—A Survey," will be given by Viscount Samuel at University College, Gower Street, London, W.C., on Tuesday, October 11. Chairman, Dr. L. P. Jacks, D.Litt. Cards of admission can be obtained from the Director of Studies at University Hall, 14, Gordon Square, W.C.1.

A meeting of the Society for the Study of Inebriety will be held at Friends House, Euston Road, N.W., on Tuesday, October 11, at 4 p.m., when Professor Edward Mapother will give the seventeenth Norman Kerr Memorial Lecture on "The Physical Basis of Alcoholic Mental Disorder."

The Minister of Health (Dr. Walter Elliot) will formally open the new laboratories of the Metropolitan Water Board at New River Head, Rosebery Avenue, E.C., on Monday, October 17, at 3 p.m.

The opening address of the new session at Guy's Hospital Medical School will be given by Sir Henry Dale, M.D., F.R.S., Director of the National Institute for Medical Research, on Friday, October 14, at 3 p.m.

The forty-fourth Congress of the Italian Society of Internal Medicine will be held in Rome under the presidency of Professor Cesare Frugoni from October 19 to 22, when the following subjects will be discussed: pathology and clinical aspects of the menopause, primary myopathies with special reference to progressive muscular dystrophy, and abdominal syndromes (in combination with the Italian Society of Surgery). Further information can be obtained from the secretary, Professor Arnaldo Pozzi, R. Clinica Medica, Rome.

The first Congress of the Societies of Endocrinology of the Little Entente will be held at Bucarest from October 23 to 26. Further information can be obtained from Professor C. I. Parhon, Splaiul Independenței III, Bucarest.

At the annual conference of the National Council of Women of Great Britain in London from October 14 to 16 a number of items on the agenda will be of interest to medical women, such as the appointment of women police surgeons, the legalization of abortion, hospital pay-beds, mental health, and the community care of epileptics. Further information can be obtained on application to the secretary, 92, Gower Street, London, W.C.1.

A course in infant hygiene will be held at the Hospice des Enfants Assistés, 71, Rue Denfert-Rochereau, Paris, XIVe, from October 10 to 28 under the direction of Professor Lerchoullat and Dr. Lelong.

The Board of Control (England and Wales) (Lunacy and Mental Deficiency) changed its address on September 19, 1938, to Hohart House, Grosvenor Place, London, S.W.1. Telephone: Sloane 0828.

Sir Milsom Rees is again offering two £100 scholarships for Port Regis Preparatory School to the sons of medical men. Candidates must be under 9 years of age when the examination is held during the first week in March, 1939. Applications should be addressed to the Head Master, Port Regis, Broadstairs.

The Secretary of State for the Home Department proposes, at the expiration of forty days from September 30, to make regulations under the Factories Act, 1937, extending the provisions of Section 66 to compressed air illness. Copies of the draft regulations may be ordered through any bookseller from H.M. Stationery Office.

The editor of *Medical Life*, the only monthly journal of medical history in the English language, announces that the journal will cease publication after December.

The issue of *Bruxelles-Médical* for September 18 contains summaries of the papers read at the eleventh Congress of the International Society of Surgery, held at Brussels from September 19 to 22.

The postgraduate demonstrations arranged for the benefit of old students of the University College Hospital Medical School have been postponed for one week, until Thursday and Friday, October 13 and 14. The old students' annual dinner, to be held in the library of the Medical School, has been postponed until October 14. The annual dinner of the University College Hospital Medical Women's Association, to be held at the Langham Hotel, has been postponed until October 14. The address by Sir StClair Thomson on "Lister at University College and Hospital" has been postponed until Tuesday, October 11, at 3.15 p.m., in the lecture theatre of University College Hospital Medical School.

The tenth annual conference of the National Smoke Abatement Society at Cardiff has been postponed and will be held during November, if circumstances are then favourable.

The Health Committee of the League of Nations at a recent meeting agreed to co-operate with the Belgian Ministry of Health in making a survey of health conditions of the population and of the equipment, organization, methods and efficiency of the health services of Belgium.

On the occasion of the tenth Psychotherapeutic Congress recently held in Oxford Mr. Hugh Watts made a donation of £15,000 for the foundation of an international psychotherapeutic experimental institute.

Mr. Norman H. Davies, ambassador at large and adviser to the State Department of the United States on European affairs, has been appointed by President Roosevelt as Chairman of the American Red Cross in succession to the late Dr. Cary T. Grayson.

Dr. W. E. Thompson, the oldest doctor in the United States, celebrated his 103rd birthday at Bethel, Ohio, on July 6.

EPIDEMIOLOGICAL NOTES*

Acute Poliomyelitis

Acute poliomyelitis appears to be on the wane in Great Britain, although a dramatic fall in incidence has not occurred nor is to be expected. In England and Wales 60 cases were notified during the week under review compared with 76 in the previous week, while the numbers for London and Scotland were 3 (7) and 10 (11), respectively. More than one case was reported from the following towns: Edinburgh 6, Wembley 3, and 2 each from Braintree (rural), Edmonton, Glasgow, Hull, Manchester, Nottingham, Reading, Saltburn and Marske, and York. That the disease remains endemic in Essex and the adjoining parts of Suffolk is shown by the occurrence of 1 case each in Braintree and Bocking, Chelmsford, Dunmow, Hadleigh, Halstead, Sudbury, Melford. The 3 London cases occurred in Deptford, Islington, and Fulham.

In Germany during the week ended September 10, 419 cases were recorded compared with 365 in the previous week, chiefly in Cologne district, 97 (112), Düsseldorf 27 (24), Wiesbaden district 29 (23), Württemberg 72 (47), Bavaria 33 (31), Saxony 33 (24), 14 in Berlin and 13 in Baden. During the first thirty-six weeks of the year 2,428 cases were recorded for the whole country, compared with 1,767 during the corresponding period of 1937. In the week under review 39 cases were reported in Austria, of which 5 were in Vienna. The week ended September 17 saw a decline of the Holland epidemic, 54 compared with 58, of which 26 occurred in the Province of South Holland (Rotterdam 7, The Hague 6, and Waddinxveen district 4). During August 61 cases of paralytic poliomyelitis were notified in Denmark compared with 15 in July, while in Sweden the number rose from 56 to 268. Of the 167 cases recorded in the latter country between August 16 and 31 (59 of which were non-paralytic), 63 were in the rural regions of Jämtlands Province and 32 in the rural regions of Kristianstads Province.

Typhoid Fever

No fresh outbreaks of typhoid fever have been recorded during the week, and outbreaks already in progress have all declined to 1 or 2 cases. More than one case was reported from Coventry 3, and 2 each from Berkhamsted, Ennis-corthy (Eire), Farnworth, Glasgow, Liverpool, and London (Lambeth and Southwark). No deaths were reported from any of the principal towns specified in the table.

Primary and Influenzal Pneumonia

An increase, amounting to nearly 25 per cent. over the numbers notified in the previous week, in the incidence of pneumonia suggests that further increases may be expected in the coming weeks. The figure of 540 is greater than that for the corresponding week last year and the median value for the last nine years. London has shared in the rise, but to a less extent. Of the 23 deaths from influenza in the 126 Great Towns, there were 4 in Birmingham, 3 in London, and 2 in Liverpool.

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

Diphtheria and Scarlet Fever

The rise in the notifications of diphtheria in England and Wales has not been maintained, the figures falling from 1,213 to 1,198 (London 159 to 152). A slight fall was recorded in N. Ireland. In Scotland and Eire, on the other hand, increases continue to be reported; the chief were in Glasgow 65 (43), Edinburgh 17 (7), Lanark 12 (8), Renfrew 11 (6), and Dublin 22 (18). Of the 23 deaths in the Great Towns 4 occurred in London, 3 in South Shields, and 2 each in Barnsley, Liverpool, and Stoke-on-Trent. Two deaths were recorded in Dublin and one each in Glasgow and Edinburgh.

Increases in the incidence of scarlet fever have to be recorded for England and Wales (in which London has shared) and Scotland. Although no large outbreaks were recorded in particular areas the notifications show that the disease is on the increase generally, rural districts being involved, in comparison to their size, almost as much as towns and urban districts. Notable increases were reported from Newport 26 (18), York 18 (4), Islington 18 (9), Leicester 5 (4), Bethnal Green 13 (7), and Southwark 11 (4). While in the majority of large towns notifications were maintained or slightly increased, they fell in Manchester 23 (37), Bristol 14 (19), Glasgow 66 (69), and Edinburgh 31 (34). During the week one death was recorded in London and in Glasgow.

Measles and Whooping-cough

Two deaths from measles (in London and Leeds) were recorded in the 126 Great Towns of England and Wales compared with 3 in the previous week. In Scotland the notifications were 18 (19), the principal centres being Dundee 4 (4), Dunfermline 4 (1), Glasgow 4 (11), and Lanark 2 (0). Of the 6 deaths from whooping-cough in the 126 Great Towns 3 were in London and 1 each in Birmingham, Tynemouth, and Swansea. In Scotland there was a small rise in notifications—125 against 117: the chief increases were noted in Glasgow 109 (94), Edinburgh 4 (2), Dundee 3 (1). Two deaths were recorded (Glasgow and Paisley).

On October 1 measles and whooping-cough were made notifiable in the administrative county of London. By this order all cases occurring in a household at an interval of two months from any previous cases must be notified to the borough medical officer of health. Cases occurring in infectious diseases hospitals are exempted from the requirement.

Cholera

The incidence of cholera in Shanghai declined during the week ended September 24 from 209 to 113, while deaths fell from 70 to 46. In Eastern Kwantung cases fell during the week ended September 10 from 1,408 (380 deaths) to 936 (225 deaths). During the week ended September 24, 4,620 cases were recorded in the Central Provinces of India compared with 5,295 in the previous week. The peak of the epidemic was between August 28 and September 3.

Plague

In India plague appears to be on the increase in the week under review: in the Central Provinces 116 (68) with 6 deaths (11) and in Madras Presidency 18 (6) with 15 deaths (6); but elsewhere decreases are reported where the disease has been present—Bombay Presidency, United Provinces, and Bihar. In Burma approximately 40 cases with 35 deaths have been recorded in each of the last four weeks.

Typhus

Recently there has been a notable decrease in typhus in Egypt, Algeria, Morocco, and Tunisia, where it is usually rife. In Italian East Africa 50 cases (including 29 at Addis Ababa), 12 in the territory of Choa, and 9 at Asmara were reported in the period July 1 to September 14. In the U.S.A. 60 cases occurred from August 28 to September 3, the chief centres being Georgia 21 (22), Texas 16 (6), Alabama 13 (8), South Carolina 7 (9).

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended September 24, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns (124 in 1937) in England and Wales (including London). (h) London (administrative county). (e) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|--|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 18 | — | 12 | — | 1 | 15 | 2 | 4 | — | 1 | | |
| Deaths | — | 1 | 1 | — | — | — | — | 1 | — | — | | |
| Diphtheria | 1,198 | 152 | 201 | 56 | 25 | 1,320 | 171 | 191 | 41 | 32 | 1,222 | 201 |
| Deaths | 23 | 4 | 4 | 2 | — | 28 | 5 | 3 | 1 | — | | |
| Dysentery | 27 | 2 | 30 | — | — | 78 | 13 | 17 | 2 | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Encephalitis lethargica, acute | 2 | — | — | — | — | 3 | — | — | — | — | | |
| Deaths | — | 1 | — | — | — | — | 1 | — | — | — | | |
| Enteric (typhoid and paratyphoid) fever | 27 | 2 | 3 | 7 | 1 | 45 | 7 | 10 | 6 | 1 | 72 | |
| Deaths | — | — | — | — | — | 2 | — | — | — | 1 | | |
| Erysipelas | — | — | 72 | 2 | 6 | — | 2 | 66 | 13 | 5 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Infective enteritis or diarrhoea under 2 years | 41 | 10 | 10 | 7 | 7 | 57 | 11 | 13 | 17 | 8 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Measles | 2 | 1 | 18 | — | — | 6 | — | 26 | — | 8 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Ophthalmia neonatorum | 88 | 4 | 16 | — | 4 | 93 | 9 | 38 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Pneumonia, influenzal† | 540 | 42 | 1 | — | — | 497 | 36 | 11 | 1 | 2 | 497 | 44 |
| Deaths (from Influenza) | 23 | 3 | 2 | — | — | 20 | 5 | 1 | 1 | — | | |
| Pneumonia, primary | — | 7 | 134 | 10 | 6 | — | 10 | 144 | 6 | 6 | | |
| Deaths | — | — | — | 7 | — | — | — | — | 10 | — | | |
| Polio-encephalitis, acute | 3 | — | — | — | — | 2 | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Poliomyelitis, acute | 60 | 3 | 10 | — | — | 45 | 10 | — | 1 | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Puerperal fever | 2* | 2 | 3 | 3 | — | 40 | 4 | 14 | — | — | | |
| Deaths | — | — | — | — | — | — | 1† | — | — | — | | |
| Puerperal pyrexia | 157 | 21 | 14 | — | 1 | 137 | 21 | 17 | — | 6 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Relapsing fever | — | — | — | — | — | 1 | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Scarlet fever | 1,768 | 160 | 373 | 59 | 73 | 2,121 | 179 | 509 | 80 | 66 | 2,029 | 286 |
| Deaths | 1 | 1 | 2 | — | — | 1 | — | — | — | 1 | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Whooping-cough | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Deaths (0-1 year) .. | 6 | 3 | 125 | 2 | 9 | 20 | 4 | 41 | — | 8 | | |
| Infant mortality rate (per 1,000 live births) .. | 269 | 50 | 69 | 27 | 20 | 309 | 46 | 63 | 39 | 15 | | |
| Deaths (excluding stillbirths) | 45 | 41 | — | — | — | 52 | 38 | — | — | — | | |
| Annual death rate (per 1,000 persons living) .. | 4,057 | 781 | 552 | 174 | 134 | 3,906 | 762 | 585 | 186 | 115 | | |
| Live births | 10.0 | 9.9 | 11.2 | 11.8 | 11.9 | 9.7 | 9.6 | 12.0 | 12.7 | 10.2 | | |
| Annual rate per 1,000 persons living .. | 6,311 | 1,158 | 847 | 348 | 235 | 6,460 | 1,264 | 830 | 336 | 228 | | |
| Stillbirths | 15.5 | 14.7 | 17.3 | 23.6 | 20.8 | 16.0 | 15.9 | 17.0 | 22.9 | 20.2 | | |
| Rate per 1,000 total births (including stillborn) .. | 284 | 44 | — | — | — | 214 | 42 | — | — | — | | |
| Deaths | 43 | 37 | — | — | — | 32 | — | — | — | — | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.
† Death from puerperal sepsis

‡ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Letters, Notes, and Answers

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QUERIES AND ANSWERS

Treatment of Pruritus Ani

"L. A. F." writes in reply to "J. M." (*Journal*, October 1, p. 728): I myself was for long a sufferer from pruritus ani, chiefly at night. Innumerable local applications failed to give other than partial relief. Three months ago I tried careful washing every night with soap and water, both inside and outside the anus, and so far have had "peace."

"J. P." writes to suggest a trial of "proctocaine," manufactured by Allen and Hanburys Ltd, as an improvement on their preparation "A.B.A.": the active ingredients are procaine, benzyl alcohol, and butyl-*p*-aminobenzoate. Another correspondent recommends "J. M." to try "percaine oily solution" for injection and "percainol," an ointment containing 4 per cent. percaine, both of which are prepared by Ciba Limited.

LETTERS, NOTES, ETC.

Heparin

Mr. J. E. R. McDONAGH, F.R.C.S., writes: Having undertaken some experiments with this substance I think the following remarks may be of some value to your readers. Heparin appears to belong to the class of substances which includes the cardiac glycosides and to be closely allied to bufotalin and the snake venoms. It is a reliable anti-coagulant, but it alters materially the chemico-physical characteristics of the protein. The preparation increases the sedimentation rate of the red blood corpuscles, which I consider to be due to its initial dehydrator action. It raises the refractive index of the serum and tends to increase the percentage of the blood sugar and the blood urea. Heparin usually increases the percentage of protein and invariably raises the viscosity of the plasma. Both the viscosity-refractive index and the viscosity-protein index are raised considerably. The ultra-microscopic picture is one I regard as indicating that the protein has been subjected to hydration, which I hold to be the second action of heparin. In my opinion most of the changes to be detected in the blood following the use of heparin are due to the hydration it makes the protein undergo. I look upon its anti-coagulant action as being due to this chemico-physical change, and explain the effect heparin has in correcting thrombosis in checking the dispersion, which, through a reversal of the two colloid phases characterizing this change under certain conditions, is responsible for the coagulation of the blood. Heparin acts in thrombosis similarly to "Sum 468" and in my experience has no advantage over the latter preparation, which has continued to give satisfactory results since I

first began to use it in 1923. Heparin, owing to its powerful initial dehydrator action, might prove of greater value in dispersing protein which has reached the maximum degree of hydration in such conditions as haemophilia, Addison's anaemia, and agranulocytosis, which are some of the clinical manifestations of disease produced by this chemico-physical change.

The Nature of Viruses

DR. W. M. CROFTON writes: The learned writer of your annotation of September 24 (p. 667) states that the consideration of the true nature of viruses is of purely academic interest. I beg profoundly to differ from him. My view is that the question is of first practical therapeutic importance, and for this reason that a dead antigen of a virus is a feeble one, a live virus antigen is a powerful but dangerous one, even when protected by an accompanying dose of antiserum. This is well illustrated by the occurrence of encephalitis quite commonly after the virus prophylaxis of distemper. If it can be shown that a virus is indeed microbial in nature by the demonstration that by changing its environment from a living cellular one to one free to the air—for example, from an enclosed tissue to the surface of a mucous membrane or from a Noguchi culture to the surface of a blood-agar culture—characteristic bacilli invariably grow, and that these bacilli transmit the disease and dead antigens of them prevent and rapidly cure the disease, then it seems to me proof positive that the bacillus has grown from the virus. In addition to this the bacillus is returned to a living cellular environment and, after incubation, that culture filtered through such an impeccable filter material as a Seitz disk, and the bacillus grown from the filtrate, it appears to me that this view is overwhelmingly proved. I have found a particular bacillus always associated with foot-and-mouth disease, having grown it from the blood, intact vesicles, and saliva, and with an antigen of it prevented and cured the disease in the field. By growing it in undiluted defibrinated cows' blood it rapidly goes into the virus form and is readily filtered through a Seitz disk, and the bacillary form recovered by growing it on unheated cows' blood agar. The virus of foot-and-mouth disease is so minute that its "vitality" has been called in question. Surely the demonstration that it develops into a bacillus must finally settle the question.

Psycho-physiological Aspect of Vertigo

Dr. A. MURDOCH (Bexhill-on-Sea) writes: In considering "the psycho-physiological aspect" of vertigo Dr. W. Russell Brain (*Journal*, September 17, p. 605) writes: "These two schemata [that of the external world and that of the body], however, are far from independent of each other, since the bodily schema receives contributions from proprioceptors, such as the labyrinths, which are in part stimulated by an external force of gravity, and, on the other hand, the perception of external space includes in its raw material proprioceptor impulses." It would be interesting to know from Dr. Brain how gravity can act on the labyrinth without some activating mechanism to cause displacements of the head and so alter its position in space and relative to the rest of the body. In this way only could gravity become a force and act, and, if so, what mechanism has Nature provided to ensure the delicate movements of the head which stimulate the elements in the labyrinth to function? I suggest that the atlas and axis with their specialized ligaments and muscles—the suboccipital muscles—form a mechanism specially designed by Nature for this and other essential purposes. In a previous sentence in this address Dr. Brain says "the body is represented by a constantly changing model—a plastic schema, to use Head's 1920 phrase." Is not this a function of the labyrinth, that by registering the alterations due to the functioning of the atlanto-axial-occipital muscle mechanism the whole muscular system is integrated in a co-ordinated "plastic schema"—a constantly changing model? Is it not the mechanism which explains Magnus's statement regarding his decerebrate animal—"that when the head leads the body follows"?

Disclaimer

Mr. T. POMFRET KILNER, F.R.C.S., writes: I should like to disclaim all responsibility for publicity given in a London evening newspaper on September 27 to my recent visit to the third European Congress of Plastic Surgery in Milan. I gave no information to any member of the Press, nor to anyone who would pass on information to the Press, on this subject, and it is particularly annoying to me to have such incorrect statements made about my work.

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Bulletin of the Johns Hopkins Hospital

Baltimore vol. 63 July, 1938

- Chemistry of Anaerobic Muscular Contraction. E. Lundsgaard.—p. 1.
Metabolism of Aerobic Working Muscles. E. Lundsgaard.—p. 15.
*Effect of Hyperthyroidism upon Metabolism of Vitamin C. R. A. Lewis.—p. 31.
Urinary Changes due to Sulphanilamide Administration. M. B. Strauss and H. Southworth.—p. 41.
*Two Cases of Pellagra treated with Nicotinic Acid. R. France, R. D. Bates, W. Halsey Barker, and E. Matthews.—p. 46.

Hyperthyroidism and Vitamin C.—The vitamin C excretion of five hyperthyroid patients on a constant diet was studied before and after subtotal thyroidectomy. In all the patients the amount excreted before operation was far less than normal. Following thyroidectomy the amount of vitamin C excreted increased in all patients, reaching a normal value in four of the five studied. Other workers claim that feeding large doses of vitamin C to animals that are receiving thyroxine improves their appearance, lessens the weight loss, and lowers the metabolic rate.

Nicotinic Acid in Pellagra.—Two cases of pellagra are reported in which nicotinic acid appeared to effect remissions as regards lesions of the skin and mucous membranes. The general strength and mental state of both patients were much improved. The low cost of this form of treatment in contrast to earlier forms of treatment is emphasized. Nicotinic acid is advocated for the treatment of patients whose food intake is by necessity very limited—for instance, in cases of persistent vomiting and anorexia, or following major surgical procedures involving the gastro-intestinal tract.

Canadian Medical Association Journal

Montreal vol. 33 July, 1938

- Anterior Poliomyelitis. H. H. Hyland, W. J. Gardner, F. C. Heaf, W. A. Oille, and O. M. Solandt.—p. 1.
Experimental Studies with Sulphanilamide and Other Compounds. P. H. Greay.—p. 12.
Use of Sulphanilamide in Clinical Medicine. W. H. Brown.—p. 15.
Preliminary Report on Sulphanilamide as Urinary Antiseptic. D. R. Mitchell.—p. 22.
Silicosis: Experimental Study of Leaching of Silicates in Tissues. H. E. Williams and D. A. Irwin.—p. 26.
Hypoglycaemic Substance from Root of Devil's Club (*Fatsia horrida*). R. G. Large and H. N. Brocklesby.—p. 32.
Recent-day Problems in Management of Diabetes. F. N. Allan.—p. 36.
Allergy in Childhood. H. L. Baal.—p. 41.
Modern Trends of Child Psychiatry. C. H. Gendry.—p. 46.
Observations on Petrous Tip Suppuration. D. E. S. Washart.—p. 50.
Cases of Bilateral Spontaneous Pneumothorax. D. B. Westcott.—p. 57.
Squamous-cell Epithelioma of Renal Pelvis. A. Strasberg.—p. 58.
Use of Unusual Calcium Deposition due to Raynaud's Disease. C. J. Houston and E. Johnson.—p. 60.
Usual Head Injury. C. K. Fuller.—p. 61.
Genital Rhabdomyoma of Heart. M. V. Rae.—p. 63.
Sulphanilamide in Genito-urinary Infections. N. E. Berry.—p. 65.
Management of Premature Infant. H. McGarry.—p. 66.
Recent Trends in Irradiation Therapy. E. Trapp.—p. 71.
Nutritional Requirements of Mother during Lactation. I. M. Rabinowitch.—p. 76.
Social Economics. J. A. Hannah.—p. 79.

Hypoglycaemic Substance from Root of Devil's Club.—This paper presents data which show that from the root of *Fatsia horrida* an extract can be prepared exhibiting marked hypoglycaemic properties. The attention of the writers was drawn to this substance by the case of a patient who in spite of developed marked symptoms of diabetes. This patient had kept in apparent good health for several years on oral doses of an infusion of this root bark. Experiments showed that the material is active when fed by the mouth, and apparently it has no marked toxic effects.

Deutsche Medizinische Wochenschrift

Berlin vol. 64 July 22, 1938

- Epilepsy as Early Sign of Brain Tumour. O. Pedersen.—p. 1061.
*Venesection and Blood Transfusion for Extensive Burns in Infancy. J. Bauer.—p. 1064.
New Investigations into Nature of Auricular Fibrillation. S. de Boer.—p. 1067.
Nature and Conclusion of Changes in Growth: Stabilized Rapid Growth of Human Being. E. W. Koch.—p. 1068.
Experiences with Vaccine Treatment of Whooping Cough in General and Hospital Practice. E. Holtmann.—p. 1070.
Treatment of Leucorrhoea. K. Schern.—p. 1072.
Clinical Experiences of "Exvomit" in Vomiting of Pregnancy. H. Nahm-macher.—p. 1072.
Treatment of Psoriasis. H. Zaun.—p. 1073.
Observations on Present Urinary Calculus Wave in Central Europe. W. Grawmann.—p. 1074.
Concerning the Astragalus. K. Daubenspeck.—p. 1077.
Experiences of Health Appeal of Hitler Youth. 1938. Maerz.—p. 1079.
Anatoxin Precipitate Vaccination in Institutions for Children and Elementary Schools of Budapest. A. Fodor.—p. 1080.

Venesection.—The case is recorded of an 11-month-old infant suffering from a burn of the second degree involving more than one-third of the surface of the body. Recovery followed venesection, the transfusion of blood, and the injection of Ringer's solution and of a 20 per cent. grape sugar solution, most of which was introduced by the intravenous route. The rationale is discussed.

Journal of the American Medical Association

Chicago vol. 111 July 23, 1938

- Industrial Medicine of Tomorrow. R. Lenz.—p. 291.
Complications following Use of Eriactamine Tartrate. T. v. Storch.—p. 293.
Fluorine Content of Thyroid Gland in Cases of Hyperthyroidism. R. Evans and P. Phillips.—p. 300.
Intradermal Dye Test for Vitamin C Deficiency. H. Poncher and C. Stubenrauch.—p. 302.
Treatment of Parathyroid Tetany with Dihydroxycholesterol. C. MacPride.—p. 304.
Changes in Blood Pressure produced by Premature Massage. H. Hammer and T. L. Schulte.—p. 308.
Clinical Aspects of Ultra-violet Therapy. E. Luce-Clausen.—p. 311.

Klinische Wochenschrift

Berlin vol. 17 July 23, 1938

- Fat-producing Organs and their Metabolic Function: Importance of So-called "Brown Fat." W. Eger.—p. 1033.
Angina Pectoris in Uniovular Twins. G. W. Parade and W. Lehmann.—p. 1036.
Physiology and Pathology of Intermediary Fat Metabolism: III. H. G. Krainick and F. Müller.—p. 1040.
Behaviour of Red Blood Corpuscles at Platinum Anode. A. Vogl.—p. 1042.
*Diagnostic Value of Gordon Test in Lymphogranulomatosis. H. W. Sachs and W. Steffert.—p. 1043.
Rise of Blood Sugar following Injection of Human Cerebrospinal Fluid. E. Fenz and F. Zell.—p. 1046.
Blood Group O. L. Hirsfeld and Z. Kostuch.—p. 1047.
Malignant Pleural Neoplasms. E. Bantz.—p. 1051.
Vitamin B₁₂ and Diuresis. C. Florio.—p. 1054.

Gordon Test in Lymphogranulomatosis.—The test proved positive at a time when the changes in the lymphatic glands were still non-specific.

Lancet

London vol. 2 July 23, 1938

- The Profession and the Public. C. D. Lindsay.—p. 179.
Bile-duct Reconstruction over Buried Rubber Tube. T. B. Moutat.—p. 181.
Action of Hydrolysate of Striped Muscle on Malignant Tumours. A. H. Rolfo.—p. 184.
*Dysentery due to *Bacterium dysenteriae* (Schmütz). A. C. Evans.—p. 187.
Individual Variations in Response to High Temperatures. R. A. McCance.—p. 190.
Simple Method of Bronchography in Children. N. M. Jacoby and G. Keats.—p. 191.

Effect of Synthetic Oestrogenic Substances on Body Growth and Endocrine Organs of Rat. R. L. Noble.—p. 192.
Vomiting in Diabetic Children. W. W. Payne.—p. 195.

Dysentery due to *B. dysenteriae* (Schmitz).—*B. dysenteriae* (Schmitz) was identified as the causal agent in two epidemics and in several sporadic cases occurring in a North Wales mental hospital. Investigations supported the position (very unusual in Britain) of the organism as a pathogen.

Medizinische Klinik

Berlin vol. 34 July 22, 1938

Angina Pectoris. W. Weitz.—p. 937.
Idiopathic Hypocalcaemia and Hypotonia. G. Graul.—p. 941.
Endemic Well's Disease. J. Ehler.—p. 963.
Breathbilder "Alternating Breathing" Exercises in Treatment of Respiratory Affections. A. R. v. Haer.—p. 964.
Recurrences after Operation of Gastric and Duodenal Ulcer and their Treatment (concluded). H. Finsterer.—p. 966.
Therapeutic Value of Novocain Infiltration of Stellate Ganglion in Apoplexy. K. Brandenburg.—p. 968.
Myasthenic Manifestations and their Relation to Endocrine System (concluded). W. C. Meyer.—p. 969.
Advances in Therapy. W. Leibbrand.—p. 971.
Vitamin C in Treatment of Pulmonary Tuberculosis. E. Albrecht.—p. 972.
Treatment of Uterine Atony with Thympren "Asid." C. Müller.—p. 973.
Preventive Anti-diphtheric Vaccination. H. Mennekes.—p. 975.

Novocain Infiltration of Stellate Ganglion.—The author's experience with this therapy has so far proved rather disappointing, although the paralysis and loss of consciousness have been favourably influenced in every case.

Medizinische Welt

Berlin vol. 12 July 23, 1938

Estimation of Toxic Foci in Vicinity of Ear, Respiratory, and Alimentary Tracts. K. Amersbach.—p. 1055.
Adrenals and Circulation. S. Thaddeu.—p. 1058.
Clinical Method for Determination of Conglomerability of Red Blood Corpuscles. F. Frimberger.—p. 1060.
Characteristics, Dangers, and Treatment of Diseases of Pleura. E. Fulde.—p. 1063.
Pruritus. H. Sprafke.—p. 1066.
Colposcopy in General Practice. G. Roessler.—p. 1071.
Individual Characteristics in Patient Suffering from Aeromegaly. J. Ritzke.—p. 1072.

Münchener Medizinische Wochenschrift

Munich vol. 85 July 22, 1938

Neurology and Neurosurgery in Angina Pectoris. H. Jensen.—p. 1097.
Sclerous Masses as Disease. R. Paschke.—p. 1100.
Anomalous Positions of Appendix. H. Müller.—p. 1101.
Diagnosis of Death by Drowning. G. Hansen.—p. 1103.
Physiological Observations on Effect of Purine Derivatives on Work. A. Szakál.—p. 1103.
Changes in German Spa Conditions. A. Baemeister.—p. 1107.
Iodine-bromine Springs in Bad Hall. F. Porsche.—p. 1112.
Effect of Method of Preparation of Foodstuffs on Vitamin C. R. Pies and H. Schroeder.—p. 1114.
Urea as Bactericidal Deodorant and its Importance in Healing of Wounds. E. Redent.—p. 1115.

Nature

London vol. 142 July 23, 1938

Ultracentrifugal Examination of Serum from Lower Classes of Vertebrates. T. Svedberg and K. Andersson.—p. 147.
Haemocryptein: Copper-protein Compound of Red Blood Corpuscles. T. Mann and D. Keilin.—p. 148.
Haemoglobin from Bile Pigment. R. Lemberg, J. W. Legge, and W. H. Lockwood.—p. 148.
Isolation of Flavin-protein Compound from Milk. H. S. Corran and D. E. Green.—p. 149.
New Enzyme of Glycosidase Type. D. H. Hall.—p. 150.
Quantitative Measurement of Vitamin B₁ by Thiochrome Reaction. H. G. K. Westenbrink and J. Goudsmit.—p. 150.
Occurrence of Acetylcholine in Nervous Tissue of Crustaceans and its Effect on Crab Heart. J. H. Welsh.—p. 151.
Dormant Life of Tumour Cells in Animal Body. F. Ellinger.—p. 151.
Simple Respirometer for Small Animals. E. G. Boettger.—p. 151.
Substitution of Cysteine for Protohaemin as "X" Factor for Growth of *H. influenzae*. T. L. Snyder and R. H. Broh-Kahn.—p. 153.
New Test Plant for Potato Virus Y. R. W. G. Dennis.—p. 154.
Floristad and Taungs Skulls. M. R. Drennan.—p. 154.

Kymograph Studies of Physiological (Respiratory) Concomitants in Two Types of Attentional Adaptation. T. Burrow.—p. 156.
Chromosome Structure. R. R. Gates and G. N. Pathak.—p. 156.
Distribution of Crossing Over in Chromosomes of *Drosophila*. K. Mather.—p. 157.
Effect of Addition of Calcium on Biological Value of Proteins of Indian Diet. V. Ranganathan and Y. V. S. Rau.—p. 165.

New England Journal of Medicine

Boston vol. 219 July 21, 1938

Work and Aims of United States Public Health Service. T. Parran.—p. 75.
Tolerance to, and Toxicity of, Insulin. F. M. Allen.—p. 77.
Traumatic Rupture of Diaphragm in Child. P. H. Duff.—p. 84.
Hereditary Arthrodysplasia associated with Dystrophy of Nails. I. W. Sever.—p. 87.
Treatment of Pulmonary Tuberculosis: Comparison of Home and Sanatorium Methods. R. Volk.—p. 89.
Cost of Institutional Care of Epileptics in Massachusetts. D. V. Brown and M. Moore.—p. 92.

Nordisk Medicinsk Tidskrift

Stockholm vol. 16 July 16, 1938

Iritis Boeck. G. Osterberg.—p. 1125.
Significance of Various Technical Factors and Individual Resistance in Accidents Caused by Electricity. H. Ihde.—p. 1132.
Simplification of Kapeller-Adler Test for Pregnancy. N. Nielsen.—p. 1144.

Stockholm vol. 16 July 23, 1938

Case of Intestinal Obstruction after Consumption of Dried Fruit. P. Åldé.—p. 1165.
Operated Case of Hyperparathyroidism. L. Andersson.—p. 1166.
Diaphragmatic (Hiatus) Hernia. E. Bergensfeldt.—p. 1170.
Forty Cases of Extraperitoneal Caesarean Section. E. Brattström.—p. 1175.
Treatment of Deformities of Ears. J. Hindmarsh.—p. 1178.
Leucocyte Picture in Acute Abdomen. S. Lindvall.—p. 1181.
Complications of Vasectomy. E. Norrman.—p. 1185.
Excision of Patella in Case of Comminuted Fracture. R. Romanus.—p. 1187.
Tannic Acid Treatment of Burns. S. H. Rødden.—p. 1188.
Experiences of Twenty-five Cases of Electro-resection of Prostate. S. Wahlgren.—p. 1191.
Osteochondromatosis of Hip. G. Wiberg.—p. 1194.

Vasectomy.—This study from a hospital in Helsingborg concerns 218 cases of hypertrophy of the prostate in which vasectomy was performed. The bilateral operation is now considered only as a prophylactic measure against the epididymitis which is apt to follow permanent catheter drainage. The incidence of epididymitis was reduced to a minimum (0.45 per cent.) in the author's material, but he had twenty cases in which other scrotal complications occurred. There were also three cases of fatal pulmonary embolism. Appreciative references are made to the Goldstein operation.

Policlinico

Rome vol. 45 July 25, 1938 (Sez. Prat.)

"Splenic Constriction" in Certain Forms of Diseases associated with Splenomegaly. B. Schiassi.—p. 1389.
Cancer of Prostate without Urinary Symptoms. P. Pieraccini.—p. 1397.
"Splenic Constriction."—In certain cases of splenic anaemia, malaria, or kala-azar Schiassi recommends reduction of the increased volume of the spleen by lodging it in a fibromuscular capsule in the abdominal wall. The necessary operation is regarded as much less dangerous than splenectomy or ligation of the splenic artery, and is described: it was successful in a case of juvenile splenic anaemia.

Presse Médicale

Paris vol. 58 July 20, 1938

Purine Synthesis in Gout: Observations on Effects of Purine-free Diet. F. Coste, A. Grigaut, and M. Lamotte.—p. 1129.
Effusions in Extrapleural Pneumothorax. O. Monod, J. Garcia-Benazet, and P. Bruce.—p. 1131.

Paris vol. 46 July 23, 1938

Observations on Indications and Technique of Total Hysterectomy for Uterine Fibromata. J. Charrier and J. Gosset.—p. 1145.
Extracardiac, Anaphylactic, Hepatic, Hepato-digestive, and Endocrine Factors in Disturbances of Cardiac Rhythm and Tonality: "Arrhythmic Shock" J. Albert-Weill.—p. 1148.

Proceedings of the Staff Meetings of the Mayo Clinic

Minnesota vol. 13 July 6, 1938

- Work of Dr. Henry S. Plummer. W. J. Mayo.—p. 417.
Electro-encephalography in localizing Organic Lesions of Brain: Case Report. C. L. Yeager.—p. 422.
Vascular Clinics: V. Answers to Some Objections to Extensive Sympathectomy for Essential Hypertension. E. V. Allen and A. W. Adson.—p. 426.
Acute Coronary Occlusion and Myocardial Infarction affecting Patient 30 Years of Age. H. L. Smith and O. B. Gober.—p. 430.

Minnesota vol. 13 July 13, 1938

- Foster Kennedy Syndrome associated with Tumour of Cerebellum. P. L. Cusick.—p. 433.
Portal Cirrhosis with Good Immediate Results from Medical Treatment. J. W. Annis and M. W. Comfort.—p. 435.
Incision for Epigastric Lesions. C. W. Mayo.—p. 438.
Rabies. C. F. Schlotthauer.—p. 440.
Theca Interna Cysts and its Role in Ovulation. E. O. Strassmann.—p. 443.

Minnesota vol. 13 July 20, 1938

- Observations on Anaesthesia in Europe in 1938. J. S. Lundy.—p. 449.
Effect of Administration of Large Amounts of Cortin on Adrenal Cortices of Normal and Hypophysectomized Rats. D. J. Ingle.—p. 455.
Severe Pyloric Obstruction: Case Report. C. D. Deeds.—p. 456.
Clinical Aspects of Blood Chemistry in Intestinal Obstruction. M. A. Falconer.—p. 460.

Minnesota vol. 13 July 27, 1938

- Pseudo-epitheliomatous Hyperplasia in Case of Sporetrichosis. H. Montgomery and J. C. Holman.—p. 465.
Cardiac Clinics: LI. Clinic on Ventricular Tachycardia occurring in Infant: Cardiac Hypertrophy of Unknown Origin: Course: Post-mortem Findings: Comment: Discussion. S. Amberg and F. A. Willius.—p. 470.
Medicinal Medical Manuscripts. T. E. Keys.—p. 474.
Roland of Parma. M. N. Walsh.—p. 476.

Schweizerische Medizinische Wochenschrift

Basle vol. 63 July 21, 1938

- Adaptation Possibilities in Health and Disease. P. H. Rossler.—p. 681.
Rheumatism and the Sympathetic: III. H. Iselin.—p. 684.
Combined Photoreistant Effect of Berkamot Oil and Redoxon. G. Miescher.—p. 688.
Graves' Disease: An Experimental Study, including Pathological Considerations. F. Blum.—p. 689.
Serous Meningitis in Pfeiffer's Glandular Fever. W. Huber.—p. 692.

Serous Meningitis in Glandular Fever.—Huber has found meningeal symptoms not uncommon in glandular fever. Pathological changes in the cerebro-spinal fluid were found in two of three cases showing such symptoms; and in three of five cases in which lumbar puncture was done in the absence of meningeal symptoms a considerably increased pressure and other abnormalities were noted. In diagnosis significance attaches not so much to lymphocytosis in the blood as to the qualitative characters (here described) of the lymphatic elements.

Ugeskrift for Laeger

Copenhagen vol. 100 July 21, 1938

- Certain Tuberculosis Problems. O. Lassen and A. Stgaard.—p. 697.
*Sources of Error in Bacteriological Diagnosis of Tuberculosis. V. Lester.—p. 614.
Paratyphoid (Sonnen) Infection. S. Rehder.—p. 618.
Acanthocytosis Experiments on Rabbits. A. N. Hansen.—p. 621.

Sources of Error.—In the period 1932-6 the Tuberculosis Department of the State Serum Institute in Copenhagen received 26,343 specimens for examination for tubercle bacilli, acid-fast and alcohol-fast saprophytes being isolated in 130 cases. More than half of them were in specimens of gastric contents. An account is given of various improvements in technique, and the risks of incorrect diagnoses being given by inadequately equipped bacteriologists are emphasized.

Wiener Klinische Wochenschrift

Vienna vol. 51 July 22, 1938

- Pregnancy Reactions. P. Werner.—p. 773.
Oral and Intravenous Therapy with Iron Acidified with Ascorbic Acid. H. Fleischhacker and F. Schürer-Waldheim.—p. 776.
Scarlet Fever and Diphtheria in Lower Austria. K. Kling.—p. 780.
Ichthyosis Hystrix and Ichthyosis Congenita Gravis. T. Hadjithodorou.—p. 781.
Treatment of Erysipela in Childhood. B. Wellek.—p. 785.
Discovery of Sterols in Baths at Steier and Someni. V. Cimera and N. Munteanu.—p. 787.
On Avoiding Wrong Diagnoses in Pulmonary Tuberculosis. E. v. Vilas.—p. 787.
Oxidative Blood Examination in Hypersensitivity to Light. W. Fröhlich.—p. 791.

SPECIAL JOURNALS

American Heart Journal

St. Louis vol. 16 July, 1938

- Dissecting Aneurysm. M. Hamburger, jun., and E. B. Ferris, jun.—p. 1.
Vectorcardiogram. F. N. Wilson and F. D. Johnston.—p. 14.
Measurement of Circulation Times and Agents used in their Determination. S. Baer and B. G. Slipakoff.—p. 29.
Calcureous Aortic Valve Stenosis. G. Lesnick and M. J. Schlesinger.—p. 41.
Lag-screen Belt Electrocardiogram. G. Asher and F. Hoecker.—p. 51.
*Observations on Passive Vascular Exercise and Other Forms of Treatment of Peripheral Vascular Disease. W. B. Kountz and J. R. Smith.—p. 55.
Blood-pressure Response to Adrenaline Administered Intravenously to Subjects with Normal Blood Pressure and to Patients with Essential Hypertension. T. J. Fetherree and E. A. Hines, jun.—p. 66.
Stethograph. M. L. Lockhart.—p. 72.
Heart Sounds in Normal Children. M. H. McKee.—p. 79.
Heart Sounds and Murmurs in Children with Rheumatic Heart Disease. M. H. McKee.—p. 88.

Passive Vascular Exercise in Peripheral Vascular Disease.—Experiments made on the extremities of individuals immediately after death showed that a high venous pressure and hypertonic saline favoured blood flow through the vessels. When the pavaex apparatus was used under these conditions the flow was diminished in as many instances as it was increased. The clinical results of the pavaex and other forms of treatment in arteriosclerosis and thrombo-angiitis obliterans are reported. It is concluded that the value of the passive vascular exercise machine is very small. It increases venous pressure during part of its cycle, and this is believed to be an important factor in treatment; but such an effect can be achieved by very much simpler methods.

American Journal of Ophthalmology

St. Louis vol. 21 August, 1938

- Lectures on Motor Anomalies: I. A. Bielchowsky.—p. 841.
*Problems of Cataract Surgery. W. W. Colley.—p. 855.
Seton Operation in Glaucoma. M. J. Blaess.—p. 865.
Nutrition in Relation to Cataract. A. M. Yudkin.—p. 871.
*Bed Reading and Examining Lamp. C. E. Ferree and G. Rand.—p. 882.
Studies on Inclusion Blepharitis: I. L. A. Julianelle and A. C. Lange.—p. 890.
Cadaver and Animal Eyes for Surgery. D. B. Kirby and J. P. Macnic.—p. 904.
Angioid Streaks in Fundus. E. L. Goar.—p. 907.
Cataract Extraction in Scurvy. E. L. Taube.—p. 910.

Cataract Surgery.—This is a very valuable collection of observations and hints regarding the management and conduct of cataract cases. The paper defies abstraction, and should be read at length.

Bed Reading and Examination Lamp.—The authors point out that the eye's tolerance of brightness is least in the lower half of the field, next lowest in the upper half, and highest in the plane bounding these two. A lamp for reading in bed which fulfils all the criteria necessary for good illumination is described in full. This lamp may be used for examination of the patient's eye.

American Journal of Surgery

New York vol. 2 July, 1938

- Clinical Study of Pulmonary Embolism: Analysis of 146 Fatal Cases. H. Robertson.—p. 3.
Anaesthesia for Thyroidectomy. G. Crile, jun., and L. E. Adams.—p. 22.

- Treatment of Acute Cholecystitis. H. P. Totten.—p. 29.
Observations on the Clinical Employment of Pituitary and Pituitary-like Gonadotropic Principles in Certain Conditions characterized by Failure of Ovulation. E. C. Hamblen.—p. 35.
Endocrine and their Relationship to Breast. C. H. Hinberg, L. Kutzrok, and S. Livingston.—p. 39.
New Surgical Procedure in Treatment of Prolapse of Uterus and Bladder. W. L. Mowers.—p. 42.
Hemorrhoidectomy with High-Frequency Electric Current. L. E. Arnheim.—p. 45.
Clinical Results following Use of Surgical Jelly containing Maggot Active Principle: Preliminary Report. S. K. Livingston.—p. 49.
Relief of Trauma of Hand to Occupation. N. E. Eckelbetry.—p. 51.
Surgery of Ambulatory Patient. L. K. Peterson.—p. 57.
Skin Graft for Ambulatory Patient. F. L. Smith.—p. 67.
Placenta Accreta: Review of Literature and Case Report. H. C. Lawson and P. Oglin.—p. 70.
Gartner's Disease: Report of Case improved after Splenectomy. G. T. Pack and S. M. Silverstone.—p. 77.
Progressive Post-operative Gangrene of Skin. G. F. Carroll.—p. 87.
Viability of Tube Pedicle Skin Graft. T. D. Sparrow.—p. 92.
Rupture of Urinary Bladder following Fulcuration of Protruding Intravaginal Vermiform Appendix thought to be Bladder Tumour. A. E. Goldstein.—p. 96.
Tumour of Carotid Body. L. T. Wright and M. Marner.—p. 103.
Penetrating Wounds of Heart: Report of Two Cases. K. A. Motrix.—p. 108.
Non-specific Granuloma of Colon. A. Preston.—p. 112.
Recurrent or Habitual Dislocation of Inferior Radio-ulnar Articulation. A. J. Davidson and M. T. Horwitz.—p. 115.
Fracture of Astragalus. C. Haines.—p. 118.
Treatment of Infected Wounds with Superheated Antiseptic Vapour. G. A. Hendon.—p. 119.

American Journal of Tropical Medicine

Baltimore vol. 18 July, 1938

- Duration of *Plasmodium knowlesi* Infections in Man. D. F. Milant and L. T. Coggeshall.—p. 331.
*Two Years' Observations on Use of Atebrin as Prophylactic Agent in Malaria. R. A. Hill and M. H. Goodwin.—p. 339.
*Infection of Reticuloocytes by *Plasmodium vivax*. S. F. Kitchen.—p. 347.
*Erythrocyte Susceptibility to *Plasmodium vivax*. Grassi and Feletti, 1890. H. F. Hines.—p. 361.
Mango Dermatitis. J. L. Kirby-Smith.—p. 373.
New Method for Stopping Venomous Snakes. C. M. Johnson.—p. 385.
Multiplication of Virus of Equine Encephalomyelitis in Surviving Mosquito Tissues. W. Trauer.—p. 387.
Studies on Experimental *Cochliomyia americana* Infestations, with Special Reference to Bacterial Flora and Development of Immunity. F. A. Batagostrom.—p. 395.
Progress of Spirochaete Infection in Developmental Stages of Host Tick *Ornithodoros hermsi*. Wheeler. C. M. Wheeler.—p. 413.
Antigenic Similarity of Fungus *Cadophora americana* isolated from Wood Pulp to *Phialophora verrucosa* isolated from Patients with Dermatitis Verticillata (Chromoblastomycosis). D. S. Martin.—p. 421.
*Studies on Oxyntic Acid Secretion in "Cellophane" Simulating Pinworm Ova. L. Reardon.—p. 427.

Malaria Prophylaxis by Drugs.—A coloured agricultural population was divided into three intermingled groups, which were treated in various ways during the malaria season. 109 people were given 1½ grains of atebrin three weekly, and of these two developed clinical attacks of malaria; 108 were given 10 grains of quinine daily, and of these six developed attacks; whereas of 120 untreated controls thirty-seven manifested clinical attacks. No toxic reactions to atebrin were observed.

Reticuloocyte Infection with *P. vivax*.—*P. vivax* showed a definite tendency to invade reticuloocytes rather than mature erythrocytes.

Erythrocyte Susceptibility to *P. vivax*.—The relative percentages of young and mature blood cells which show infection in the peripheral blood may be dependent solely on the relative proportions of young and mature cells at the site of sporulation; therefore invasion of the reticuloocytes by *P. vivax* may not be due to any preferential selection on the part of the parasites, but merely to circumstances.

Annales de l'Institut Pasteur

Paris vol. 61 July, 1938

- Importance of Associated Bacterial Infection in Amoebic Dysentery. R. Deschiens.—p. 5.
Study of Bacteriophage of *B. megatherium*. E. Wolfman.—p. 33.
Study of Toxic Extracts of Streptococci in Animal Serum. L. Coloni and J. Pochon.—p. 45.

- Action of Normal Horse Serum on Staphylococci. J. Benmer.—p. 34.
*Studies in Bacterial Classification: IV. Criticism of Present Conception of Genus *Clostridium*. A. R. Prévot.—p. 72.
*Contribution to Experimental Study of Antirabic Vaccination. H. Jacotot, M. Colson, and G. Le Roux.—p. 92.
Distribution of Boron in Organs of White Lily. G. Bertrand and L. Silberstein.—p. 104.

Nomenclature of Sporing Anaerobes.—This is a protest against the heterogeneity of the genus *Clostridium* as at present constituted, and against the adoption of criteria such as pathogenicity and physiological properties in classification, to the disregard of morphology. Prévot proposes that 132 species of so-called *Clostridium* should be reclassified in two genera (each subdivided into two families according to their Gram-staining reactions): *Clostridium*, having a central or subterminal spore; and *Plectridium*, having a terminal spore. This is a return to nomenclature proposed by A. Fischer forty-one years ago.

Antirabic Vaccination.—Against experimental rabies in guinea-pigs a virus suspension treated with formalin was found to be a better immunizing agent than suspensions treated either with phenol or phenol combined with ether. Two doses immunize better than one, but the difference is not so great as to contraindicate the single dose when circumstances demand it.

Archiv für Gynäkologie

Berlin vol. 167 August 2, 1938

- *Comparative Study of Ovarian Function in Guinea-pigs and Cats. K. Tietze.—p. 253.
Effect of Pregnancy Toxaemia on Spinal Cord. H. Offergeld.—p. 275.
Method of Testing Ecboles on Vagina of Rabbits. H. Runge, W. Beck, and E. Hunt.—p. 284.
Congenital Skin Defects in Newborn. L. P. H. J. de Vink.—p. 291.
Ovarian Pregnancy and Aschheim-Zondek Test. H. Klinkenberg.—p. 309.
Development of Human Vagina. R. Meyer.—p. 306.
Importance of Uterus and Suprarenal Glands in Luteinization. W. Wobler.—p. 339.
Interstitial Pregnancy. T. K. Andrianakos.—p. 343.
Building up Uterine Mucous Membrane by Intra-uterine Oestrogenic Substances. P. Grumbrecht and A. Loeser.—p. 373.
Importance of Autonomic Nervous System in Internal Secretory Function of Anterior Lobe of Pituitary. L. Herold and G. Effkemann.—p. 389.

Comparative Study of Ovarian Function.—To avoid the somewhat dangerous method previously in use for registering the contractions of the uterus in animals the author suggests that those of the vagina, being parallel to the uterine movements, can be taken as a substitute. For this purpose he has devised a balloon method for registering vaginal contractions. This has the advantage of allowing the rapid biological assay of ecbole and other drugs, and has provided an easy and valuable experimental method.

Archiv für Psychiatrie und Nervenkrankheiten

Berlin vol. 108 July 11, 1938

- Contributions to Disturbances in Drawing shown by Autotopnoscaphic Patients. L. Anryal and B. Lorand.—p. 493.
Pathological and Constitutional Significance of "Vegetative Stigmata" in Psychiatry. J. Hempel.—p. 517.
Sex Frequency, Seasonal Curve, and Onset of Schizophrenia. M. Hux.—p. 552.
Remarks on Behaviour of Cerebrospinal Fluid in Cardiazol Fit. B. Nitz and Z. Susie.—p. 562.
Mental Changes in Lennox. N. Th. v. Zwerbejew.—p. 572.
Problem of Eclampsia Psychoses. H. Stahl.—p. 594.

Archives of Internal Medicine

Chicago vol. 62 July, 1938

- Pathogenesis of Bundle-branch Block: Review of Literature: Report of Sixteen Cases with Necropsy and of Six Cases with Detailed Histological Study of Conduction System. W. M. Yater.—p. 1.
Unusual Reactions of Patients with Hypertension to Glyceryl Trinitrate. H. C. Lueth and T. G. Hanks.—p. 97.
*Acute and Chronic Mediastinitis: Study of Sixty Cases. C. S. Keeler.—p. 109.
Influence of Diarrhoea on Vitamin B₁ Requirement. M. Dann and G. J. Cowgill.—p. 137.

Change in Plasma Volume during Recovery from Congestive Heart Failure. W. B. Wood and C. A. Janeway.—p. 151.
Recent Advances in Knowledge of Anterior Lobe of Hypophysis. E. H. Rymanson and C. H. Hodgson.—p. 160.

Acute and Chronic Mediastinitis.—On the basis of an experience of sixty cases of mediastinitis the clinical pictures produced by this disease in its different forms are outlined. Infection occurs more commonly in the posterior mediastinum, and is often the result of perforation of the oesophagus or suppurating lymph glands. Anterior mediastinitis follows most often infection in the neck or osteomyelitis of the sternum. In the majority of cases the prognosis is grave because of the nature of the lesion to which the mediastinitis is secondary, but when the condition is localized surgical treatment offers good results.

Archives of Ophthalmology

Chicago vol. 20 July, 1938

Cataract Operations in Prehistoric Age. K. C. Dutt.—p. 1.
Problem of Rickettsia in Trachoma. P. Thygesen.—p. 16.
*Conjunctivitis associated with Infection by *Streptococcus viridans*; Clinical and Bacteriologic Observations in Epidemic. A. R. Petter, D. H. Goldstein, C. McEwen, and R. C. Alexander.—p. 19.
Influence of Vitamins and Disinfectant on Production of Experimental Cataract. M. L. Talbot and W. E. Borley.—p. 30.
Absorption of Visible Light by Refractive Media of Human Eye. E. Ludvig and E. F. McCarthy.—p. 37.
Association of Annular Band of Pigment on Posterior Capsule of Lens with Kullenberg Syndrome. W. Zentmayer.—p. 52.
*Testing Fitness for Night Flying. Visual Acuity. C. E. Ferree and G. Rand.—p. 58.
Biochemistry of Lens: XI, Effect of Galactose on Permeability of Capsule of Lens. J. Bellows and L. Rosser.—p. 80.

Streptococcal Conjunctivitis.—An epidemic of acute conjunctivitis at a boys' summer camp was found to be due to *Strep. viridans*. This is usually considered to be a rare causal organism. The discharge was at its height in twelve hours and declined at the end of forty-eight hours. Cure was effected in seven and a half days on an average. Various forms of treatment failed to alter the natural course of the infection.

Fitness for Night Flying.—The ability to see at night and in low degrees of illumination should be tested. The effect of dark adaptation on this ability should be determined, as also the amount and speed of dark adaptation. A suitable instrument for carrying out these tests is described.

Biochemical Journal

London vol. 32 June, 1938

Determination of Iodine in Sheep Thyroid. J. Sæviqsson.—p. 945.
Metabolism of Strict Anaerobes (Genus *Clotridium*): II, Reduction of Amino-acids with Gaseous Hydrogen by Suspensions of *Cl. sporogenes*. J. C. Hoogerheide and W. Kocholaty.—p. 949.
Synthesis of Vitamin B₁₂ by Intestinal Bacteria of Rat. A. Abdel-Salaam and P. C. Leong.—p. 958.
Vitamin A and Thyroid. G. Logaras and J. C. Drummond.—p. 964.
Action of Cystine and Methionine on Liver Fat Deposition. H. J. Channon, M. C. Manifold, and A. P. Platt.—p. 969.
Effect of Proteins in Prevention of Dietary Fatty Livers. H. J. Channon, J. V. Loach, P. A. Loizides, M. C. Manifold, and G. Solman.—p. 976.
Constitution of Certain Nuts: II, Pericarp of *Corylus avellana* (Filbert, Cob, Barcelona, or Hazel Nut). J. G. Boswell.—p. 986.
Studies on Permeability of Erythrocytes: V, Factors in Cation Permeability. H. Davson and J. F. Danielli.—p. 991.
Estimation of Choline and Acetylcholine. F. H. Shaw.—p. 1002.
Determination of Vitamin A with Photo-electric Colorimeter. W. J. Dam and K. A. Evelyn.—p. 1008.
*Determination of Vitamin K by Curative Blood-clotting Method. H. Dam and J. Glavind.—p. 1018.
Hepatic Oxidation of Choline and Arsenocholine. P. J. G. Mann, H. E. Woodward, and J. H. Quastel.—p. 1024.
*Hydroxyacetoacetic Acid: I, Preparation, Properties, and Estimation; II, Metabolism in Animal Tissues. II, Weit-Malherbe.—p. 1033.
Spectrographic Studies on Antimony Trichloride Reaction for Vitamin A: II, Influence of Oxidizing Agent on Reaction. O. Norecarp and H. W. Weedon.—p. 1054.
Glutamic Acid Dehydrogenase from Germinating Seeds. M. Damndaran and K. R. Nair.—p. 1064.
Simple Glass Electrode of Small Capacity. J. B. Pettigrew and G. M. Wishart.—p. 1075.
Spectrophotographic Examination of Mineral Content of Human and Other Milk. H. Dingle and J. H. Sheldon.—p. 1078.
Dehydrophosphorylation in Muscle Extracts. R. K. Pillai.—p. 1087.

Vitamin K.—The curative blood-clotting method has been subjected to a thorough revision, a tissue extract of constant activity being made by putting up an extract of hen's muscle in ampoules and storing it in a frozen condition. The activity of the tissue extract was measured against the plasma of a series of normal chicks. A certain dried spinach powder formed into tablets and stored under precautions securing stability was selected as a standard of vitamin K, used for the construction of a curve of reference, and was found to contain 500 units per gramme. Dam and Glavind discuss the limits of error, and add that it was not possible to render the coagulability of the blood plasma "supernormal" by administering large doses of the standard substance.

London vol. 32 July, 1938

Action of Substances Allied to 4:4-diaminodiphenylsulphone in Streptococcal and Other Infections in Mice. G. A. H. Buttle, T. Dewar, G. E. Foster, W. H. Gray, S. Smith, and D. Stephenson.—p. 1101.
Studies in Synthetic Immunochemistry: II, Serological Investigation of α -glucosidoyl Derivatives of Proteins. R. F. Clutton, C. R. Harington, and M. E. Yuill.—p. 1111.
*Studies in Synthetic Immunochemistry: III, Preparation and Antigenic Properties of Thioxyal Derivatives of Proteins and Physiological Effects of their Antisera. R. F. Clutton, C. R. Harington, and M. E. Yuill.—p. 1119.
Synthesis of Purines from Histidine by Dog. W. A. Crandall and E. G. Young.—p. 1133.
Purine Metabolism of Dalmatian Coach Hound. E. G. Young, C. F. Conway, and W. A. Crandall.—p. 1138.
Glyoxalines: Determination of their pH Values and Use of their Salts as Buffers. A. H. Kirby and A. Neuberger.—p. 1146.
Lysine Content of Feeding Stuff. C. A. Ayre.—p. 1152.
Ascorbic Acid and Phosphatase Activity. E. J. King and G. F. Delory.—p. 1157.
Effect of Ascorbic Acid on β -glucuronidase. S. J. Thannhauser, M. Reichel, and I. F. Gratian.—p. 1163.
Ultra-violet Absorption and Potentiometric Titration Curves of Human Serum Proteins and Some Others. E. R. Holiday and A. G. Ozon.—p. 1166.
Influence of Different Casein Preparations in Riboflavin-deficient Diets upon Appearance of Cataract. P. L. Day and W. J. Darby.—p. 1171.
Gonadotropic Hormone and Level of Blood Phosphorus in Hen. M. Laskowski.—p. 1176.
Nitrogen Partition in Blood Clotting. L. B. Jaques.—p. 1181.
Enzyme System of *Bact. suboxydans*: II, Effect of Acids and pH. K. R. Butlin.—p. 1185.
Cholesterol Metabolism: I, Acids apparently Concerned in Metabolism of Cholesterol. R. P. Cook.—p. 1191.
Coenzyme Factor of Yeast. D. E. Green and J. G. Dewan.—p. 1200.
Conversion of Colchicine into Colchicine. E. Beyland and E. H. Mawson.—p. 1204.
Experiments on Chemotherapy of Cancer: I, Effect of Certain Antibacterial Substances and Related Compounds. E. Hovland.—p. 1207.
Fat Metabolism in Fishes: XIII, Factors influencing Composition of Depot Fat of Fishes. J. A. Lovem.—p. 1214.
Respiratory Metabolism of *Helix pomatia*. E. Baldwin.—p. 1225.
Composition of Milk from Breasts of Newly Born Infants. W. L. Davies and A. Moncrieff.—p. 1238.
Specificity of Aneurin and Nicotinamide in Growth of *Staph. aureus*. B. C. J. G. Knight and H. McIlwain.—p. 1241.
Physico-chemical and Biochemical Study of Vitamin A₁. E. Lederer and F. H. Rathmann.—p. 1252.
Utilization of CO₂ by Propionic Acid Bacteria. H. G. Wood and C. H. Werkman.—p. 1262.

Synthetic Immunochemistry.—Clutton, Harington, and Yuill describe the preparation and properties of thioxyal derivatives of horse serum globulin and albumin and of thyroglobulin. They have studied the serological reactions of the derivatives and found them to be conditioned by the thyroxine groups introduced which thus act as haptens, the hapten property being a function of the whole aromatic portion of the thyroxine molecule and not of the diiodophenolic group alone. Passive immunization with antisera against the thioxyalproteins protects against the normal physiological effects of exogenously administered thyroglobulin and thyroxine. The general implications of this observation are discussed.

British Journal of Experimental Pathology

London vol. 19 August, 1938

Growth of *Proteus* on Ammonium Lactate plus Nicotinic Acid. P. Fildes.—p. 239.
*Disaggregation of Proteins by Enzymes. C. G. Pope.—p. 245.
*Crystalline Preparations of Tomato Bushy Stunt Virus. F. C. Bawden and N. W. Pirie.—p. 251.
Note on Some Protein Constituents of Normal Tobacco and Tomato Leaves. F. C. Bawden and N. W. Pirie.—p. 264.
Indophenol-reducing Capacity of Guinea-pig Leucocytes. A. E. Kellie and S. S. Zilva.—p. 267.

Antitoxin Purification.—Fibrinolysin and other enzymes separate the antitoxic pseudoglobulin molecule into components with different physical and chemical properties. One of these is non-antitoxic and has a low denaturation temperature; the other is antitoxic and is less easily denatured. The latter, purified by these methods, is not only more free from inert proteins than preparations of antitoxin hitherto obtainable, but owing to smaller molecular size has new therapeutic properties.

Crystalline Virus.—The extraction of plants infected with tomato bushy stunt virus yields a crystalline protein which is believed to be the virus itself. It forms true crystals (mainly rhombic dodecahedra), whereas previous preparations of this kind, such as those of tobacco mosaic virus, have consisted of fluid crystals. Antiserum, which is easily prepared, causes a fine granular and compact agglutination; this is likened to "O" agglutination among bacteria, and that of crystalline tobacco mosaic virus to "H," the difference being presumably related to the shape of the crystal. Chemical and physical methods of disinfection cause loss of infectivity without loss of crystalline form or serological specificity.

British Journal of Radiology

London vol 11 September, 1938

- X-Ray Studies of Closing of Ductus Arteriosus. A. E. Barclay, J. Barcroft, D. H. Barron, and K. J. Franklin.—p. 570.
Physical and Biological Basis of Grenz-ray Therapy. Z. A. Leitner.—p. 586.
Some Direct Measurements of Gamma-ray Dose Delivered to Malignant Lesions of Tongue by Interstitial Irradiation. C. W. Wilson and S. Cade.—p. 599.
Some Experiments in Tomography. G. H. Bush.—p. 611.
Investigation into Dosage Delivered by Certain Techniques in Radiation Therapy of Carcinoma Cervix. B. Sandier.—p. 623.

Some Direct Measurements of the Gamma-ray Dose.—The results of direct measurements of the dosage delivered to malignant lesions of the tongue by interstitial radium therapy show that the minimum dose which will give a satisfactory clinical result is of the order of 5,000 r. In many cases, however, the minimum dose reaches values of the order of 10,000 r, while those parts of the lesion near to needles may receive very much more than this. The results also suggest that the threshold dosage rate for squamous-celled carcinoma must be below 0.473 r per minute.

Clinical Science

London vol 3 August 15, 1938

- *Unilateral Loss of Blood-pressure-raising, Pulse-accelerating Reflex from Voluntary Muscle due to Lesion of Spinal Cord. M. Alam and F. H. Smirk.—p. 247.
Observations in Man concerning Effects of Different Types of Sensory Stimulation upon Blood Pressure. M. Alam and F. H. Smirk.—p. 253.
Blood-pressure-raising Reflexes in Health, Essential Hypertension, and Renal Hypertension. M. Alam and F. H. Smirk.—p. 259.
Results of Sympathetic Stimulation and Extirpation on Human Electrocardiogram. E. N. Chamberlain.—p. 267.
Further Observations on Vascular Responses of Human Limb to Body Warming: Evidence for Sympathetic Vasodilator Nerves in Normal Subject. R. T. Grant and H. E. Hollins.—p. 273.
Pathological Changes in Arteries supplying Fingers in Warm-handed People and in Cases of So-called Raynaud's Disease. T. Lewis.—p. 287.
*Raynaud's Disease and Preganglionic Sympathectomy. T. Lewis.—p. 321.
Mechanism of Local Sweating in Response to Faradism. R. G. Bickford.—p. 337.
*Acute Arterial Lesions in Rabbits with Experimental Renal Hypertension. C. Wilson and G. W. Pickering.—p. 343.

Blood-pressure-raising Reflex from Muscle.—Exercise of a limb raises the blood pressure and pulse rate. If the exercise takes place when the circulation is occluded these remain raised until the circulation is restored. This reflex from the leg was absent in a patient whose leg was completely anaesthetic.

Raynaud's Disease and Preganglionic Sympathectomy.—Attacks of Raynaud's disease can be induced by cooling the fingers after preganglionic sympathectomy. It is concluded, therefore, that the attacks are due to a local vascular fault and not to excessive action of the vasomotor system.

Arterial Lesions in Experimental Hypertension.—In rabbits hypertension produced by constriction of the renal artery causes arterial lesions indistinguishable from those found in malignant hypertension in men. The incidence of the lesions is related to the degree of hypertension. These results support the view that hypertension causes the associated arterial changes, and not that the arterial changes cause the hypertension.

Endocrinology

Wisconsin vol. 23 August, 1938

- Effect of Testosterone Propionate on Genitalia, Prostate, Secondary Characters, and Body Weight in Eunuchoidism. A. T. Kenyon.—p. 1.
Effect of Testosterone Propionate on Nitrogen, Electrolyte, Water, and Energy Metabolism in Eunuchoidism. A. T. Kenyon, I. Sandiford, A. H. Bryan, K. Knowlton, and F. C. Koch.—p. 135.
Effect of Gonadotropic Hormones on Persisting Corpora Lutea in Hypophysectomized Rats. R. O. Greep.—p. 154.
Gonadotropic Action of Normal Male Urine Extract on Dog. I. H. Leatham and J. A. Morrell.—p. 164.
Effect of Castrate Urine Hormone on Testis. H. S. Rubinstein.—p. 171.
Adiposity and Diabetes Mellitus in Monkey with Hypothalamic Lesions. S. W. Ranson, C. Fisher, and W. R. Ingram.—p. 175.
Miscellaneous Experiments on Oestrogen-progesterone Induction of Heat in Spayed Guinea-pigs. J. L. Bolins, W. C. Young, and E. W. Dempsey.—p. 182.
Quantitative Studies of Experimentally Induced Sexual Receptivity in Spayed Guinea-pigs. V. J. Collins, J. L. Bolins, E. W. Dempsey, and W. C. Young.—p. 188.
Partial Inhibition of Sex Activity in Intact Female Rat by Injected Oestrin. J. Ball.—p. 197.
Histological Effects Induced in Anterior Pituitary of Rat by Prolonged Injection of Oestrin, with Particular Reference to Production of Pituitary Adenomata. J. M. Wolfe and A. W. Wright.—p. 200.
Cellular Changes in Anterior Hypophyses of Vitamin A Deficient Rats. T. S. Sutton and B. J. Brief.—p. 211.
Post-adrenalectomy Diuresis. R. Gaunt, H. E. Potts, and E. Loomis.—p. 216.
Response to Cold following Double Adrenalectomy. S. M. Horvath.—p. 223.
Are Laetogenic and Carbohydrate Metabolism Identical? A. J. Bergman and C. W. Turner.—p. 228.
Fatty Atrophy following Insulin Injection in Non-diabetic Malnutrition. H. Bionet.—p. 233.
Influence of Adrenal Cortex Extract upon Compensatory Hypertrophy of Adrenal Cortex. E. M. MacKay and L. L. MacKay.—p. 237.
Failure of Atropine to Prevent Oviposition following Coitus in Rabbit. A. W. Makepeace.—p. 241.
Effect of Testosterone Propionate on Human Female Castrates. C. H. Birnberg, L. Kurzrok, and S. Livingston.—p. 243.

Gynécologie

Paris vol. 37 June, 1938

- Malignant Chorio-epithelioma Following Full-term Pregnancy. Weber, Stoltz, and Rebbi.—p. 321.
Treatment of Different Types of Metrorrhagia by Arsenical or Bismuth Preparations. J. Kreis.—p. 335.
Ptyalo-reaction Applied to Obstetrics and Gynaecology. F. Zambinini.—p. 352.

Gynécologie et Obstétrique

Paris vol. 38 July, 1938

- Pregnancy following Myomectomy. G. Cotte and P. Magnin.—p. 5.
Brenner Tumours. J. Varangot.—p. 11.
Polyvisceral Sclerosis of Newborn. R. Noel and H. Pigeaud.—p. 23.
Intra-uterine Melaena. A. Brochier and Pierre Magnin.—p. 33.
*Cervical Erosion: Results of Treatment by Local Injection of Folliculin. J. Vanrell.—p. 41.
Autotransplantation of Endometrium and Function of Ovaries after Hysterectomy. N. P. Verbatzky.—p. 45.
Operative Hormonal Sterilization in Women. A. I. Kroupsky.—p. 56.

Cervical Erosion.—In 650 cases of cervical erosion treated by local injection of folliculin alone the results appear to be better and more permanent than those obtained by the usual methods. This was also proved histologically, and appears to open up a new field in this subject.

Journal of Bacteriology

Baltimore vol. 36 July, 1938

- Coliform Intermediates in Human Faeces. L. W. Parr.—p. 1.
Effects of Sublethal Doses of Monochromatic Ultra-violet Radiation on Growth Properties of Bacteria. A. Hollaender and B. M. Dugan.—p. 17.
Classification of Acid-fast Bacteria. H. R. E. Gordon and W. A. Hutner.—p. 39.

- Study of Gelatin Digestion by *Beccilia subtilis*. A. D. Conole and O. Rahn.—p. 47.
- Fermentation of Mucic Acid by Some Intestinal Bacteria. L. Sternfeld and F. Saunders.—p. 53.
- Gelatin as Source of Growth-promoting Substances for Bacteria. S. A. Kover, B. D. Chinn, and F. Saunders.—p. 57.
- Influence of pH on Dissimilation of Glucose by *Aerobacter indologenes*. M. Mickelson and C. H. Werkman.—p. 67.
- Fermentation of Disaccharides by *Streptococcus thermophilus*. J. M. Sherman and P. Stark.—p. 77.
- Influence of Time and Temperature of Incubation on Heat Resistance of *Escherichia coli*. P. R. Elliker and W. C. Frazier.—p. 83.
- Bound Water Content of Vegetative and Spore Forms of Bacteria. C. A. Friedman and B. S. Henty.—p. 99.

Journal of Biological Chemistry

Baltimore vol. 123 May, 1938

- Study on Kimmelsiel's Procedure for Titrimetric Cerebroside Determination, with Description of Improved Technique. E. Kirk.—p. 613.
- Mikromethod for Approximate Estimation of Lecithin, Cerehalin, Ether-insoluble Phosphatide, and Cerebrosides in Plasma, Red Blood Cells, and Tissues. E. Kirk.—p. 623.
- Concentration of Lecithin, Cephalin, Ether-insoluble Phosphatide, and Cerebrosides in Plasma and Red Blood Cells of Normal Adults. E. Kirk.—p. 637.
- Petroleum Ether-soluble and Ether-insoluble Constituents of Grape Pomace. K. S. Markley, C. E. Sando, and S. B. Hendricks.—p. 641.
- Katabolism of Purine Nucleotides: I. Relation to Glycolysis in Blood of Rabbit. J. J. Eller and F. W. Allen.—p. 655.
- Volumetric Benzidine Method for Determination of Inorganic and Ethereal Sulphate in Serum. M. H. Power and E. G. Wakefield.—p. 665.
- Mode of Action of Pancreatic Lipase. A. K. Balls and M. R. Matlack.—p. 679.
- Preparation of Citrulline by Hydrolysis of Arginine. S. W. Fox.—p. 687.
- Essential Nature of Arginine in Diet of Chick. A. A. Klose, E. L. R. Stokstad, and H. J. Almquist.—p. 691.
- New Method for Determination of Iodine in Five Cubic Centimetres of Blood or Other Biological Material. J. F. McClenden and A. C. Bratton.—p. 699.
- Studies in Amino-acid Metabolism: IV. Metabolism of *o*-phenylalanine and *D*-lysine in Normal Rat. J. S. Butts, M. S. Donn, and L. F. Hallman.—p. 711.
- Study of Proteins of Inactive and Active Mammary Gland. S. M. Jackson and R. A. Gortner.—p. 719.
- Amino-acids of Certain Marine Algae. A. Mazur and H. T. Clarke.—p. 729.
- Effect of Alloxan on Oxidation of Alcohol by Various Tissues. F. Bernheim.—p. 741.
- Purification of Prothrombin. W. H. Seegers, H. P. Smith, E. D. Warner, and K. M. Brinkhous.—p. 751.
- Molecular Structure of Liver Glycogen of Dog. W. Z. Hassid and I. L. Chaikoff.—p. 755.
- Action of Arabinase on Natural Proteins and Derived Proteins obtained therefrom by Trypsin and Pepsin. I. Kraut-Razins.—p. 761.

Journal of Obstetrics and Gynaecology of the
British Empire

Manchester vol. 45 June, 1938

- Urinary and Faecal Fistulae. N. P. Mahfouz.—p. 405.
- Aetiology of Thrombosis and Embolism. D. Dougal.—p. 425.
- Post-operative Exercises as Preventive of Embolism. W. F. Shaw.—p. 451.
- Post-partum Necrosis of Anterior Pituitary. H. L. Sheehan and R. Murdoch.—p. 456.
- Operation for Cure of Congenital Absence of Vagina. A. H. McIndoe and J. B. Banister.—p. 490.
- Treatment of Puerperal Sepsis by Protosil and Allied Compounds. D. B. Brown.—p. 495.
- *Induction of Labour by Puncture of Membranes. R. A. Tennent.—p. 509.

Induction of Labour.—A routine study of surgical induction of labour in 357 women at the Glasgow Royal Maternity Hospital. The membranes are ruptured by a male metal catheter. Premedication is not employed, and pituitrin and castor oil are not given until twenty-four hours have elapsed. The author found that this method was more effective in primigravidae than in multiparae, but points out that many obstetricians differ in their findings.

Manchester vol. 45 August, 1938

- Trichomoniasis. J. R. Goodall, F. O. Anderson, and F. L. MacPhail.—p. 597.
- Aetiology of Pregnancy Toxaemia. R. W. Nichol.—p. 609.
- Causes of Fetal Death in Ceylon. G. A. W. Wickramasuriya.—p. 622.
- *Prophylaxis of Constriction Ring Dystocia. M. H. Phillips.—p. 638.
- Tubal Pregnancy. Bethel Solomon.—p. 644.
- Transposition of Uterus for Severe Uterine and Vaginal Prolapse. J. St. George Wilson.—p. 655.

- Unusual Congenital Abnormality of Vagina. A. A. Gemmell and H. F. Woolfenden.—p. 663.
- Subcutaneous Haemangio-endotheliomata Associated with Pregnancy. A. Davis.—p. 667.
- Pregnancy in Bicornuate Uterus. O'D. Browne.—p. 674.
- Parallel Duplication of Face in Anencephalic Foetus. G. Mairzel.—p. 680.
- Severe Ulceration of Vulva and Vagina during Pregnancy Treated by Administration of Vitamins. E. A. Gerrard.—p. 683.
- Infestation and Female Circumcision. A. Wersley.—p. 686.
- Intra-uterine Amputations and Annular Constrictions in Living Infant due to Amniotic Adhesions Resulting from Oligohydramnios. Y. N. Ajinlyu.—p. 692.

Prophylaxis of Constriction Ring Dystocia.—The author, whose experience is very extensive, believes that contraction ring is an extension of local colic in an irritable uterus, and that it can be prevented by early recognition of this type of hyperaction in the early stages of labour. The pain that extends beyond the cessation of the actual uterine contraction denotes that colicky action has started and must be controlled at once by morphine or heroin, a procedure which will often avoid the complications of a troublesome contraction ring.

Journal of Pediatrics

St. Louis vol. 13 July, 1938

- Early Lesions of Polio-myelitis after Intranasal Inoculation. H. K. Faber.—p. 10.
- Future of Chemoprophylaxis as Measure of Practical Control of Polio-myelitis. E. W. Schultz.—p. 38.
- Persistent Anomia following Zinc Sulphate Nasal Spraying. F. F. Tisdall, A. Brown, and R. D. Dietrich.—p. 60.
- Acute Anterior Polio-myelitis following Tonsillectomy and Adenoidectomy. R. C. Eley and C. G. Fluke.—p. 63.
- Construction of Emergency Respirator for Use in Treating Respiratory Failure in Infantile Paralysis. P. Drinker and E. L. Roy.—p. 71.
- Mental Hygiene in Orthopaedic Hospital. J. D. M. Griffin, W. A. Hawke, and W. W. Barraclough.—p. 75.
- *Drugs Transmitted through Breast Milk: II. Barbiturates; III. Bromides. R. M. Tyson, E. A. Shrader, and H. H. Perlman.—p. 86.
- *Erythema Annulare Rheumaticum. H. Abramsen and A. M. Tunick.—p. 94.

Drugs Transmitted through Breast Milk.—Experiments have shown that both the barbiturates and the bromides are transmitted to the infant by the mother in her milk. These drugs were given to mothers in a maternity hospital and the milk was then analysed. The infants also showed the effect of the drugs by becoming less irritable, but they may be adversely affected if large doses are used.

Erythema Annulare Rheumaticum.—This condition is of significant value in the diagnosis of rheumatism, and is occasionally met with in chorea. It may be found between attacks of rheumatism, but is of no prognostic value and does not reflect the degree of their severity.

Monatsschrift für Geburtshilfe und Gynäkologie

Leipzig vol. 108 July 1938

- Monolism. E. Kehrger.—p. 125.
- X-Ray Appearances of Pessary Displaced in Uterus. H. Hellendall.—p. 143.
- Tapeworm Disease causing Premature Labour. R. Oehlke.—p. 153.
- Causes of Prematurity. H. Volz.—p. 158.

Rivista Sperimentale di Freniatria

Reggio-Emilia vol. 16 June 30, 1938

- Racemose Cysticercosis of Base of Brain and Cysticercus Meningitis. M. Felici.—p. 301.
- Simulated Robbery and Strangulation in Boy aged 16. A. Franchini.—p. 342.
- Tests of Bulgarian Treatment of Epilepsy by Decoctions of Belladonna Root. M. Fato.—p. 356.
- *Pathogenesis of So-called Cerebral Muscular Atrophy. P. Ottonello.—p. 373.
- Acetylcholine-esterase in Central Nervous System. G. Pizzini.—p. 439.
- *Cataleptoidism and Motor Hypersuggestibility. A. Cacchiione.—p. 446.
- Effect of Adrenaline on Blood Pressure in Schizophrenia. A. Mazza.—p. 479.
- Duke's Test in Mental Disease. G. Zonta.—p. 523.

Cerebral Muscular Atrophy.—Ottonello reviews theories of causation of early muscular atrophy in the course of hemiplegia and describes four cases with microscopical investiga-

tions. He concludes that the primary peripheral neuronic degeneration which is responsible may not be due entirely to interruption of cerebral stimuli; it results from a toxic process affecting electively the paralysed side on account of locally lowered resistance.

Cataleptoidism and Motor Hypersuggestibility.—Little evidence of motor hypersuggestibility was found in ten "unstable" children aged 10 to 11 presenting cataleptoid manifestations and perseveration.

Surgery

St. Louis vol. 4 July, 1938

Symposium on Back Pain

- (a) Relationship of Inter-cerebral Disk to Back Strain and Peripheral Pain (Statistical) J. S. Barr.—p. 1.
- (b) Surgical Treatment of Low Back Pain. A. de F. Smith.—p. 13.
- (c) Relation of Fascia Lata to Mechanical Disabilities of Spine. F. R. Ober.—p. 21.
- (d) Surgical Treatment of Affections of Lumbo-sacral and Sacro-iliac Joints J. I. Mitchell.—p. 31.
- Function of Spleen in Retardation of Shock from Haemorrhage. E. P. Lehman and C. V. Amole.—p. 44.
- Experimental Study of Operations which Involve Exclusion of Pancreatic Secretion from Intestinal Tract, with Special Reference to Possible Effects on Protein and Fat Digestion and on Metabolism of Liver Cell. F. F. Boyce and L. M. McEtridge.—p. 51.
- Effect of Lphedrine on Pancreatic Secretion. Method for Management of Patients having Pancreatic Fistula. C. H. Craft.—p. 64.
- Recurrent Dislocation of Shoulder-joint. Evaluation of Nicola Operation. M. I. Horwitz and A. I. Davidson.—p. 74.
- Surgical Treatment of Stricture of Rectum. J. de J. Penherton and L. K. Stahlitz.—p. 81.
- Bile Salts in Treatment of Peptic Ulcer. G. S. Herish.—p. 84.
- Device Facilitating Administration of Capsules to Animals. L. R. Lima.—p. 95.
- Carcinoma of Third Segment of Duodenum. L. N. Claiborn and W. G. H. Dobbs.—p. 97.
- Traumatic Fat Necrosis. M. B. Cooperman and D. R. Merante.—p. 103.
- Chronic Hyperthyroidism II, Diffuse Goitre. F. O. Young.—p. 111.
- Preliminary Report on Use of Zinc Peroxide in Mouth Infections. J. P. Wintrop.—p. 124.

Fascia Lata and Mechanical Disabilities of Spine.—This is a discussion in detail of the mechanical relation of the lower extremities to the trunk and of the effect of abnormal contractions of muscles and fasciae of the lower extremities on the spine. The different methods of treatment, including fasciotomy, are described, and also more conservative methods.

Tubercle

London vol. 19 August, 1938

- Investigations on Tuberculosis among Students in Scandinavia. A. L. Jacobs.—p. 481.
- Increase of Typhoid Agglutinins in Tuberculosis. P. D. Cripps and D. M. Short.—p. 491.
- Contacts with Sputum-positive Tuberculous Cases. E. Williams.—p. 495.
- Cavernous Silecosis. S. Puder.—p. 511.
- Death from Haemoptysis occurring in Infant of 9 Months. C. O'Leary.—p. 513.

Zeitschrift für Immunitätsforschung

Jena vol. 93 June, 1938

- Studies of New Clearing Reaction: I, Application of New Clearing Reaction to Serological Diagnosis of Syphilis in Tropics. W. A. Collier.—p. 105.
- Group-specific Substances in Human Salivary Glands. K. Tasuo.—p. 110.
- Chemical and Immunological Studies of Mechanism of Anthrax Infection and Immunity: II, Investigation of Specificity of Anthrax-immune Sera with Combined Azoproteins. G. Ivanovics and V. Bruckner.—p. 119.
- Agglutination Relationships between *Coli* and Dysentery Bacilli. K. Hayashi.—p. 137.
- Utilization of β -specific Receptors of Aoki for Differentiating Closely Related Bacteria of Salmonella Group. K. Fujita.—p. 141.
- Influence of High Pressures on Trypanosomes and on Course of Experimental Trypanosome Infections. J. Ströder.—p. 145.
- Photometric Measurements of Bacterial Agglutination. L. Hantsch.—p. 154.
- Blood Picture in Experimental Infections and Chemotherapy. A. Feldt and K. Schäfer.—p. 170.
- Chemotherapeutic Tests of Number of Hitherto Untried Chemical Elements in Experimental Syphilis. F. Jähnel.—p. 184.
- Formation of Anti-capsular Antibodies to Anthrax Bacillus. J. Tomcsik and G. Ivanovics.—p. 196.

Zeitschrift für Infektionskrankheiten, Parasitäre Krankheiten und Hygiene der Haustiere

Berlin vol. 53 August 12, 1938

- *Recent Results in Physico-chemical Investigation of Filterable Viruses W. Frei.—p. 253.
- *Virus Studies in Rabies. F. Gerlach.—p. 279.
- Stephano-filaris in Dutch East Indies and Similar Infections in Other Countries. F. C. Kraneveld.—p. 291.
- *Chief South African Poison Plants. D. G. Steyn.—p. 332.

Nature of Filterable Viruses.—Recent research on ultra-visible particles is reviewed, and the theory is advanced that as between living and non-living substance there is no fundamental difference but a step-like gradation, and the same applies to the cellular and the non-cellular. Viruses stand on the boundary line.

Virus Studies in Rabies.—An illustrated description of groups of granular bodies, intracellular and extracellular, found in the nerve tissues and in certain fluids of infected animals. Methods of demonstration, isolation, and culture are given.

Poison Plants of South Africa.—This is a list and illustrated description of the native plants giving rise to poisoning of domestic animals (chiefly sheep) in pasture land.

Zeitschrift für Tuberkulose

Leipzig vol. 80 July, 1938

- *Bilateral Extrapleural Pneumothorax. G. Sauer.—p. 217.
- Respiratory Insufficiency in Cavernous Pulmonary Tuberculosis. H. Rothblat.—p. 228.
- Skin Tuberculosis in Relation to Tuberculosis in General: Findings in Examination of 525 Patients suffering from Skin Tuberculosis and Investigation of their Environment. H. P. Bott.—p. 237.
- Medicinal Therapy in Pulmonary Tuberculosis (Experiences with Estrol and Siran). H. Grebe.—p. 245.

Bilateral Extrapleural Pneumothorax.—A well-illustrated account of twelve cases. Fourteen of the pneumolyses were maintained with air, eight required oil later (in one patient on both sides), and two, because of complications, were followed by a thoracoplasty. A clear indication for bilateral pneumothorax is present in the patient with bilateral small or medium-sized apical cavities in whom the collapse obtained by an intrapleural artificial pneumothorax, even if practicable, would encroach too much on the patient's respiratory reserve.

Zeitschrift für Urologie

Leipzig vol. 32 1938 Heft 8

- *"Uraemia" in Prostatic Hypertrophy: Acidosis due to Kidney Lesion. H. Retlev-Abrahamsen and V. Aalkjaer.—p. 506.
- Experimental Treatment with Acids of Infected Urinary Passages in Presence of Phosphatic Calculi. S. Hermann.—p. 510.
- Has Problem of Dissolving Phosphatic Calculi in Human Urinary Passages been Solved? K. Tschirntsch.—p. 520.
- Diagnosis of Primary Carcinoma of Ureter. H. Eggers.—p. 529.
- Investigations of Liver Function in Uraemia. A. Babics and A. Torka.—p. 533.
- Discussion of Cases with Reference to Differential Diagnosis of Kidney Tumours by Pyelogram. H. B. Sprung.—p. 539.
- Generalized Calcifications of Lymphatic Glands in Course of Left-sided Renal Tuberculosis. F. Laufer.—p. 543.
- Bladder Calculus accompanied by Bladder Carcinoma in Case of Clinically Proved Hyperparathyroidism. T. Kusonoki.—p. 545.

"Uraemia" in Prostatic Hypertrophy.—The chemical pathology of the uraemic syndrome in patients suffering from prostatic hypertrophy is briefly discussed, and the authors have reached the conclusion that acidosis plays a very large part in the production of this syndrome. Accordingly they advise that the alkali reserve of the plasma be determined in these cases and, if necessary, the deficit should be made up by giving a 1 to 3 per cent. bicarbonate solution intravenously. To prevent alkalosis supervening they stress the necessity for calculating the amount of bicarbonate needed in the individual patient.

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|------------------|---------|---------|------|
| Protein | 2.1 | 1.1 | 3.6 |
| Fat Per Cent. | 0.3 | 0.4 | 0.2 |
| Carbohydrates | 3.2 | 9.3 | 9.8 |
| Calcium | 67 | 56 | 28 |
| Phosphorus | | | 127 |
| Mg. per 100 gms. | 68 | 46 | |
| Iron | 2.5 | 0.6 | 2.0 |
| Vitamin A | +++ | +++ | ++ |
| Vitamin B | ++ | ++ | +++ |
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| EXTREMITIES | | | | | | | | | |
|-------------|-------|------|--------|------|--------|------|--------|------|--------|
| REGION | PA | TIME | PA | TIME | PA | TIME | PA | TIME | PA |
| HAND | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| WRIST | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| WRIST | AP | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| ELBOW | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| ELBOW | AP-PA | 2 15 | 30 1/2 | 2 15 | 30 1/2 | 2 15 | 30 1/2 | 2 15 | 30 1/2 |
| SHOULDER | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| FOOT | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |

| TRUNK | | | | | | | | | |
|--------------|-----|------|--------|------|--------|------|--------|------|--------|
| REGION | PA | TIME | PA | TIME | PA | TIME | PA | TIME | PA |
| ATLAS | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| CERVICAL | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| CERVICAL | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| DORSAL SPINE | AP | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| DORSAL SPINE | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| LUMBAR SPINE | AP | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| LUMBAR SPINE | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| SACRUM | AP | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| PELVIS | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| STERNUM | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| RIBS | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |

| HEAD | | | | | | | | | |
|----------|-----|------|--------|------|--------|------|--------|------|--------|
| REGION | PA | TIME | PA | TIME | PA | TIME | PA | TIME | PA |
| FRONTAL | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| PARIETAL | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| TEMPORAL | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| OCIPITAL | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| FRONTAL | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| PARIETAL | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| TEMPORAL | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| OCIPITAL | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |

| CHILDREN | | | | | | | | | |
|----------|-----|------|--------|------|--------|------|--------|------|--------|
| REGION | PA | TIME | PA | TIME | PA | TIME | PA | TIME | PA |
| WRIST | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| ELBOW | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| ANKLE | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| KNEE | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| AP-PA | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| AP-PA | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| AP-PA | PA | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |
| AP-PA | LAT | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 | 1 15 | 30 1/2 |

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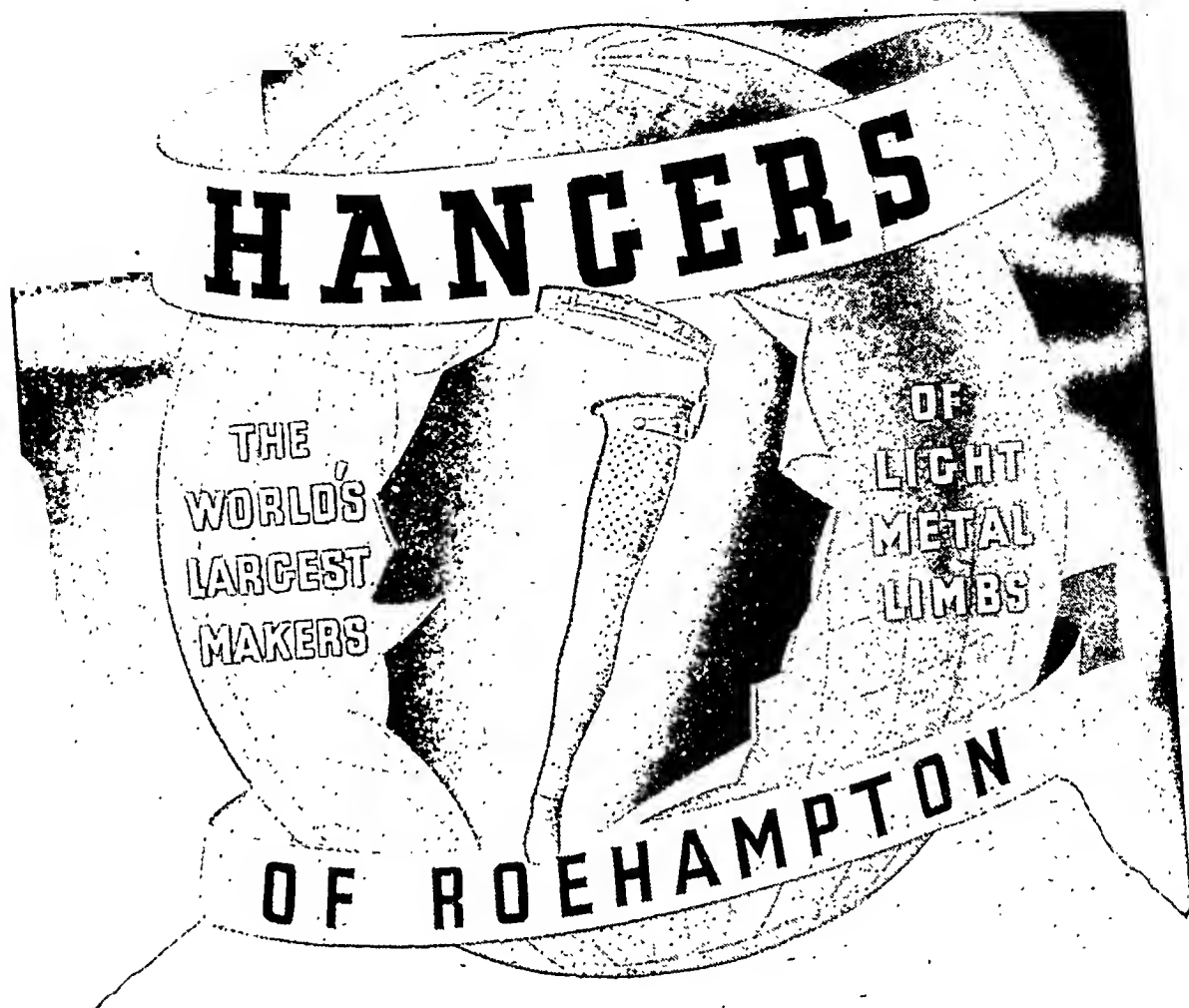
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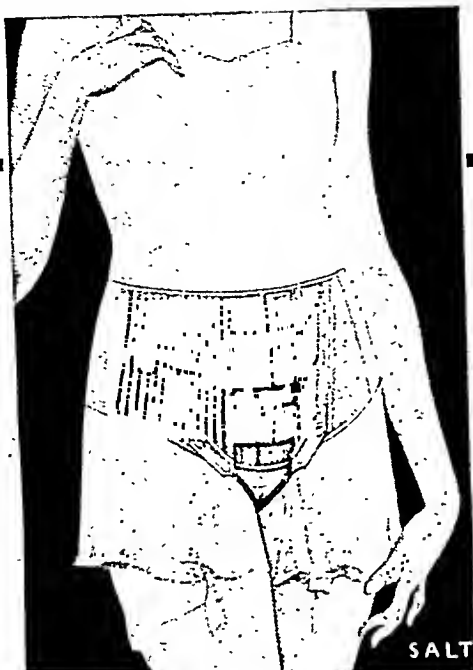
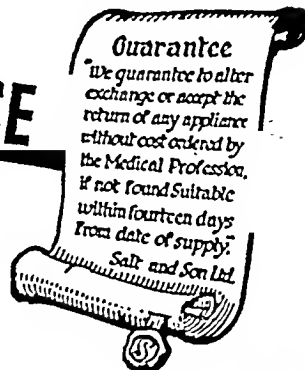
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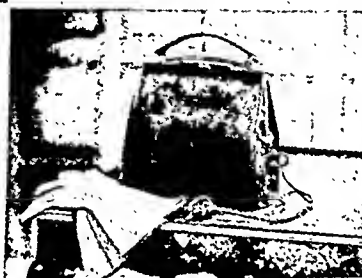
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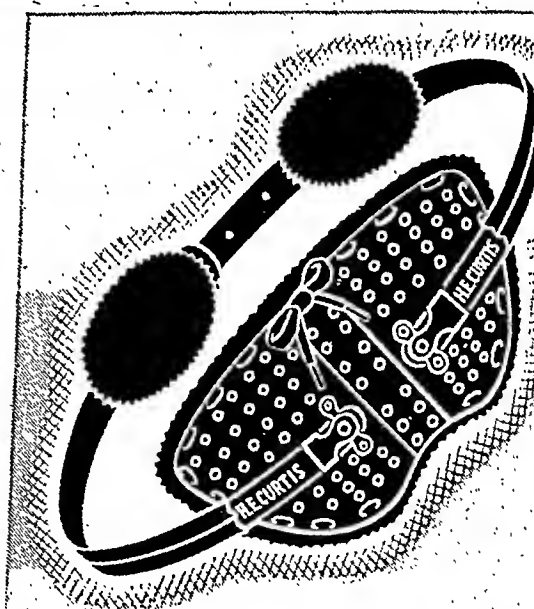
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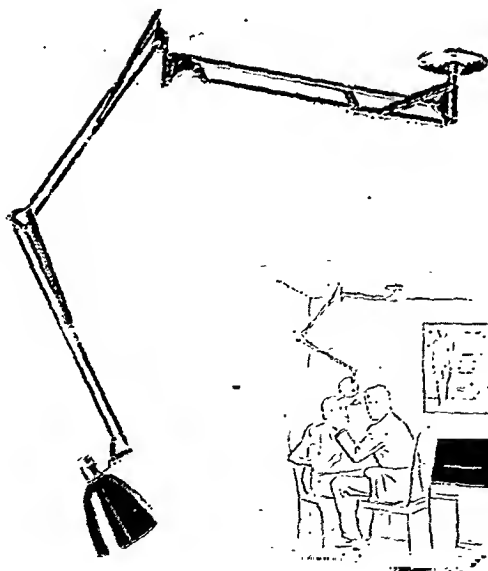
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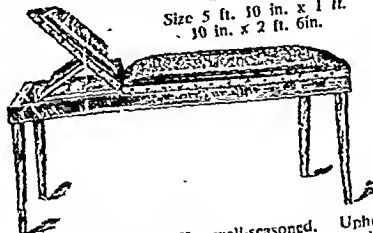
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Ross Institute of Tropical Hygiene,
London School of Hygiene & Tropical Medicine,
KEMPEL STREET, GOWER STREET, W.C.1.

LONDON HOSPITAL MEDICAL COLLEGE

(University of London).

SCHORSTEIN MEMORIAL LECTURE.

The above lecture will be delivered by PROFESSOR G. PARSONS, M.D., F.R.C.P., Professor of Pathology in the University of Birmingham, 13th. at 4.30 p.m., in

RE: "The Haemoglobinemia of Childhood"
Subject: "The Haemoglobinemia of Childhood"
Members of the profession are cordially invited to attend.
A. E. CLARK-KENNEDY, M.D., F.R.C.P., Dean.
Turner Street, London, E.1.

GUY'S HOSPITAL MEDICAL SCHOOL.

DIPLOMA IN ANAESTHETICS.

A COURSE OF INSTRUCTION in preparation for the November Examination for the Diploma in Anaesthetics of the Conjoint Examining Board in England will commence on Monday, October 17th, provided that there is a minimum number of seven entrants. The Course will cover a period of three weeks and will include lectures in Physiology, Anatomy, Pharmacology, Clinical Investigations and Anaesthetics.

The Course will be open to men and women graduates. The fee for the Course will be £15 15s. Further information may be obtained from the Dean, Guy's Hospital Medical School, London Bridge, S.E.1.

LONDON HOSPITAL MEDICAL COLLEGE

(University of London).

THE HUTCHINSON TRIENNIAL PRIZE, 1911.
Value £60.

The following subject has been selected for the above prize: "BRONCHIECTASIS."

The Dissertations for the Prize must be delivered at the Hospital not later than 4 p.m. on the 31st October, 1941.

The conditions of the Prize may be obtained on application to the Dean, Dr. A. E. CLARK-KENNEDY, M.D., F.R.C.P., Turner Street, London, E.1.

DIPLOMA IN PUBLIC HEALTH

The Royal Institute of Public Health and Hygiene

The Course of Instruction can be commenced at any time. Special provision is made for students who can give only part time to the work.

A prospectus and further particulars can be obtained from the Secretary.
Telephone: Langham 2731/2.
28, Portland Place, London, W.1.

DIPLOMA IN ANAESTHETICS—D.A. DIPLOMA IN CHILD HEALTH—D.C.H.

Courses of Postal and Oral preparation for these examinations may now be commenced.

For full details write to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

Preliminary Examinations

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

ANNUAL MEETING OF FELLOWS AND MEMBERS.

Notice is hereby given that it is proposed to hold a MEETING OF FELLOWS AND MEMBERS at the College in Lincoln's Inn Fields on THURSDAY, NOVEMBER 17th, 1938, at 4 o'clock p.m., and that a Report from the Council will be laid before the Meeting.

Fellows and Members can obtain copies of the Report on application to the Secretary, and can, if they so desire, have their names placed on the list of those to whom the Report is sent annually. Motions to be brought forward at the Meeting must be signed by the mover and other Fellows and Members, and must be received by the Secretary not later than November 7th.

A copy of the Agenda will be issued on or after November 12th to any Fellow or Member who may apply for one.

KENNEDY CASSELS, Secretary.

October 8th, 1938.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

DIPLOMA OF FELLOW.

Notice is hereby given that the next Primary and Final Examination for the Diplomas of Fellow will commence on Monday, November 28th, and Thursday, November 10th, respectively.

LICENCE IN DENTAL SURGERY.

Notice is hereby given that the Final Examination will commence on Friday, October 28th.

Candidates who have fulfilled the necessary conditions, and who desire to present themselves for Examination must give notice in writing to the Director of Examinations, Examination Hall, 8-11, Queen Square, London, W.C.1, at least twenty-one days before the date of Examination, transmitting at the same time such Certificates as may be required by the Regulations.

HORACE H. REW,
Director of Examinations

EXAMINING BOARD IN ENGLAND

BY THE
ROYAL COLLEGE OF PHYSICIANS OF LONDON
AND THE
ROYAL COLLEGE OF SURGEONS OF ENGLAND

DIPLOMA IN ANAESTHETICS.

Notice is hereby given that the NEXT EXAMINATION for the DIPLOMA IN ANAESTHETICS will commence on FRIDAY, NOVEMBER 11th.

Candidates who have complied with the necessary requirements, and who desire to present themselves for the above Examination must apply in writing to the Secretary, Examination Hall, 8/11, Queen Square, London, W.C.1, at least twenty-one days before the date of the Examination.

HORACE H. REW,
Secretary.

UNIVERSITY OF LONDON

A Lecture on "SOME ASPECTS OF BLOOD-PRESSURE REGULATION AND EXPERIMENTAL ARTERIAL HYPERTENSION" will be given by PROF. C. HEYMANS (Professor of Pharmacology in the University of Ghent) at KING'S COLLEGE, LONDON, 15th, at 5.30 p.m. The Chair will be taken by Prof. R. J. S. McDOWALL, D.Sc., M.D., Ch.B., F.R.C.P. (Professor of Physiology in the University). Lantern illustrations.
ADMISSION FREE, WITHOUT TICKET.
S. J. WORSLEY,
Academic Registrar.

GRAHAM SCHOLARSHIP IN PATHOLOGY

Applications are invited for the GRAHAM SCHOLARSHIP in PATHOLOGY, value £100 a year for two years, tenable at University College Hospital Medical School.

Applications must be received not later than the first post on Friday, October 21st, 1938, by the Principal, the Senate House, University of London, W.C.1, from whom further particulars may be obtained.

F.R.C.S. (Edin.)

EDINBURGH POSTAL COURSES.

Full details of above and Oral Courses—H. C. ORRIN, F.R.C.S., Surgeon's Hall, Edinburgh.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE

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SPECIAL COURSE OF PRACTICAL LECTURE DEMONSTRATIONS

(Open to all members of the Medical Profession)

on

THE RHEUMATIC DISEASES

to be held at

The St. John Clinic and Institute of Physical Medicine on Friday afternoons at 3.30 p.m., followed by tea at 4.30 o'clock.

| 1938 | | WINTER SESSION. |
|----------------|---|--|
| October 28th. | Inaugural lecture. A General survey of the Rheumatic Problem. | Professor FRANCIS R. FRAYER. (Chairman, Professor Sir LEONARD HILL, F.R.S.) |
| November 4th. | The Classification and Clinical Types of the Rheumatic Diseases. | Dr. PHILIP ELLMAN |
| November 11th. | The Rheumatic Diseases in Childhood. | Dr. FRANCIS BACH. |
| November 18th. | Oral Sepsis in the Rheumatic Diseases. | Mr. L. C. ATKINS. |
| November 25th. | The Nose and Throat in relation to the Rheumatic Diseases. | Mr. PHILIP JOSEY. |
| December 2nd. | Pelvic Sepsis in the Rheumatic Diseases. | Mr. V. B. GREEN-ARMYtage. |
| December 9th. | The Endocrinal and Metabolic Aspects of the Rheumatic Diseases. | Dr. A. P. CAWADIAS. |
| December 16th. | Radiology in the Rheumatic Diseases. (With lantern demonstrations.) | Dr. G. T. CALTHROP. |
| 1939 | | SPRING SESSION. |
| January 13th. | Inaugural lecture. Non-Articular Rheumatic Affections. | Sir WILLIAM WILCOX, K.C.I.E., C.B., C.M.G. (Chairman, Professor Sir LEONARD HILL, F.R.S.) |
| January 20th. | The Rheumatic Diseases of the Spine. | Dr. FRANCIS BACH. |

| | | |
|----------------|---|--|
| January 27th. | The Physical Basis of Treatment in the Rheumatic Diseases (With demonstrations of technique and apparatus in the Dept.) | Dr. H. J. TAYLOR. |
| February 3rd. | The Physiological Action of Methods used in Physical Medicine in the Rheumatic Diseases. (Demonstrations.) | Professor Sir LEONARD HILL. |
| February 10th. | Indications for General and Local Light Therapy in the Rheumatic Diseases (Demonstrations in the Light Dept.) | Dr. A. LINNOW. |
| February 17th. | Immunological Methods of treatment in the Rheumatic Diseases. (Demonstrations in the Laboratory.) | Dr. ALBERT LINNOW. |
| February 24th. | Electrotherapy and Hydrotherapy in the Rheumatic Diseases. (Demonstrations in the Balneological and Electrical Depts.) | The Medical Registrars. |
| March 3rd. | Drug Treatment in the Rheumatic Diseases. | Dr. PHILIP ELLMAN. |
| March 10th. | Diet in the Rheumatic Diseases. | Dr. A. P. CAWADIAS. |
| March 17th. | Orthopaedic treatment in the Rheumatic Diseases. (Demonstrations in the Orthopaedic Dept.) | Mr. A. G. TIMMIS-FISHER. |
| March 24th. | The Psychological Aspects of the Rheumatic Diseases. | Dr. WILSON and WITKOWSKI (Institute of Medical Psychology) and Dr. S. D. MITCHELL. |
| March 31st. | Team work in the Rheumatic Diseases. (Demonstrations in all Depts. of cases illustrating this.) | Members of the Staff. |

BRITISH POSTGRADUATE MEDICAL SCHOOL

(UNIVERSITY OF LONDON)

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

Course of Lectures on

PRESENT-DAY OBSTETRICS

THURSDAY AFTERNOONS AT 3.30 p.m.

| 1938 | | | |
|-----------|--|--|--|
| Oct. 13th | Antenatal Care | Dr. W. H. F. Oxley, M.R.C.S., L.R.C.P., F.C.O.G. | |
| " 20th | Radiology in Obstetrics | Dr. R. E. Roberts, M.D., D.M.R.E. | |
| * " 28th | Variations in the Female Pelvis and their Obstetric Significance | Dr. H. C. Moloy, M.D. (of New York). | |
| Nov. 3rd | Toxaemias of Pregnancy | Professor F. J. Browne, M.D., D.Sc., F.R.C.S., F.C.O.G. | |
| " 10th | Toxaemias of Pregnancy (contd.) | Professor F. J. Browne, M.D., D.Sc., F.R.C.S., F.C.O.G. | |
| " 24th | Haemorrhage of Late Pregnancy | Mr. Leslie Williams, M.D., M.S., F.R.C.S., F.C.O.G. | |
| Dec. 1st | Haemorrhage of Late Pregnancy (contd.) | Mr. Leslie Williams, M.D., M.S., F.R.C.S., F.C.O.G. | |
| " 8th | Some Aspects of Obstetric Pathology | Dr. H. L. Sheehan, M.Sc., M.D. | |
| " 15th | Breech Cases | Professor J. Chassar Moir, M.D., F.R.C.S., F.C.O.G. | |
| 1939 | | | |
| Jan. 5th | Pyelitis of Pregnancy | Professor Dugald Baird, M.D., F.C.O.G. | |
| " 12th | Disproportion and Difficult Labour | Professor J. Munro Kerr, M.D., LL.D., F.R.F.P.S., F.C.O.G. | |
| " 19th | Disproportion and Difficult Labour (contd.) | Professor J. Munro Kerr, M.D., LL.D., F.R.F.P.S., F.C.O.G. | |
| " 26th | Obstetric Emergencies | Mr. J. M. Wyatt, F.R.C.S. | |
| Feb. 2nd | Puerperal Sepsis | Dr. Robert Cruikshank, M.D., D.P.H. | |
| " 9th | Caesarean Section | Mr. Eardley Holland, M.D., F.R.C.P., F.R.C.S., F.C.O.G. | |
| " 16th | Analgesia and Anaesthesia in Obstetrics | Dr. J. R. Minnitt, M.D. | |
| * Friday. | | | |

These lectures are for regular students of the School, but a limited number of tickets are available, without fee, for medical practitioners. Applications for tickets should be addressed to the Dean, British Postgraduate Medical School, Ducane Road, W.12.

POST-GRADUATE COURSES

Open only to members.
Annual subscription £1.1.0.
DERMATOLOGY (St. John's Hospital, afternoons, until November 30th); CANCER week-end (Royal Cancer Hospital, all day, Saturday and Sunday, October 15th and 16th); CHEST DISEASES (Brompton Hospital, all day, October 24th to 29th); UROLOGY (St. Peter's Hospital, all day, October 24th to November 5th); PHYSICAL MEDICINE week-end (St. John Clinic, all day, Saturday and Sunday, October 29th and 30th); OBSTETRICS week-end (City of London Maternity Hospital, all day, Saturday and Sunday, October 22nd and 23rd); TOMOGRAPHY demonstration (British Legion Headquarters, October 28th, 8 p.m.).
Apply FELLOWSHIP OF MEDICINE, 1, Wimpole Street, London, W.1, Langham 4266.

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M. CANDELL, Secretary.

Telegrams: "TUBERCLE, RAND, LONDON"



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Names and addresses of members practising in any district in this Country or abroad can be obtained from

THE SECRETARY, C.S.M.M.G., TAVISTOCK HOUSE (NORTH), TAVISTOCK SQUARE, LONDON, W.C.1.
Phone: LUTON 1676-7-B.

HIGHER MEDICAL QUALIFICATIONS

Why not add one of the following degrees or diplomas to your name?

Diploma in Psychological Medicine. Diploma in Tropical Medicine.
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You can ensure Success by taking a Course of Tuition for your Examination at the

MEDICAL CORRESPONDENCE COLLEGE

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Examination you are interested, and a copy will be sent you free of charge.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

MARYLEBONE ROAD, N.W.1.

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one-half of the total admission being primary cases). Over 2,700 patients are admitted to the Wards annually, and in the Antenatal department there are over 20,000 attendances per annum. Clinical demonstrations are given by the Staff daily.
For rules, fees, etc., apply H. B. STOKES, Secretary-Superintendent.

CITY OF LONDON MATERNITY HOSPITAL

(Incorporated by Royal Charter)

CITY ROAD, E.C.1.

The Hospital offers facilities to POSTGRADUATES for observing the work of its Antenatal, Postnatal and Dental Clinics, and to male MEDICAL STUDENTS (and Practitioners desiring a Refresher Course) a two-or-four weeks' Midwifery Course (Residential). Nearly 2,000 patients annually.

RALPH B. CANNINGS, Secretary.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

17, RED LION SQ., LONDON, W.C.1.

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by E. S. WEYMOUTH, M.A. (Lond.)

POSTAL OR ORAL PREPARATIONS FOR ALL MEDICAL EXAMINATIONS

M.R.C.P. LONDON

January examination

SPECIAL CLASSES

commencing

| | |
|---------------|----------------|
| October 18th | Medicine |
| October 31st | Museum |
| November 9th | Demonstrations |
| November 10th | Microscope |
| | Demonstrations |
| | Physiology |

Special attention is paid to recent work

Further particulars can be obtained from the Principal.

MEDICAL PROSPECTUS (37 pp.)

CONTENTS: The method and the cost of entering the Medical Profession. Particulars of the Medical Examinations, Postal Courses, and Medical Classes. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses for Nurses for Women. Hints for writing them.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

THE LONDON HOMOEOPATHIC HOSPITAL

(Incorporated by Royal Charter)
Great Drmond Street and Queen Square, W.C.1.

WINTER SESSION, 1938-39.
The Insular Lecture to the Education Course will be delivered in

THE BARNES HALL

Royal Society of Medicine,
1, Wimpole Street, London, W.1,
on Thursday, OCTOBER 13th, 1938, at 5 p.m.,
by FRANCIS HERVEY BODMAN,
M.D., Ch.B. Bristol, M.R.C.S. (Eng.), L.R.C.P. Lond.,
emitted

"THE PRE-TEST-DAY CONFIRMATION OF THE HOMOEOPATHIC APPROACH."
The Chair will be taken by SIR JOHN WEIR, K.C.V.O., M.B.
Medical Practitioners and Senior Students of Medicine are invited to attend this Lecture.

ROYAL EYE HOSPITAL

Medical School, St. George's Circus, S.E.1.

RESEARCH SCHOLARSHIP.

Applications are invited for the Royal Eye Hospital Research Scholarship, tenable at the Hospital. Preference will be given to candidates who propose to undertake research on a clinical subject.

The value of the Scholarship is £100 per annum. Applications are to be received by November 10th, 1938.
Further particulars can be obtained from the Dean.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1850. Cases non-resident, treated at 39, Earl's Court Sq., S.W.5, and in residence, in the Summer holidays, at Mrs. Behnke's house on the Chilterns, of treatment.

"The method is scientifically correct and perfectly efficient."—Guy's Hospital Gazette.
Stammering, Cleft Palate Speech, Lipping,
3/9 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

BRITISH POSTGRADUATE MEDICAL SCHOOL

UNIVERSITY OF LONDON.

ASSISTANTSHIP IN MORBID ANATOMY.

Applications are invited for the post of Assistant in Morbid Anatomy in the Department of Pathology.

The stipend offered is £300 per annum, rising by annual increments of £50 to £500. The successful candidate will be required to join the Federated Superannuation System for Universities.

Further information can be obtained from the Professor of Pathology.
Applications, with copies of not more than three testimonials, should be submitted to the Dean, British Postgraduate Medical School, Duane Road, London, W.12, to arrive not later than the first post on Monday, October 17th, 1938.

CITY OF LEEDS

ASSISTANT CLINICAL TUBERCULOSIS OFFICER

Applications are invited for the post of Assistant Clinical Tuberculosis Officer. Applicants should be duly qualified and registered medical practitioners, and must have had not less than three years' postgraduate experience, including experience in general medicine, surgery, and radiology, and in the treatment of tuberculosis at a dispensary or in a hospital, sanatorium or other institution reserved for such cases. Preference will be given to candidates with experience in the treatment of non-pulmonary tuberculosis. The possession of a D.P.H. though not essential, would be considered an additional qualification. The present grading scheme of the Corporation provides for a commensurate salary of £500-£600 per annum according to qualifications and experience, with annual increments of £25, subject to satisfactory service, to the maximum of £700 per annum. The first increment will take effect on April 1st following the completion of twelve months' service. The person appointed will be required to pass a medical examination and contribute to the Superannuation Fund, established under the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on a form to be obtained from the undersigned, together with copies of three recent testimonials, and endorsed "Tuberculosis Officer," must be received at the Health Department, 12, Market Buildings, Vicar Lane, Leeds, 1, not later than 10 a.m. on Saturday, October 15th, 1938. Canvassing in any form, either directly or indirectly, will be a disqualification.

J. JOHNSTONE JERVIS,
Medical Officer of Health.

MIDDLESBROUGH EDUCATION COMMITTEE

APPOINTMENT OF SENIOR ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly qualified men for the post of Senior Assistant School Medical Officer in connection with the Medical Inspection and Treatment of School Children and such other duties as may be required by the Education Committee. The person appointed will be responsible to the School Medical Officer.

Commencing salary £500 per annum (provided the candidate has had not less than three years' postgraduate experience) rising by annual increments of £25 to £700 per annum. Previous experience as an Assistant School Medical Officer shall be reckoned in calculating the appropriate commencing salary. The successful candidate will be required to devote his whole time to the duties of the office. The appointment will be subject to two calendar months' notice on either side, such notice to date from the last day of any calendar month.

Applicants should have had experience in the work of School Medical Inspection, and preference will be given to candidates who have had experience of Refraction work and in the work of School Clinics and who are recognized by the Board of Education in connection with certification under the Mental Deficiency and Other Acts.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the successful candidate passing a medical examination to the satisfaction of the Medical Officer of Health.

Forms of application may be obtained from the Director of Education on receipt of a stamped addressed foolscap envelope, and these should be returned to the Director of Education, Education Offices, Middlesbrough, not later than Saturday, October 15th, 1938.

Canvassing in any form will disqualify.
PRESTON KITCHEN, Town Clerk

Town Clerk's Office, Middlesbrough, September 26th, 1938.

GENERAL POST OFFICE

HEADQUARTERS MEDICAL BRANCH (FEMALE STAFF.)

There will shortly be a vacancy for an ASSISTANT WOMAN MEDICAL OFFICER in the Headquarters Medical Branch. The appointment will be pensionable, and will carry a salary commencing at £500 a year and rising by annual increments of £25 to £700 a year. The rates of salary are liable to review.

Each candidate must be a fully qualified medical practitioner, a natural-born British subject, and the child of a person who is, or was at the time of death, a British subject. Candidates must also be unmarried, or widows. Preference will be given to candidates under 30 who have held one or more Hospital appointments. The successful candidate will not be allowed to engage in private practice in addition to her official duties.

Applications, stating qualifications, age, etc., with copies of any recent testimonials, should be sent to the Chief Medical Officer, General Post Office, London, E.C.1, not later than October 31st, 1938. Political influence should not be sought in support of applications; it would prejudice rather than assist the candidature.

The Female Medical Staff at Headquarters consists of a senior Woman Medical Officer and five Assistant Women Medical Officers. Information as to the duties can be obtained from the Chief Medical Officer.

Candidates may be required to attend for personal interview in London at their own expense.

LONDON COUNTY COUNCIL

Applications invited from Medical Practitioners of at least one year's standing for under-qualified positions. Candidates must have held resident appointments in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Grade II)—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(a) **OWLWICH HOSPITAL**, East Dulwich Grove, S.E.22 (two positions):

(1) Outlets mainly medical, obstetrical experience desirable.

(2) Outlets mainly medical, experience in anaesthetics desirable.

(b) **QUEEN MARY'S HOSPITAL**, Sidcup, Kent—Outlets mainly medical (male convalescent hospital), surgical experience desirable.

(c) **ST. JAMES' HOSPITAL**, Orsey Road, Barking, S.W.12—Outlets: obstetrical, gynaecological and anaesthetic experience essential.

(d) **ST. MARY ISLINGTON HOSPITAL**, Highgate Hill, N.19—Duties mainly medical.

(e) **ST. MATTHEW'S HOSPITAL**, Shepherdess Walk, N.1—Medical duties.

Applications forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division, 2a, County Hall, S.E.1, returnable by October 17th.

Canvassing disqualifies.

MIDDLESEX COUNTY COUNCIL

MIDDLESEX COUNTY COUNCIL MATERNITY HOSPITAL, Heathborne Road, Rushley Heath, Herts

RESIDENT ASSISTANT MEDICAL OFFICER (woman) required to be registered medical practitioner, preferably M.C.O.G. or D.C.O.G., with previous resident appointment in general hospital and special experience and knowledge of obstetrics.

Appointment for four years only subject to medical examination, it held during pleasure of Council, and terminable by one month's notice on either side.

Salary £400-£475 p.a., with board, lodging and laundry valued at £100 p.a. Contributions to Superannuation Fund will be required from April 1st, 1939. Possibility of retention on established staff, with £500 p.a. max.

Whole-time duties, such as County Council may direct, under supervision of Medical Superintendent and Obstetric Surgeon of Redhill County Hospital, under which the Maternity Hospital is administered as an annexe. Duties include medical charge of the 48 beds and attendance at ante-natal clinics at Redhill.

Written applications, with copies of not more than three recent testimonials, to be sent in under sealed (in envelope endorsed "Mat Hosp—A.M.O.") by October 15th, 1938—disclosing relationship to any member or officer of Council. Canvassing, direct or indirect, disqualifies.

Gulldhal, C. W. RADCLIFFE, Town Clerk of the County Council S.W.1.

CITY OF LEICESTER

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER (FEMALE)

The Council invite applications for the appointment of an Assistant Medical Officer of Health and Assistant School Medical Officer.

Applicants must be under 40 years of age and possess the Diploma in Public Health, or a similar qualification.

Salary £500 per annum, rising by annual increments of £25 to £700 per annum.

The post is a designated one under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination. The duties will be primarily in connection with the School Medical and Maternity and Child Welfare Services, but may include any other duties properly assigned from time to time.

Application forms may be obtained from Dr. E. K. Macdonald, Medical Officer of Health, Health Department, City Friars, Leicester, and should be returned in him, with copies of not more than three testimonials, not later than October 15th, 1938.

Town Hall, Leicester. L. McVOY, Town Clerk
September 21st, 1938

CITY OF COVENTRY

TEMPORARY ASSISTANT MEDICAL OFFICER OF HEALTH FOR AIR RAID PRECAUTIONS

Applications are invited from registered medical practitioners—preferably from medical officers retired from the Services—for the above post, which will be for one year in the first instance. The salary will be £500 per annum, but will be suitably reviewed if the appointment is continued beyond the first year. The duties of the appointment will be full-time and under the direction of the medical officer of health, they will consist mainly in training volunteer personnel in first-aid and in assisting with the administration of the casualty services section of the City A.R.P. Scheme.

Applications, stating age, qualifications, and experience, should reach the undersigned by October 12th, 1938.

The Council House, A. MASSEY, M.D., Coventry. Medical Officer of Health
October 1st, 1938.

BOROUGH OF WORTHING

DEPUTY MEDICAL OFFICER OF HEALTH

Applications are invited for the above appointment from duly registered medical practitioners, possessing a diploma in Sanitary Science, Public Health or State Medicine. Salary £650 per annum, rising by annual increments of £25 to a maximum of £700 per annum, and a motor-car allowance of £50 per annum. Terms and conditions of appointment and forms of application will be supplied on receipt of a stamped and addressed foolscap envelope.

Applications, with not more than three recent testimonials, must be received by the undersigned not later than October 14th, 1938.

Town Hall, WORTHING. J. KENNEDY ALLERTON, Town Clerk.
October 1st, 1938.

HULL CORPORATION HEALTH DEPARTMENT.

ASSISTANT MEDICAL OFFICER OF HEALTH (Female).

Applications are invited from duly qualified unmarried or widowed medical women, under the age of 40 years, and of not less than three years' standing in their profession, for the post of Assistant Medical Officer of Health.

Salary £200 per annum, rising, subject to satisfactory service, by annual increments of £25 to £250.

The duties consist mainly of work in the Maternity and Child Welfare Department, the School Medical Service, and the Tuberculosis Department.

Candidates must have had special experience in Paediatrics, and preference will be given to those possessing the Diploma in Public Health, or an equivalent qualification, and to those with experience in a children's hospital.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on forms to be obtained from the undersigned, are returnable not later than 10 a.m. on Thursday, October 20th, 1938.

NICHOLAS GIBBIE, M.D.

Health Department, Medical Officer of Health,
Guildhall, Hull
October 1938.

CITY OF NOTTINGHAM. NOTTINGHAM CITY HOSPITAL.

The Nottingham City Council invite applications from duly qualified Medical Practitioners for the position of RESIDENT OBSTETRICIAN AND Gynaecological Officer at the above Hospital.

The officer appointed will be in charge of the Maternity Block and Gynaecological beds, acting under the supervision of the Consulting Obstetrician Gynaecologist, subject to the general control of the Medical Superintendent.

The salary will be £350 per annum, rising by annual increments of £25 to £450, together with usual ratings and furnished apartments. Quarters for married men are not available.

Applicants must have held a previous obstetric appointment and preference will be given to those possessing the M.C.O.G.

The successful candidate will be required to pass a medical examination and to contribute to the Corporation Superannuation Fund. The appointment is terminable by one month's notice on either side.

Forms of application together with particulars of duties, may be had from the undersigned, to whom application, with copies of not more than three recent testimonials, and endorsed "Obstetrician," should be forwarded not later than October 20th, 1938.

Gulldhall, Nottingham. J. E. RICHARDS, Town Clerk.

THE WARWICKSHIRE AND COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS.

KING EDWARD VII MEMORIAL HOSPITAL.

Applications are invited for the post of JUNIOR ASSISTANT MEDICAL OFFICER (man or woman) at the Memorial Sanatorium, near Warwick, of 225 beds.

The salary will be at the rate of £250 per annum, with board, lodging, and laundry in addition, and the successful candidate will be appointed for six months.

There are three other Medical Officers at the Sanatorium.

Applications, with copies of testimonials, should be forwarded direct to the Medical Superintendent at the Sanatorium, to reach him by not later than Thursday, October 20th, 1938.

Sluire Hall, Warwick. L. EDGAR STEPHENS, Clerk of the Joint Committee.
October 3rd, 1938.

CITY OF LEEDS. PUBLIC HEALTH DEPARTMENT. ST. JAMES'S HOSPITAL. (1,330 Beds.)

Required, HOUSE PHYSICIANS and HOUSE SURGEONS (male) for the above Hospital. The appointments are for six months only, but may be renewed for a further six months only.

Salary £150 per annum, with board, residence, and laundry.

Candidates must be qualified, registered, and unmarried.

Applications, stating age, qualifications, etc., together with copies of three recent testimonials, to be forwarded to Dr. J. JOHNSTONE JERVIS, Medical Officer of Health, 12, Market Buildings, Vicar Lane, Leeds, 1, not later than 10 a.m. on October 15th, 1938.

Canvassing in any form, either directly or indirectly, will be a disqualification.

LANCASHIRE COUNTY COUNCIL.

PARK HOSPITAL, DAVYHULME, near Manchester.

APPOINTMENT OF ASSISTANT RESIDENT MEDICAL OFFICERS.

Applications are invited from registered Male Medical Practitioners for the appointments of Assistant Resident Medical Officers at the above Hospital. Candidates must be unmarried.

Salary £300 per annum, together with the usual residential allowances.

One Resident Medical Officer to be attached to the Obstetrical and Gynaecological and Surgical Unit; and the other to the Medical, and Ear, Nose and Throat Unit.

The appointments will, in the first instance, be for a period of six months, the successful applicants being eligible for reappointment for a further period of six months at the end of that period.

The Hospital comprises 500 beds for acute cases, is fully equipped in every respect, and is recognized as a complete Training School for Nurses.

The appointments will be terminable by one month's notice on either side.

Forms of application may be obtained from the County Medical Officer of Health, Hospital and Medical Department, County Offices, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded so as to be received not later than Saturday, October 15th, 1938.

County Offices, Preston. GEORGE ETHERTON, Clerk of the County Council.
September 26th, 1938.

LANCASHIRE COUNTY COUNCIL

PUBLIC ASSISTANCE COMMITTEE.

LAKE HOSPITAL AND DARNTON HOUSE Ashton-under-Lyne, near Manchester.

APPOINTMENT OF JUNIOR RESIDENT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the appointment of Junior Resident Medical Officer at the above Hospital and Institution, comprising 300 and 525 beds respectively.

The Hospital is recognized as a complete Training School for Nurses.

Candidates must be unmarried.

Salary at the rate of £225 per annum, together with the usual residential emoluments.

The appointment will, in the first instance, be for a period of six months, the successful applicant being eligible for reappointment for a further period of six months at the end of that period.

Forms of application may be obtained from the County Medical Officer of Health, Public Assistance (Hospital and Medical) Department, County Offices, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded not later than Saturday, October 15th, 1938.

County Offices, Preston. GEORGE ETHERTON, Clerk of the County Council.
September 26th, 1938.

SURREY COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT.

EPSOM COUNTY HOSPITAL (330 Beds).

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of Resident Assistant Medical Officer at the Epsom County Hospital.

Applicants should preferably have had previous resident hospital experience and have had post-graduate experience in maternity work, minor surgery, and anaesthetics.

The appointment is for a period of six months, and renewable for a further period of six months, together with full residential emoluments, valued at £125 per annum.

Applications, stating age, qualifications, and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the Medical Superintendent, Epsom County Hospital, Dorking Road, Epsom, so as to be received not later than October 19th, 1938.

DUDLEY AUKLAND, Clerk of the Council.

County Hall, Kingston-upon-Thames.

October 3rd, 1938.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners with appropriate qualifications for two appointments as ASSISTANT PATHOLOGIST at Group Laboratories in the Council's pathological service. Salary £650-£25-£800.

Candidates should have special experience in one or more branches of pathology in relation to the diagnosis and treatment of disease.

Forms of application and further particulars (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 2), County Hall, Westminster Bridge, S.E.1., returnable by October 31st.

Canvassing disqualifies.

COUNTY BOROUGH OF WEST HAM

EDUCATION DEPARTMENT.

Applications are invited from fully qualified Dentists (male) for appointment as SENIOR SCHOOL DENTAL OFFICER. The person appointed will be responsible to the School Medical Officer, and will be required to devote the whole of his time to the service of the Education Committee, to co-ordinate and supervise the work of the existing dental staff, and also to undertake clinical work. Salary £550 per annum, rising by annual increments of £25 to a maximum of £600 per annum, all fees received from whatever source to be paid over to the Council.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Acts and to medical examination as required by the Council for the purposes of such Acts, and the statutory contributions will be deducted from the salary.

Canvassing members of the Education Committee or the Council, either directly or indirectly, will be considered a disqualification.

Forms of application, together with particulars of duties, may be obtained from the School Medical Officer, Municipal Health Offices, 88, Romford Road, E.13, upon receipt of a stamped addressed envelope, and should be returned to the undersigned not later than Saturday, October 29th, 1938.

CHARLES E. CRANFIELD, Town Clerk and Education Officer.

Education Offices,

95, The Grove, Stratford, E.15.

October 1st, 1938.

COUNTY BOROUGH OF SOUTHEAST-ON-SEA

SOUTHEAST MUNICIPAL HOSPITAL.

The Health Committee of the Town Council invites application for the appointment of Resident Deputy Medical Superintendent at their Municipal Hospital situated at Rochford, Essex (460 Beds). Extensions to existing hospital buildings are now in course of erection. There is a staff of visiting Consultants, and the hospital is a recognized training school.

The applicants must have had experience in emergency surgery and the treatment of fractures, and previous administrative experience will be a recommendation.

Salary £500 per annum, rising by annual increments of £25 to £600 per annum, together with board, residence and laundry. Emoluments valued at £150 per annum for Superannuation purposes.

The appointment is a designated post under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Application forms to be obtained from the Medical Officer of Health, Municipal Health Centre, Warrior Square, Southend-on-Sea, and should be returned to him on or before October 19th, 1938.

Town Clerk's Office, Southend-on-Sea. H. J. WORWOOD, Town Clerk.

CITY OF PORTSMOUTH.

TEMPORARY AIR RAID PRECAUTIONS MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from registered medical practitioners for the post of Temporary Air Raid Precautions Medical Officer and Assistant Medical Officer of Health for a period not exceeding one year in the first place, at a salary of £500 per annum. The duties of the appointment will be whole time, under the direction of the Medical Officer of Health, and will be concerned mainly with the teaching of first aid and with the training of candidates who have had experience in Air Raid Precautions Services. Preference will be given to candidates who have had experience in first aid.

Forms of application, giving particulars of previous work and training, should be forwarded to the Medical Officer of Health, 17, Guildhall, Portsmouth, not later than 10 a.m. on Friday, October 7th, 1938.

Portsmouth. F. J. SPARKS, Town Clerk.

September 20th, 1938.

COUNTY BOROUGH OF WOLVERHAMPTON

NEW CROSS HOSPITAL.

ADDITIONAL APPOINTMENT.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER (male) at the above Hospital which contains 350 beds, including Maternity, Surgical, Maternity, and Children's Wards, and a modern fully equipped.

Candidates with experience in the administration of anaesthetics and who have held previous hospital posts will be preferred.

The appointment is limited to a term not exceeding one year, with full residential emoluments, and full salary at the rate of £250 per annum, and stating age, qualifications, and experience, together with copies of three recent testimonials, should be addressed to—

A. G. ALDRIDGE, Public Assistance Officer.

Stafford Street, Wolverhampton.



Appointments for Medical Officers in the ROYAL AIR FORCE

Medical men are invited to apply for Short Service Commissions in the Royal Air Force. Candidates must be registered under the Medical Acts and be not more than 31 years of age on entry.

The period of service is 3 years—extendible to 5 years. A gratuity of £400 or £1,000 is payable at the termination of 3 or 5 years respectively. Permanent commissions are awarded in a number of cases. These offer a pensionable career with the opportunity of extra leave on full pay for specialised study. Applicants who hold—or are likely to hold—post-graduate appointments in civil hospitals may, on joining the Royal Air Force, be seconded until the termination of their appointments (for a period not exceeding one year). An antedate of commission up to twelve months is allowed for appointments held at approved hospitals.

*Fuller information can be obtained from The Director
of Medical Services, Air Ministry, Kingsway, London.*

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in January, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list, and periods of unemployed or half pay are very rare. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than November 21st, 1938.

COUNTY BOROUGH OF CROYDON.
PUBLIC HEALTH DEPARTMENT.
ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from qualified Medical Practitioners for the above appointment. Applicants must be single medical men holding a special qualification in State Medicine, or a Diploma in Public Health, and must have had three years' experience of the practice of medicine since obtaining their medical qualifications.

Preference will be given to applicants who: (a) have had experience in Infectious Diseases, and (b) who have had some experience in the Aliens' Order, 1920, and port medical work.

The candidate appointed will live at the Borough Infirmary Hospital, and will be required to undertake duties at the Croydon Aerodrome in connection with the Aliens' Order, 1920, and the Public Health (Miscellaneous) Regulations, 1938, and any other duties which may be assigned to him from time to time by the Medical Officer of Health. The candidate appointed will be required to produce a recent satisfactory medical certificate of health, and to devote the whole of his time to the duties of the office.

The salary will be £400 per annum, rising by annual increments of £25 to a maximum of £600 per annum, with board and lodging at the Borough Hospital, Purley Way, Croydon, valued at £100 per annum.

Application forms may be obtained from the Medical Officer of Health, Town Hall, Croydon, and should be returned to him, accompanied by copies of not more than three testimonials of recent date, not later than 11 a.m. on Monday, October 17th, 1938.

I. TARNER,

Town Clerk.

September 27th, 1938

COUNTY BOROUGH OF BIRKENHEAD.
DEPARTMENT OF THE MEDICAL OFFICER OF HEALTH

BIRKENHEAD MUNICIPAL HOSPITAL.
(160 Beds.)

SENIOR RESIDENT MEDICAL OFFICER.

Applications are invited for the above appointment at the Birkenhead Municipal Hospital.

Candidates must be male, unmarried, and duly qualified registered medical practitioners. As the duties are almost entirely of a medical nature preference will be given to candidates who have obtained higher qualifications in medicine and who have had previous medical experience at either a Voluntary or Municipal Hospital.

The appointed candidate will be a member of the staff of the Medical Officer of Health.

The remuneration attached to the appointment will be £350 per annum, rising by annual increments of £25 to a maximum of £450 per annum, together with board, residence, laundry, etc.

The appointment is subject to the Local Government and Other Officers' Superannuation Act, 1922, and is determinable by three calendar months' notice on either side.

Forms of application and further particulars relating to this appointment can be obtained from Dr. D. Morley Matheson, Medical Officer of Health, 9, Hamilton Square, Birkenhead.

Conveyance, direct or indirectly, will disqualify the applicant.

Applications, endorsed "Senior Resident Medical Officer," should reach the undersigned not later than Saturday, October 22nd, 1938.

Town Hall, Birkenhead.

E. W. TAME

Town Clerk.

SWANSEA COUNTY BOROUGH.

RESIDENT MEDICAL OFFICER.

HILL HOUSE INFECTIOUS DISEASES HOSPITAL.

The Council invite applications for the above appointment from duly qualified unmarried (male) Medical Practitioners. The salary will be at the rate of £350 per annum, together with emoluments. Previous experience in an Infectious Disease Hospital is desirable. The appointment is for one year. Applications (on special forms with particulars of duties) can be obtained from the Medical Officer of Health, Public Health Offices, Swansea, to be sent in not later than Wednesday, October 19th, 1938.

A. TRINCHAM GENERAL HOSPITAL.
(100 Beds.)

Applications are invited for the posts of (1) SENIOR HOUSE SURGEON, salary at the rate of £150 per annum, and (2) JUNIOR HOUSE SURGEON, salary at the rate of £120 per annum, both with board, etc., to commence duty on or about November 6th and 12th, 1938, respectively. Applications stating age, nationality, qualifications, etc., to be addressed to the undersigned as soon as possible.

E. A. BIDEN,

Secretary.

KENT AND SUSSEX HOSPITAL, TUNBRIDGE WELLS. (210 Beds.)

Applications are invited for the post of RESIDENT SURGICAL OFFICER. Salary £250 per annum, with board, residence, and laundry in the Hospital.

The Hospital includes the following departments: Medical, Surgical, Ear, Nose and Throat, Ophthalmic, Orthopaedic, Gynaecological, Radium, X-Ray and Electro-therapeutic Massage, Pathological, Venereal Disease, etc.

In addition to the Resident Surgical Officer the Resident Staff includes:

One Senior House Surgeon.

One Casualty Officer and Junior House Surgeon.

One House Physician.

One Ear, Nose and Throat, and Ophthalmic House Surgeon.

Applications, stating qualifications, together with certificate of registration and copies of not more than three recent testimonials, should be sent to the undersigned as soon as possible. The appointment will be for twelve months.

TOM B. HARRISON,

October 4th, 1938. Superintendent-Secretary.

COVENTRY & WARWICKSHIRE HOSPITAL, Coventry. (347 Beds.)

Applications are invited for the following Resident Appointments which become vacant on November 1st next.

One CASUALTY OFFICER.

One HOUSE PHYSICIAN.

One HOUSE PHYSICIAN (combining also the duties of HOUSE SURGEON to the Ophthalmic Department).

One HOUSE SURGEON to the Ear, Nose and Throat Department.

Three HOUSE SURGEONS to the General Surgical Department.

Each appointment is for a period of six months, and carries a salary at the rate of £150 per annum, together with board, quarters and laundry.

Applications, stating age, Medical School, qualifications, and accompanied by copies of any recent testimonials, should be addressed to the undersigned, and must be received not later than Friday, October 14th.

S. C. HILL,

House Governor and Secretary.

COUNTY MENTAL HOSPITAL, Whittingham, near Preston.

Wanted, ASSISTANT MEDICAL OFFICER. Single £550 per annum, rising to £600 after one year's satisfactory service. If the candidate has or obtains the Diploma in Psychological Medicine an additional £50 per annum will be paid. A deduction of £150 per annum is made from salary for board, furnished apartments, attendance, and washing.

Applications, together with copies of testimonials, and full particulars should be sent to the Medical Superintendent, and must be received not later than October 19th, 1938.

ABERDEEN ROYAL MENTAL HOSPITAL.

Applications are invited for the position of JUNIOR ASSISTANT PHYSICIAN (male or female) in Aberdeen Royal Mental Hospital. Preference will be given to those who have had General Hospital experience. Salary will commence at £300 per annum, with board, rooms and laundry.

Applications, stating age and qualifications, with full particulars of experience and copies of testimonials, should be sent to the Physician-Superintendent.

BEXHILL HOSPITAL, BEXHILL-ON-SEA.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male or female).

The appointment is for a period of six months. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, experience, and qualifications, accompanied by three recent testimonials, should be received by the undersigned as soon as possible.

P. E. WINDO,

Secretary.

October 3rd, 1938.

MARGATE AND DISTRICT GENERAL HOSPITAL. (95 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male).

Salary £150 per annum, with board and laundry. Duties to commence November 1st, 1938.

Applications, accompanied by copies of testimonials, should be addressed to the Secretary at the Hospital as early as possible.

PRESTON ROYAL INFIRMARY.

Applications are invited for the post of HOUSE SURGEON to the Eye, Ear, Nose and Throat Department. Salary at the rate of £150 per annum, with board, residence and laundry.

Applications, stating age, qualifications, accompanied by copies of testimonials, to be forwarded to Mr. JOHN GUNSON, Superintendent and Secretary, Royal Infirmary, Preston.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.

Venctor, Isle of Wight.

ASSISTANT RESIDENT MEDICAL OFFICER (male), unmarried, for six months commencing November 1st, 1938. Salary at the rate of £250 per annum, with board, residence, and laundry allowance. The successful candidate will be eligible for reappointment for a further six months at a salary at the rate of £275 per annum, with similar emoluments.

Candidates must be fully qualified in Medicine and Surgery, and previous experience in Tuberculosis and Bacteriological work will be an advantage. The appointment affords experience in Sanatorium and Surgical treatment of Pulmonary Tuberculosis.

Applications, in candidates own handwriting stating age, qualifications, and experience (with one copy of three recent testimonials), to be sent to the Medical Superintendent, Royal National Hospital for Consumption, Venctor, Isle of Wight, not later than Thursday, October 20th, 1938.

THE STOCKPORT INFIRMARY. (140 Beds.)

Applications are invited for the post of HOUSE SURGEON. (This post is recognized by the Royal College of Surgeons under paras. 21 and 23 of the F.R.C.S. Regulations.)

Applicants must be male and unmarried. Salary £150 per annum, with board, residence, and laundry.

Duties to commence on November 2nd, 1938.

The Resident Staff consists of a Resident Surgical Officer, two House Surgeons, and a House Physician.

Applications, together with copies of three recent testimonials, stating age, nationality, and qualifications, to be sent to the undersigned not later than October 12th, 1938.

H. G. PRICE,

Secretary-Superintendent

SOUTHEND-ON-SEA GENERAL HOSPITAL. (235 Beds—8 residents—Hon. Specialist Staff of 20 Members.)

Applications are invited for the post of RESIDENT ANAESTHETIST (male); duties to commence immediately. The appointment is for six months (renewable). Salary £125 p.a., with board, residence, and laundry.

Applications, with names of those to whom reference can be made, should be sent to the undersigned not later than October 19th, 1938.

P. H. CONSTABLE,

Secretary

STIRLING DISTRICT MENTAL HOSPITAL, Lairbair.

JUNIOR ASSISTANT MEDICAL OFFICER required (male). Commencing salary £300 per annum, rising by annual increments of £25 to £400 per annum, with board, lodging, and laundry. Appointment subject to provisions of Asylums Officers' Superannuation Act. Apply, stating age and experience, with testimonials, to the Medical Superintendent.

THE SAMARITAN FREE HOSPITAL FOR WOMEN.

Marylebone Road, N.W.1.

Applications are invited for the post of HOUSE SURGEON for a period of six months, commencing November 15th next. Salary at the rate of £100 per annum, with board, lodging, and laundry. Previous experience as House Surgeon essential.

Applications, stating age, accompanied by not only of testimonials, should be sent to the Secretary at the Hospital on or before Thursday next, October 27th, 1938.

G. H. HAWKINS,

Secretary

THE WEIR HOSPITAL. Weir Road, Balham, S.W.12. (30 Beds.)

SENIOR RESIDENT MEDICAL OFFICER (male, unmarried) required the middle of October. Salary £250 per annum, with board, residence, and laundry. Candidates must be fully qualified and duly registered.

Applications, with copies of three recent testimonials, to be sent to the Secretary, from whom further information may be obtained.

Information may be obtained.

THE WILLESDEN GENERAL HOSPITAL. Harlesden Road, N.W.10.

Applications are invited for the appointment of CLINICAL ASSISTANT (Honorary) to the Medical Out-patient Department (Two day afternoon session).

Applications should be forwarded to the Secretary, from whom further details of the appointment may be obtained, and should be received not later than first post on Wednesday, October 12th, 1938.

- September 26th, 1938

PADDINGTON GREEN CHILDREN'S HOSPITAL (Incorporated), London, W.2.

HOUSE PHYSICIAN.
HOUSE SURGEON.

These appointments will become vacant on November 1st, 1938. Gentlemen (unmarried) are invited to send in their applications, with copies of three testimonials, to the undersigned not later than Friday, October 14th, 1938. Salary of each at the rate of £150 per annum, with board and residence.

Candidates who have held a responsible Resident Hospital appointment are preferred. The appointments are for a period of six months.

JAMES A. HAMLIN,
Secretary.

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES, London, W.9.

RESIDENT MEDICAL OFFICER required November 1st.

HOUSE PHYSICIAN required November 1st. Salaries are at the rate of £150 and £100 p.a. respectively, and the appointments are for six months. Candidates for the post of R.M.O. should state if they are willing to take that of H.P.

Applications, accompanied by copies of three recent testimonials, should reach me by October 18th. The accommodation at the Hospital does not permit of women graduates holding these appointments.

L. C. DIXON,
Secretary and General Superintendent.

ST. MARY'S HOSPITAL, W.2. CASUALTY HOUSE SURGEON

Applications are invited for the above post from duly qualified candidates. Candidates must have been House Surgeons for a full period of office to this Hospital, or to some other General Hospital approved by the Board.

The salary is £100 per annum, with board and residence, and the appointment is for six months.

Application, with copies of testimonials not exceeding three in number, should reach the undersigned (from whom particulars may be obtained) on or before Tuesday, October 18th, 1938.

W. PARKES, House Governor.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL

SURGICAL REGISTRARS. The Committee invite applications for the appointments of three Registrars (male) as from November 1st. Candidates who have obtained the F.R.C.S. (Eng.) will be preferred. Honorarium £105 per annum. The appointments are for twelve months, renewable for a further twelve months on the recommendation of the Medical Board.

Applications, with copies of three recent testimonials, should reach the Secretary, 234, Great Portland Street, London, W.1, not later than October 12th.

LONDON CHEST HOSPITAL, Victoria Park, E.2. (Bus Tram, and Rail, L.N.E.R. Cambridge Heath Station.)

The Committee of Management invite applications for the post of ASSISTANT SURGEON. An Honorarium is attached to the post.

Applications should be forwarded to the undersigned on or before October 31st, 1938.

THOMAS BROWN,
Secretary

LONDON HOSPITAL, E.1

There is a vacancy for the post of CLINICAL ASSISTANT in the X-Ray Department. Candidates must be fully qualified medically. Experience in Radiology is essential. The Honorarium of the post is £100 per annum.

Applications, with testimonials, should be sent to the House Governor, and should arrive not later than Saturday, October 22nd.

ARTHUR G. ELLIOTT,
House Governor.

KING GEORGE HOSPITAL, ILFORD

The Board of Management invite applications for the post of HONORARY SURGEON to the Hospital, a vacancy occurring on January 1st next. Applications, which may be typewritten, should be addressed to the undersigned, by whom they should be received not later than October 31st. Further particulars available upon request.

G. AUSTIN HEPPWORTH,
Secretary and Superintendent

KING'S COLLEGE HOSPITAL, London, S.E.5

Applications are invited for the post of ASSISTANT OPHTHALMIC SURGEON. Particulars may be obtained from the House Governor, to whom applications (accompanied by copies of three testimonials) should be sent not later than October 31st.

WEST LONDON HOSPITAL, HAMMER-SMITH, W.6. (239 Beds)

There is a vacancy for the newly created post of HONORARY PHYSICIAN for PSYCHOLOGICAL MEDICINE. Candidates, who may be men or women, should be Members or Fellows of the Royal College of Physicians, and should have had some experience in Child Psychiatry. A Diploma in Psychological Medicine is desirable. The candidate appointed would be expected to undertake at least one Out-Patient Session per week and such teaching as may be required by the Medical School. The appointment does not carry with it the charge of any Hospital beds.

Applications, accompanied by copies of testimonials, must reach me by first post on Thursday, October 20th. Candidates must attend a meeting of the Medical Council at 4.30 p.m. on Friday, October 21st, and prior to that date call upon and send copies of their application and testimonials to each member thereof. They must not canvass members of the Board, but, nevertheless, must send copies of their application and testimonials to each member thereof and, if so notified, be in attendance at a meeting of the Board at 5 p.m. on Tuesday, October 25th, when the appointment will be made.

H. A. MADGE, Secretary.

WEST LONDON HOSPITAL, HAMMER-SMITH, W.6. (239 Beds.)

An additional HONORARY REGISTRAR is required for the Throat, Nose, and Ear Department. The appointment is for one year from November 1st next and, subject to annual re-election, may be extended for a period of not longer than three years.

Applicants must be duly qualified registered Medical Practitioners with previous experience in otolaryngology.

Applications, accompanied by copies of testimonials, must reach me not later than Thursday, October 20th, first post. Candidates must attend a meeting of the Medical Council at 4.30 p.m. on Friday, October 21st, and, prior to that date, call upon and send copies of their application and testimonials to each member thereof. They must not canvass members of the Board but, nevertheless, must send copies of their application and testimonials to each member thereof and, if so notified, be in attendance at a meeting of the Board at 5 p.m. on Tuesday, October 25th, when the appointment will be made.

H. A. MADGE,
Secretary.

WEST LONDON HOSPITAL, Hammersmith, W.6. (239 Beds.)

CHIEF ASSISTANT to the Department for TREATMENT OF INJURIES required. The post is a resident one and the duties commence on November 1st. Salary at the rate of £200 a year, with board and lodging. Candidates must be duly qualified registered Medical Practitioners, and it is desirable that they should possess one of the higher Surgical Degrees or Diplomas. They must have had special experience in the treatment of fractures.

The appointment will be terminable by a month's notice on either side, will be for a period of six months in the first instance, but this period may be extended.

Applications, which must be made on printed forms obtained from me, must reach me not later than the first post on Thursday, October 20th. Candidates will be required to call upon such members of the Medical Staff as directed: to be in attendance at a Medical Council Meeting at 4.30 p.m. on Friday, October 28th, and the House Committee Meeting at 5 p.m. the same day, when the appointment will be made.

H. A. MADGE, Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.2, (204 Beds.)

The Board of Management invite applications for the post of EAR, NOSE AND THROAT SURGEON. Candidates must be Fellows of the Royal College of Surgeons of England or of another recognized College. Attendance required, two half-days weekly. The appointed candidate will have charge of beds.

An honorarium to cover travelling expenses will be paid.

Further information may be obtained from the undersigned, to whom applications, with copies of three recent testimonials, should be sent not later than October 12th, 1938.

CHARLES H. BESSELL,
Secretary.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.1.

Applications are invited for the post of HOUSE PHYSICIAN (male) for six months (first two months in the Casualty and Out-patient Department). Salary at the rate of £120 per annum, with board and residence.

Applications, with copies of three recent testimonials, should be sent at once to the undersigned, from whom particulars can be obtained.

W. H. SIDNELL, House Governor.

FINSBURY DISPENSARY, FRIEND STREET, LONDON, E.C.1.

Applications are invited for the posts of RESIDENT and ASSISTANT RESIDENT MEDICAL OFFICERS (Ladies).

Duties will consist of attending patients at the Dispensary and home visiting. The Officers appointed will not be allowed to engage in private practice, but may lecture or pursue research work on condition that such work does not clash with their duties. Salaries at the rate of £250 and £200 per annum respectively. Turned-out apartments provided and a joint grant at the rate of £10 per annum made towards cost of employing servant, laundry, fuel, gas, and lighting.

Preferential consideration would be given to ladies who have been accustomed to working together.

Applications, stating age, qualifications, experience, and accompanied by copies of three recent testimonials, should reach the undersigned promptly.

ARTHUR W. PRIOR,
Secretary.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Road, W.C.1.

RESIDENT HOUSE SURGEON (Male).

There will be a vacancy for a Third Resident House Surgeon to enter on duty shortly. The appointment will be for a period of nine months, three months as Third House Surgeon, three months as Second House Surgeon, and three months as First House Surgeon. Remuneration at the rate of £75 per annum.

Applications, accompanied by copies of not more than three testimonials, should be sent to the undersigned immediately.

JOHN H. YOUNG,
Secretary-Superintendent

METROPOLITAN HOSPITAL, Kingsland Road, E.8.

APPOINTMENT OF SECOND GYNAECOLOGIST

Applications are invited for the above post. Candidates must be Fellows of the Royal College of Surgeons, England.

Applications (two recent copies), with recent testimonials, must be received by the 21st instant, addressed to the undersigned, from whom further particulars may be obtained.

FRANK JENNINGS,
House Governor and Secretary.

THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Road, S.E.1.

HONORARY ASSISTANT PHYSICIAN

There is a vacancy for an Hon. Assistant Physician at the above Hospital. The candidate should be a Fellow or Member of the Royal College of Physicians and a graduate of a University recognized by the General Medical Council.

Applications, accompanied by three testimonials, should be sent to the undersigned, of whom further particulars can be obtained, not later than October 25th, 1938.

J. H. TEASDALE, Secretary

THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Road, S.E.1.

RESIDENT MEDICAL OFFICER

There is a vacancy for a Resident Medical Officer at the above Hospital. The appointment is in the first instance for a period of six months, salary at the rate of £150 per annum, with board and residence.

Applications, with copies of testimonials, should be forwarded not later than Friday, October 21st, to the Secretary at the above address, from whom further particulars can be obtained.

THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Road, S.E.1.

There will be a vacancy on November 1st, 1938, for a HOUSE PHYSICIAN (male) at the above Hospital. The appointment is in the first instance for a period of six months. Salary at the rate of £110 per annum, with board and residence.

Applications, with copies of testimonials, should be forwarded not later than Friday morning, October 21st, to the Secretary at the above address, from whom further particulars can be obtained.

THE INFANTS HOSPITAL, Vincent Square, Westminster, S.W.1.

Applications are invited for the post of HONORARY ANAESTHETIST to attend on Monday afternoons. An honorarium of £25 per annum will be paid in respect of the appointment.

Particulars of the appointment, and information as to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications must be delivered not later than October 25th.

ARNOLD TUNSTALL, Secretary.

NORFOLK MENTAL HOSPITAL.

ASSISTANT MEDICAL OFFICER.

The Visiting Committee invite applications from duly registered Medical Practitioners for the appointment of Assistant Medical Officer. Salary £200 per annum, rising by £25 per annum to £450, with furnished apartments, board, attendance, etc., valued at £150 per annum. In the event of the applicant being married the salary will be £400 per annum, rising by annual increments of £25 to £450, together with unfurnished quarters, fuel, light, laundry, vegetables, and the privilege of withdrawing from stores at contract prices, valued at £100 per annum. If the selected candidate holds the Diploma of Psychological Medicine an additional £50 per annum will be paid. The appointment will be subject to the provisions of the Asylum Officers' Superannuation Act, 1907.

Applications, with copies of three recent testimonials, to be forwarded to the Medical Superintendent, Norfolk Mental Hospital, Thorpe, Norwich, Norfolk, not later than October 20th, 1938.

NORTH STAFFORDSHIRE ROYAL INFIRMARY, STROKE-ON-TRENT.

(130 Beds)—Including 36 Private Patients.)

SUCILLARY AND HOUSE GOVERNOR.

The General Committee invite applications for the post of Secretary and House Governor.

Age not under 35. Experience in a large general hospital having a Contributory Scheme essential. Licensed Superannuation Scheme in force. Salary £200 plus house, rising by annual increments of £50 to £1,000.

Applications, containing particulars of age, qualifications, and experience, accompanied by copies of three recent testimonials, should reach the undersigned by the first post on October 17th, 1938.

By Order,
W. SILVANSOON,
Secretary and House Governor.

NORTH STAFFORDSHIRE ROYAL INFIRMARY.

Stroke-on-Trent (300 Beds.)

HOUSE SURGEON (CASUALTY).

The Committee invite applications for the above post—half-duties in Casualty. Over 6,000 casualties per annum. Salary at the rate of £150 per annum, with board, residence, and laundry. The appointment will be made for six months, renewable. Suitable for the other resident posts as vacancies arise.

Applications, stating age and experience, with copies of two recent testimonials, to be sent to the undersigned immediately.

By Order,
W. STEVENSON,
Secretary and House Governor.

PETERBOROUGH AND DISTRICT MEMORIAL HOSPITAL.

(154 Beds.)

Appointment of SECOND HOUSE SURGEON and HOUSE PHYSICIAN.

Applications are invited from fully qualified male practitioners for the above posts. Duties to commence on November 1st next.

Salary £135 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, with copies of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained, as early as possible.

FRANK A. C. TAYLOR,
Secretary-Superintendent.

GENERAL HOSPITAL, NOTTINGHAM.

(389 Beds.)

ORTHOPAEDIC AND FRACTURE DEPARTMENT. A HOUSE SURGEON (male) is required for the above Department. The appointment is for six months, with salary at the rate of £150 a year, in board, residence, and laundry. Experience in the treatment of fractures desirable. Candidates are asked to send applications stating age, qualifications, and experience, together with copies of testimonials, to the undersigned.

Duties to commence as early as possible.
HENRY M. STANLEY,
House Governor and Secretary.

GENERAL HOSPITAL, NOTTINGHAM.

(389 Beds.)

A HOUSE SURGEON is required at the above Institution for the Ear, Nose and Throat Department, containing 40 beds and a large Out-Patient Department. The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry.

Candidates are desired to send applications, stating age, qualifications and experience, together with copies of testimonials to the undersigned. Duties to commence on December 1st, 1938.

HENRY M. STANLEY,
House Governor and Secretary.

ROYAL HALIFAX INFIRMARY.

Hospital recognized by the Royal College of Surgeons (England).

Wanted, a FIRST HOUSE SURGEON (male, unmarried). Candidates must be duly qualified and registered. The appointment will be for six months from November 1st, 1938, to April 30th, 1939. Salary, including all services required in connection with Paying Patients' Ward, £200 per annum, with residence, board, and laundry. The Resident Staff consists of Resident Surgical Officer and three House Surgeons. The Hospital contains 250 beds, including Maternity Department and Paying Patients' Block. There is also a Pathological Laboratory, a large Eye, Ear, Nose, and Throat Department, Radiological Department, and Radium Clinic.

Particulars of the duties may be obtained from the undersigned, to whom applications, stating age, nationality, and experience, together with copies of testimonials, should be sent not later than Monday, October 17th, 1938.

A. MIDDLEY,
Secretary.

DONCASTER ROYAL INFIRMARY.

(185 Beds.)

Applications are invited for the post of SENIOR RESIDENT OFFICER WITH CHARGE OF THE CASUALTY AND OUT-PATIENTS' DEPARTMENT.

The appointment in the first instance is for six months, but is renewable for further periods of like duration. The commencing salary is £200 per annum, rising by half-yearly increments of £25 per annum to a maximum of £300 per annum.

There are the usual residential emoluments. Applications, stating age, nationality, qualifications and experience, and accompanied by copies of three testimonials, should be forwarded to the undersigned.

R. LANCASTER,
Secretary-Superintendent.

DONCASTER ROYAL INFIRMARY

(185 Beds.)

HOUSE SURGEON (male) required immediately. Six House Surgeons are resident.

Salary at the rate of £150 per annum, with residence, board, and laundry.

This large Industrial area offers excellent opportunities for gaining experience.

Applications, accompanied by not more than three testimonials, to be sent to the undersigned immediately.

R. LANCASTER,
Secretary-Superintendent.

BIRMINGHAM AND MIDLAND EYE HOSPITAL. (114 Beds.)

Applications are invited from duly qualified Medical Practitioners for the post of HOUSE SURGEON at the above Hospital.

Salary £130 per annum (rising to £150 at the end of six months' satisfactory service) and £10 laundry allowance.

The Resident Staff consists of a Resident Surgical Officer and three House Surgeons.

Applications with testimonials and evidence of registration, should be forwarded immediately to the undersigned.

Church Street
Birmingham, 3.
J. W. PEARCE,
House Governor.

DORSET MENTAL HOSPITAL,

Dorchester.

JUNIOR ASSISTANT MEDICAL OFFICER required. Salary £400-£25-£450; with apartments, board, attendance, and laundry, valued at £120, £50 extra for D.P.M. Laboratory facilities for research and clinical medicine; three Out-patient Clinics.

Study leave may be granted after approved service. General Hospital experience desirable.

Apply, with testimonials and references, to Medical Superintendent.

ROYAL LANCASTER INFIRMARY,

Lancaster.

(140 Beds.) Four Residents.

Applications are invited for the post of SECOND HOUSE SURGEON. Salary £175 per annum, with board, residence, and laundry. The appointment is for six months.

Applications, stating age, qualifications, experience and nationality, together with copies of three recent testimonials, to be sent to the undersigned.

FRANK A. MILNES,
Superintendent-Secretary.

PONTYPOOL AND DISTRICT HOSPITAL,

Pontypool, Mon. (75 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male). Salary £150 per annum, with board and laundry. The appointment is for six months from November 1st, 1938. Conditions of appointment and particulars of duties can be obtained from the undersigned. Applications must state age and qualifications.

N. A. BALL, Secretary.

THE ROYAL GWENT HOSPITAL,

Newport, Mon.

(210 Beds.) There is an Honorary Consultant Staff of 16 members. Six Resident appointments, two of which are officially recognized for the surgical practice required before admission to the Final Fellowship Examination of the Royal College of Surgeons.

Applications are invited for the following appointments, commencing from November 1st, 1938:

*SENIOR HOUSE SURGEON, salary £250 per annum; previous hospital experience is essential.

CASUALTY OFFICER, salary £150 per annum; previous hospital experience is essential.

HOUSE PHYSICIAN, salary £150 per annum.

SECOND HOUSE SURGEON, salary £135 per annum.

*THIRD HOUSE SURGEON, salary £135 per annum.

HOUSE SURGEON TO FRACTURE AND ORTHOPAEDIC DEPARTMENT, salary £135 per annum.

The appointments are for six months, subject to the provisions of the Rules as to notice, board, residence, and laundry are provided.

Applications should be forwarded to the undersigned as soon as possible, stating age, nationality, qualifications, and experience, together with copies of two recent testimonials.

ALAN RUDDLE,
Secretary-Superintendent.

The Hospital serves a large area and affords exceptional facilities for clinical experience; it is two and a half hours by train from London.

THE ROYAL EARLSWOOD INSTITUTION,

Redhill, Surrey.

(Under Medical Deficiency Acts.)

JUNIOR ASSISTANT MEDICAL OFFICER required. Applicants must be registered practitioners, males (British birth), unmarried. The appointment is for six months, but may be extended. Inclusive salary at the rate of £250 per annum, with board, residence, and washing. Good facilities for postgraduate studies, classes and examinations.

Applications, stating age, religion, and qualifications, with copies of three testimonials of recent date and two references to be sent at once to the Medical Superintendent at the Institution. The envelope to be endorsed "Assistant Medical Officer."

THE RADCLIFFE INFIRMARY, OXFORD

Applications are invited for the post of VISITING THORACIC SURGEON to the OSLER PAVILION, which contains 52 beds and is shortly to be enlarged. Honorarium £200 per annum. The appointment will be for a period of one year in the first instance, and thereafter subject to three months' notice on either side.

Applications, together with copies of testimonials, should be sent to the undersigned, from whom further particulars may be obtained, not later than October 22nd.

A. G. E. SANCTUARY,
Administrator.

VICTORIA HOSPITAL, BLACKPOOL.

(152 Beds.)

HOUSE SURGEON (Male) Required to Surgical Unit No. 1.

There are four resident Medical Officers. Appointment is for six months. Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, with copies of three recent testimonials should be sent to the

GENERAL SUPERINTENDENT.

THE DUCHESS OF YORK HOSPITAL FOR BABIES, MANCHESTER, 19.

Applications are invited for the post of HONORARY ASSISTANT VISITING PHYSICIAN, and should be sent, together with copies of testimonials, to the undersigned by October 19th, 1938.

LOUISE BAILEY,
Secretary.

THE SHEFFIELD ROYAL HOSPITAL

(392 Beds.)

Applications are invited for the post of RESIDENT SURGICAL OFFICER (male). Previous resident surgical experience is essential, as is the senior resident post. Salary £250 per annum, with board, residence, and laundry. Applications, with copies of testimonials, should be sent to the undersigned.

W. H. BOOTH,
Superintendent and Secretary.

THE SHEFFIELD ROYAL HOSPITAL

(392 Beds.)

The post of SURGICAL REGISTRAR (male) is a time, non-resident post shortly to vacant and applications are invited. Salary £300 per annum. Particulars may be obtained from:

W. H. BOOTH,
Superintendent and Secretary.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

| Town or District. | Town or District | Town or District. |
|--|--|---|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(contd.) | PUBLIC HEALTH |
| ABERTYSSWG MEDICAL AID SOCIETY (Medical Officer.) | MID-RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer.) | COUNTY OF DUNBARR |
| BLAENAVON MEDICAL SOCIETY. (Chief Medical Officer.) | NEATH AND DISTRICT. (Medical Aid Association.) | (Assistant Medical Officer of Health) |
| GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme.) | OGMORE VALLEY, GLAMORGAN. (Wynham Colliery Medical Aid Society.) (Workmen's Medical Scheme.) | DISPENSARY APPOINTMENTS |
| LWYNYPYIA, CLYDACH VALE. PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme.) | OAKDALE, MON. (Medical Officer for Medical Aid Association.) | LIMERICK CITY. (Whole-time Dispensary Medical Officers.) |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District. | Hon. Sec. of Division or Branch. | Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch |
|--|--|---|---|---|--|
| NEW SOUTH WALES (All Friendly Society Appointments.) | The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W. | VICTORIA (All Institute or Medical Dispensaries.) | The Honorary Secretary, Victorian Branch, British Medical Association, (Medical Society Hall, Albert St., East Melbourne, Victoria) | WESTERN AUSTRALIA (Contract and Lender Practices) | The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia. |
| QUEENSLAND (Brisbane Associate Friendly Societies Institute) | The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17. | | | | |

October 5, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

MINEHEAD AND WEST SOMERSET HOSPITAL, Minehead, Somerset.

Applications are invited for the post of RESIDENT HOUSE SURGEON (male or female) to this Hospital.

Duty to commence on October 29th. Appointment for a period of six months. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, experience, and qualifications, accompanied by copies of three recent testimonials, to be sent to the undersigned not later than October 22nd.

W. H. P. RODDA,
Secretary.

ANCOATS HOSPITAL, MANCHESTER, 4.

RADIOLOGICAL OFFICER, lady or gentleman. Whole-time appointment, non-resident, no private work allowed. Salary £400 per annum, with luncheon and tea. The appointment is for twelve months and is renewable. Candidates must hold the D.M.R.E. Diploma.

Applications, stating age and particulars of qualifications and experience, to be forwarded to the undersigned on or before October 12th, together with copies of three recent testimonials By Order of the Board.

HERBERT J. DAFFORNE,
General Supt and Secretary.

BETHLEM ROYAL HOSPITAL, MONKS ORCHARD, BECKENHAM, KENT.

Wanted, two RESIDENT HOUSE PHYSICIANS (unmarried) recently qualified in Medicine and Surgery.

The term of residence is for six months from November 1st next. To each officer an honorarium at the rate of £175 per annum will be paid, with apartments, complete board, and laundry. Written applications, with testimonials, are to be forwarded to the Physician-Superintendent at the Hospital, from whom copies of the duties can be obtained.

THE YORKSHIRE CHILDREN'S ORTHOPAEDIC HOSPITAL, Kirbymoorside, York. (124 Beds.)

Applications are invited for the position of HOUSE SURGEON (female) Salary £200 per annum, with board, residence, and laundry. Previous Orthopaedic experience is not necessary, but preference will be given to candidates who have held resident hospital appointments, and who are competent anaesthetists. The appointment is for one year, and renewable, and may be terminated by three months' notice.

Applications, with copies of not more than three recent testimonials, should be forwarded to me at the above address to arrive not later than the first post on Wednesday, October 12th, 1938.

P. HANKS,
Secretary

ROYAL EYE HOSPITAL, Penney Road, Eastbourne.

NON-RESIDENT HOUSE SURGEON required, to commence duty at once. The appointment will be for six months in the first instance.

Salary £100 per annum, and allowance in lieu of board-residence £175 per annum.

Applications, stating age, qualifications, and ophthalmic experience, together with recent testimonials, should reach the undersigned as soon as possible.

Before engagement candidates have to be interviewed by the Hon. Surgeon, from whom further particulars could be obtained in person.

H. BYGRAVE, Hon. Secretary.

THE HARTLEPOOLS HOSPITAL, Hartlepool. (95 Beds.) (Two Residents.)

Applications are invited for the position of HOUSE SURGEON.

Salary £150 p.a. with board, residence, and laundry, and appointment for six months, subject to a month's notice on either side.

Duties to commence on October 17th.

N. O. DEANS,
Secretary.

SWANSEA GENERAL AND EYE HOSPITAL. (136 Beds.)

Applications are invited for the undermentioned appointments (male), which will become vacant middle October:

(a) HOUSE SURGEON

(b) HOUSE PHYSICIAN.

Salary £150 per annum.

(c) CASUALTY OFFICER

Salary £150 to £175 according to experience.

Appointments for six months. Emoluments include board, residence, and laundry.

Applications, stating age, qualifications, experience, and nationality to be forwarded to the Secretary-Superintendent.

THE BIRMINGHAM UNITED HOSPITAL. (Medical School.)

Applications are invited for the post of ASSISTANT BACTERIOLOGIST.

Candidates must be Registered Medical Practitioners. Commencing salary £350 per annum.

Applications must be sent to the undersigned (from whom all further particulars can be obtained), stating age, experience, qualifications and nationality, with copies of recent testimonials, not later than Monday, October 24th.

The Centre Hospital, G. HURFORD,
Edgbaston, Birmingham, 15. Secretary

STOCKTON AND THORNABY HOSPITAL. Stockton-on-Tees. (140 Beds—3 Residents.)

JUNIOR HOUSE SURGEON required for a period of at least six months, to commence on or about October 16th, 1938. Salary £150 per annum, with board, residence, and laundry. Candidates must be duly qualified and unmarried.

Applications, stating age, nationality, and experience, together with copies of three testimonials, to be sent to the undersigned.

J. WILKINSON,
Secretary.

(Appointments continued on p. 62)

RATES FOR SMALL ADVERTISEMENTS

The Minimum Charge is 9/-, which covers up to 30 words. Extra words are charged 1/6 for 5 or less, e.g., 33 words would be charged as 35. Name and address should be included when counting words for cost.

If Box number is used, it should be reckoned as 5 words in the total.

CLOSING DAY—TUESDAY (noon)
The British Medical Association reserves the right to refuse or interrupt the insertion of any advertisement.

ADVERTISING MANAGER,
BRITISH MEDICAL JOURNAL,
B.M.A. House, Tavistock Square,
London, W.C.1.
Telephone: EUSION 2111

NOT CLASSIFIED

DOCTOR DONALD McHILL—WILL ANY doctor aware of the present or last known address of the above-named, who is believed to have practised in the Chiswick area of London and latterly in West Lothian, Scotland, kindly communicate with Address, No. 9242, B.M.A. House, Tavistock Square, W.C.1.

CIGARS. (ENDCUT) ALL HAVANA TOBACCO. GOOD SMOKES at a low price, quality guaranteed. Box of 50 for 25/-, post free.—Sole Manufacturers: J. J. FLEMING & Co., Ltd., 60, Piccadilly, London, W.1. (GRO. 1529.)

"BIZIN" CIGARETTES

THESE BIZINOS deliciously satisfying smokes. 50's or 100's at 6/3 per 100; 58/6 per 1,000, post free.—Sole Manufacturers: J. J. FLEMING & Co., Ltd., 60, Piccadilly, London, W.1. (GRO. 1529.)

"SOLACE CIRCLES" TOBACCO

THE finest combination ever discovered of Choice Natural Tobacco. Every pipeful an indescribable pleasure. 12/6 per 1 lb. tin, post free.—Sole Manufacturers: J. J. FLEMING & Co., Ltd., 60, Piccadilly, London, W.1. (GRO. 1529.)

NATIONAL ADOPTION SOCIETY, 4, BAKER STREET, W.1. Telephone, Welbeck 7211. OFFERS ASSISTANCE in the legal adoption of illegitimate and orphan babies into suitable family life. Chairman MRS. LADY GWYNETH CAVENDISH.

NEW VOCATION FOR LADIES QUALIFIED KENNEL MAIDS are in demand. TRAIN at the foremost school for kennel work, in beautiful surroundings, at the largest breeders, Whelpins. Experience with dogs of all breeds. Whelpins. Experience with showing. Particulars from Mrs. C. J. WATSON, 16, Palace Chambers, Bridge Street, S.W.1. Withcall 3838.

TELETYPE and scientific papers, theses, and books. Shorthand-typists always available. Proof-reading, indexing.—MARGARET WATSON, LTD., 16, Palace Chambers, Bridge Street, S.W.1. Withcall 3838.

TYPEWRITING, DUPLICATING, TRANSLATIONS—Experts in Medical work. TESTIMONIALS, THESES, etc., accurately copied in style that commands attention.—WOBURN BUREAU, Drayton House, Gordon Street, London, W.C.1 (close B.M.A. House). EUSION 1775.

WHEN YOU COME TO LONDON STAY AT THE HAMPTON RESIDENTIAL CLUB FOR GENTLEMEN, Hampton Street, N.W.1. Close King's Cross and Euston. 300 bedrooms. Close King's Cross and Euston. 300 bedrooms. 15/- to 22/6 p.w., incl. bath, attend., and boot cleaning. All meals à la carte in dining room. Mod. tariff. Large club rms., reading rm., study for students. Illus. pros., see EUSION 2244/5.

"WAITING ROOM NEWS," A NEW AND unique newspaper in miniature for your waiting room, contains no patent medicine advertisements. Your own address on it.—Specimen copy and subscription terms from CAMERON, 4, Blandfield Road, S.W.12.

ASSISTANCIES

WANTED IMMEDIATELY, INDOOR AND Outdoor ASSISTANTS for town and country practices, with and without view to Partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED IMMEDIATELY, ASSISTANT Indoor (soon outdoor), for Midland practice, married, age under 35. Salary £350, all found, plus £50 car allowance. Partnership in 12 months.—Address, No. 9121, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, OUTDOOR young unmarried male ASSISTANT for mixed general practice. South coast resort. Salary £300 all found. £52 car allowance. Full particulars; photo returnable.—Address, No. 9131, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, ASSISTANT TO live at branch surgery, unmarried. Salary £350, all found, plus car allowance £60, plus bonus. Young energetic principal. Midlands.—Address, No. 9231, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MID-OCTOBER OR APPROXIMATELY, ASSISTANT AND PARTNER, East London. Panel and private practice.—Address, No. 9227, B.M.A. House, Tavistock Square, W.C.1.

WANTED AT EARLY DATE, YOUNG single male outdoor ASSISTANT, English or Scottish and recently qualified preferred, for mixed practice in Essex, 30 miles from London. Salary £450. Own car essential. B.M.A. House, Tavistock Square, W.C.1.

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1. **EAST ANGLIA**—Unopposed country PRACTICE, personally known to us. Pleasant, woody and undulating district. Panel 1,400. Receipts £2,200 p.a. 2 years' purchase or near offer. Peace of house.2. **BRISTOL**—We have a genuine buyer who requires a PRACTICE in or near the City. Details will be treated in strict confidence.3. **BOURNMOUTH**—NUCLEUS in best part. Full details on application.4. **SOMERSET COAST**—PARTNERSHIP in country town. Panel over 1,400. Average £3,200 p.a., increasing. Third share to commence. 2 years' purchase. House ten.5. **BRISTOL**—WOMAN'S PRACTICE with excellent scope for increase. Full details on application.6. **LONDON, S.W.**—Panel 1,400. Receipts £1,200 last year. Premium £3,000. House rent.7. **MIDDLESEX**—PARTNERSHIP in rapidly increasing PRACTICE. Recently established. Receipts £990 last year. Half share at £1,100.8. **MIDLAND CITY**—PARTNERSHIP in pleasant part. Exceptional opportunity. Panel 2,500. £2,212 last year. Half share at £3,000 or near offer. Choice of house.9. **DURHAM**—Panel 2,135. Receipts £2,000 p.a. Old established 2 years' purchase or near offer.10. **LONDON**—We have several small PRACTICES available. Apply for details.

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(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION LTD.)

(FOUNDED 1880)

Tele. Address:
Triform, Westcent—London.

TAVISTOCK HOUSE SOUTH
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The Association has long been favourably known to the members of the Medical Profession as a thoroughly trustworthy and successful agency for the transaction of every description of Medical, Scholastic, and Accountancy business, and the BRITISH MEDICAL ASSOCIATION has every confidence in recommending its members to consult The Manager in all transactions requiring the services of a Medical Agent. Members of the British Medical Association may take advantage of a reduced scale of charges applicable to them.

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- 1 LONDON, N.4.—PRACTICE, averaging £1,400 p.a., in suburban district. Panel 1,450, increasing. House to rent. Scope. Premium two years' purchase.
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- 4 MIDDLESEX.—PRACTICE in growing district, within 11 miles of Marble Arch. Receipts past year £650. Panel 280. House to rent. Premium two years' purchase.
- 5 S. COAST HEALTH RESORT.—PARTNERSHIP (after Assistantship) in Practice, £2,526 p.a. Panel about 2,300. House to rent at £150 p.a., or other accommodation obtainable. One-third share at two years' purchase.
- 6 MIDDLESEX.—Steadily increasing PRACTICE, averaging over £1,570 p.a., in growing district. Panel 700. Well-situated house for sale. Good scope. Premium two years' purchase. Local hospital.
- 7 KENT AND SURREY BORDER.—PARTNERSHIP in Practice, averaging £3,600, in pleasantly situated small town. Panel over 1,500. Share worth £800 at first at two years' purchase. Applicant should be under 30, preferably graduate of Oxford or Cambridge and able to do minor surgery. Excellent cottage hospital. Prelim. Assistantship.
- 8 LONDON, S.E.—Good middle-class PRACTICE, doing over £1,000, in growing outlying district. Small house for sale or rent. Extra accommodation if required. Excellent scope. Premium £1,500, or near offer.
- 9 MIDLANDS.—ASSISTANT required with view to PARTNERSHIP in Practice in flourishing town. Receipts £2,100 (club worth nearly £700 p.a., and panel 2,700). One-third share at two years' purchase.
- 10 S.E. COAST.—PARTNERSHIP (with early succession) in non-dispensing Practice about £2,000 p.a. Very small panel. Attractive house for sale or rent, or suitable flat. Premium 7/10ths share two years' purchase. Hospital and possible vacancy for physician in two or three years.
- 11 EAST ANGLIA.—PRACTICE, averaging £1,340 p.a., in flourishing town. Clubs, and panel about 1,700. Good house for sale. Scope. Premium £2,700.
- 12 LONDON, S.W.—PRACTICE averaging over £1,250 p.a. Panel 1,000 and P.M.S. Good house with large garage and exceptionally nice garden for sale. Good scope. Premium £2,500, to include drugs, etc.
- 13 S. MIDLANDS.—PARTNERSHIP after Assistantship in middle-class Practice, about £2,700 p.a., in first-rate town. Good appointments and panel 1,300. House available. One-third share at two years' purchase.
- 14 N.E. COAST TOWN.—Residential seaside district. Old-established non-panel PRACTICE. Receipts over £1,100. Immediate scope for panel. Commodious house, garage and garden. Vendor retiring. Premium £750, or near offer.
- 15 LONDON, S.E.—PRACTICE doing about £600 p.a. in outlying residential suburb. Panel 1,000. Good house (5 bedrooms), garage and nice garden, for sale. Scope. Premium £1,200.

- 16 LONDON, N.W.—Non-dispensing PRACTICE, doing about £1,000, carried on by medical woman. Panel 793. Good house to rent. Suit either man or woman. Prem. £2,000.
- 17 LONDON, W.—Good-class non-dispensing PRACTICE, averaging £2,200, in one of the best residential parts. No panel. Attractive house in quiet district to rent. Premium one and three-quarter years' purchase.
- 18 HOME COUNTY.—Medical Woman's PRACTICE, over £1,600 p.a., in country town. Panel 250. Well-situated house for sale. Capable considerable development. Suitable for two medical women or medical man whose wife is also qualified. Premium £3,000, to include drugs.
- 19 LONDON, N.—Middle-class PRACTICE, about £3,000 p.a., in residential district. Panel about 1,150, increasing. Good well-situated residence to rent. Premium one and three-quarter years' purchase.
- 20 LONDON (Belgravia).—Good-class non-dispensing PRACTICE. Receipts past year, £1,180. No panel. Fees 10s. 6d. to £1 1s. Conveniently situated house. Price for lease £950. Unlimited scope. Premium £1,500.
- 21 HOME COUNTY.—PARTNERSHIP in Practice, averaging £3,500 p.a., in beautifully situated country town. Panel about 1,350. Choice of house. Incoming partner must be experienced and aged about 35-40. Premium one-half share two years' purchase. Hospital.
- 22 LONDON, N.7.—PRACTICE, about £2,000 p.a., including valuable appointments and panel 1,200. Small house, garage and garden, for sale or rent. Premium £4,000, or near offer.
- 23 LONDON, S.E.20.—PRACTICE, averaging £1,750 p.a., in suburban district (appointments returning about £350 p.a.). Panel 966. Modernized house with garage and garden. Rent £100 p.a. Premium 1½ years' purchase.
- 24 SOUTH OF ENGLAND.—PARTNERSHIP in non-dispensing Practice, £7,800 p.a., in residential watering place. Panel 2,000. Good house to be purchased. One-seventh share. Premium two years' purchase. Partner should be aged 28-35, and possess M.D. or M.R.C.P.
- 25 LONDON, S.W.—PARTNERSHIP in mixed class Practice, £4,360 p.a., in residential suburb. Panel 2,500. Very nice house with good garden for sale. Two-fifths share at first at one and three-quarter years' purchase.
- 26 SOUTH COAST.—PARTNERSHIP in steadily increasing Practice of £2,000 a year in growing district. Panel 1,000. One-third share at first at two years' purchase. Preliminary Assistantship.
- 27 LANCS.—Mixed PRACTICE, over £1,000 p.a. in large town. Panel over 1,000. Pleasantly situated house for sale. Scope. Premium £1,800, to include drugs, etc.
- 28 EASTERN COUNTIES.—Middle and working-class town PRACTICE. Cash receipts past 12 months £3,600. Panel 2,500. House (5 bedrooms, etc.), to rent on lease. Premium two years' purchase, or near offer.
- 29 S.W. OF ENGLAND.—Non-dispensing general and surgical PRACTICE, averaging £1,636 p.a., in favourable watering place. Small panel. House for sale or rent. Hospital. Premium £2,800.
- 30 KENT.—PARTNERSHIP in Practice in industrial town. Cash receipts last year £3,646. Panel about 1,400. House with 6 bedrooms and dressing rooms, to rent. Share of about £1,200 p.a., two years' purchase.

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Practices and Partnerships for Disposal (continued).

31 HOME COUNTIES.—PRACTICE about £750 p.a. in growing residential district, within 15 miles of London. Panel 540. Nice house, garage and garden, price £1,600. Purchaser should be English or Scottish. Premium £1,400.

32 MIDLANDS.—PRACTICE in very attractive village about 70 miles from London. Receipts past year nearly £750. Panel 535. Detached modern house for sale or rent. Premium 14 years' purchase, to include stock of drugs.

33 SUSSEX.—NUCLEUS, near coast. Receipts past year £270. Panel about 200. Charming house and garden for sale. Alternative house to rent if desired. Premium £450.

34 EASTERN COUNTIES.—PARTNERSHIP in old-established middle- and working-class Practice, £3,600, in country town. Panel 2,500. House available to rent. Premium one-third share two years' purchase.

35 S. COAST.—Non-dispensing PRACTICE of £1,250 p.a. in health resort. No panel, but ample scope. Commodious well-built residence with garage and garden for sale. Premium £1,000.

36 S. MIDLANDS.—PARTNERSHIP in Practice £4,400 p.a. in progressive town. Panel 2,000. House for sale or rent. One-fourth share two years' purchase. Graduate of Oxford, Cambridge or London preferred.

37 MIDDLESEX.—Old-established PRACTICE of £1,000 p.a. in developing town. Panel 880. Corner house with garage and garden, for sale. Premium two years' purchase.

38 LONDON, W.—Well-established non-dispensing non-panel PRACTICE of £1,000 p.a. in nice suburb. House, with garage and small garden for sale. Premium £1,000.

39 S. MIDLANDS.—Well-established PRACTICE, about £700 p.a., in good town. Panel 758. Detached corner house with garage and garden to rent. Premium £850.

40 KENT.—Steadily increasing Medical Woman's PRACTICE, within 10 miles of Charing Cross. Receipts this year over £600. Panel 193. Detached house with garage and garden to rent. Premium £850, or near offer.

41 S.E. COAST.—Easily worked middle-class PRACTICE of £600 p.a. oct. in summer resort. House (6 bed., etc.), in best part, with small garden and garage, for sale. Branch surgery rented at 10s. weekly. Panel 200. Scope. Prem. £1,200.

42 LONDON, W.12.—Old-established PRACTICE, about £800 p.a., in suburban district. Panel 900. Good house (4 bedrooms, etc.). Freehold for sale. Prem. two years' purchase.

43 SURREY.—PARTNERSHIP in Practice of about £3,000 p.a. in residential district. Panel 630. Modern house (4 bedrooms), garage, garden. To rent. Preference would be given to an F.R.C.S. One-half share £3,000.

44 E. ANGLIA.—Old-established country PRACTICE of about £2,200 p.a., within easy distance of coast. Panel 1,300. Well-built house to rent. Premium two years' purchase.

45 S. WALES COUNTY TOWN.—PARTNERSHIP in Practice, £2,800 p.a. Panel over 1,000. One-half share on reasonable terms. Partner must hold F.R.C.S. Eng. Hospital and excellent opportunity for surgical scope and appointment on staff. Preliminary Assistantship.

46 S.E. COAST.—PARTNERSHIP in non-dispensing Practice about £4,500 p.a. Panel 1,400. One-fifth or one-fourth share at two years' purchase. Preliminary Assistantship. Scotsman preferred.

47 LONDON, N.12.—Middle-class increasing PRACTICE in growing district. Receipts past year, £436. Panel 163. Modern labour-saving house for sale or rent. Premium £630.

48 S. WALES.—Contract and small private panel PRACTICE, over £1,900 p.a., in industrial district. Panel over 2,100. House with surgery premises to rent. Prospect of appointment. Premium £3,500.

49 LONDON, S.W.—ELECTRO-THERAPEUTICAL PRACTICE. Receipts, 1937, £1,727. Large consulting room and treatment room to rent. Premium £1,600, plus apparatus valued about £750.

50 LONDON, N.—LOCK-UP PRACTICE, £398 p.a., run by medical woman. Panel 327. Rent at surgery, 25s. weekly. Good scope. Premium £550.

51 N. WALES.—Popular seaside resort. Good-class chiefly non-dispensing PRACTICE, averaging £870 p.a. No panel. Excellently situated detached residence for sale. Good scope. Premium £1,400.

52 W. MIDLANDS.—PARTNERSHIP in Practice, averaging £6,000 p.a., in market town. Panel 3,500. One-sixth share at first at two years' purchase. Incoming partner should be aged 28/30, and able to do general surgery and minor E.N. and T. work. Hospital. Preliminary Assistantship.

53 N. MIDLANDS.—PRACTICE in residential district near progressive town. Receipts, 1937, £770. Panel about 100. House for sale. Good scope. Premium £900.

54 S. OF ENGLAND.—Well-established SANATORIUM for the open-air treatment. Receipts at present at rate of about £3,000 p.a. Prem. £1,000, include furniture, etc.

55 FRENCH RIVIERA.—Old-established PRACTICE. M.D. essential. Vendor at present in England.

56 S.W. ENGLAND.—Country PRACTICE, over £1,400, in beautiful part. Panel about 1,100. Exceptionally nice modern house standing in own grounds for sale. Hunting and shooting. Scope. Premium two years' purchase.

57 MIDDLESEX.—PARTNERSHIP in steadily increasing town Practice, about £2,000 p.a. Panel 1,800. House to rent. Premium one-half share two years' purchase. Applicant should be English or Scottish.

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B. S. OF SCOTLAND.—Country PRACTICE in lovely district. Receipts approximately £1,000. Panel 760. Exceptionally convenient house. Price £2,000. Premium for practice one and a-half years' purchase.

C. SCOTLAND.—Old-established City PRACTICE. Receipts approximately £2,400. Panel 2,500. House, price £900. Premium two years' purchase, or near offer.

D. YORKSHIRE.—Country PRACTICE. Receipts £1,200. Panel 500. Excellent house with garage. Price £1,200 freehold. Premium one and three-quarter years' purchase.

E. E. OF SCOTLAND.—Country town. Receipts last year, £685 (appointments £112, panel 565). Excellent house with garage and garden. Price £1,450. Premium £1,000.

F. N. OF SCOTLAND.—Country PRACTICE. Long established. Receipts approximately £1,000. Panel 275.

G. EDINBURGH.—PRACTICE doing £450. House must be bought. Premium, practice and house £1,650.

H. CENTRAL SCOTLAND.—Country town PARTNERSHIP, both partners retiring. Suitable for two or one with assistant. Receipts average £2,357. Panel 1,343. Excellent houses, prices £1,500 and £1,250. Premium for practice two years' purchase.

For further details apply The Manager, 21, Alva Street, Edinburgh. Terms on which the business of the Branch is transacted will be submitted on application to the Branch Manager, to whom all communications should be addressed.

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(The Scholastic, Clerical and Medical Association Ltd.)

(FOUNDED 1880)

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MULL.—Very old-established mixed Panel and Private PRACTICE. Cash receipts last year £2,020. Panel about 1,900. Good house with ample living and Professional accommodation; garage and small garden. To rent on long lease. Premium—1½ years' purchase.—No. 1170.
CUMBERLAND.—Steadily increasing mixed Panel and Private PRACTICE. Cash receipts last year £1,200. Panel 1,014. Scope. Good house, in excellent condition, with ample accommodation and separate surgery premises. Rent £40 p.a. Premium—1½ years' purchase.—No. 1174.
NEAR LIVERPOOL.—Very old-established middle and better working-class PRACTICE; in present hands 29 years. Average cash receipts last 3 years £1,846. Panel 765. Scope as district rapidly developing. Excellent house, 3 reception, 5 bedrooms, garage for 2 cars and nice garden. Premium—1½ years' purchase. Vendor retiring.—No. 1172.
MANCHESTER.—Old-established mixed-class PRACTICE in suburbs. Average cash receipts £1,380 p.a. Panel 838. Good corner house, 5 bedrooms, 3 Professional rooms, garage. Premium—1½ years' purchase.—No. 1150.
LANCS TOWN.—Very old-established mixed Panel and Private PRACTICE. Cash receipts last year £2,492. Panel 1,874. Scope. Excellent detached house, 3 reception, 5 bedrooms, 3 Professional rooms; garage and large garden. Premium—Practice—1½ years' purchase.—No. 1173.

own residence. Premium—1½ or 1½ share—2 years' purchase (to include drugs, book debts, etc.).—No. 1158.
LANCS TOWN.—PARTNERSHIP in old-established Practice in industrial town. Cash receipts £2,600 p.a. Panel 3,400. Incoming partner may be choice of two houses. Premium—1 share—2 years' purchase, to include choice of book debts, drugs, etc.—No. 1169.
LEEDS.—DEATH VACANCY.—Old-established Private PRACTICE. Cash receipts last year £1,171. No Panel. Good house, with ample accommodation to let on lease. Premium—best offer.—No. 1175.
NORTH-EAST COAST.—Old-established mixed Panel and Private PRACTICE. Cash receipts last year £2,160. Panel 2,220. Appointments (transfers) over £400 p.a. Good house, 2 reception, 3 bedrooms, 3 Professional rooms and appointments. Nice detached house and garden. Premium—Practice—1½ years' purchase.—No. 1164.

PRACTICE in pleasant Country Panel about 1,300. Scope. Cottage and garage. To rent. Premium—1½ years' purchase.—No. 1132.

BEDFORDSHIRE.—Well-established rural Country PRACTICE. Cash receipts £400 p.a. Panel 114. Good house available. Premium—£300.—No. 1055.

MANCHESTER.—Old-established middle and working-class PRACTICE in suburb. Cash receipts last year £2,527. Panel 2,200. Good receipts. Good semi-detached house, 2 reception, 3 bedrooms, garage and small garden. Premium—1½ years' purchase.—No. 1154.
YORKSHIRE (W.R.).—Old-established mixed-class PRACTICE in large town. Cash receipts last year £1,298. Panel 670. Good scope. Excellent residence to rent on lease. Premium—1½ years' purchase. Vendor retiring.—No. 1171.
NORTH STAFFS.—Very old-established better working and middle-class PRACTICE. Cash receipts last year £2,431. Panel 1,225. Scope, as district developing. Excellent house, 2 reception, 4 bedrooms, maid's room, separate surgery premises, garage and garden. For sale. Freehold. Premium—Practice—1½ years' purchase, or near offer.—No. 1120.

LANCS TOWN.—Very old-established mixed Panel and Private PRACTICE. Cash receipts last year £1,372. Panel 1,925. Scope. Premium—Practice—4 bedrooms, 3 Professional rooms (separate entrance). Premium—Practice—1½ years' purchase.—No. 1131.
NEAR MANCHESTER.—Very old-established middle and better working-class PRACTICE. Cash receipts over £2,600 p.a. Panel 1,450. Excellent detached house, 2 reception, 6 bedrooms, garage and garden, with tennis court. Premium—1½ years' purchase.—No. 1108.

LANCS TOWN.—Old-established mixed Panel and Private PRACTICE. Cash receipts last year £1,600 p.a. Panel nearly 4 bedrooms, garage and nice garden. Premium—1½ years' purchase.—No. 1168.
LANCS TOWN.—DEATH VACANCY.—Very old-established mixed Panel and Private PRACTICE; in late incumbent's hands over 50 years. Cash receipts approx. £1,400 p.a. Panel about 1,040. Scope. Good house, with ample accommodation. Premium—Practice—Best offer.—No. 1176.
YORKSHIRE (W.R.).—Old-established mixed Panel and Private PRACTICE. Cash receipts about £1,200 p.a. Panel 900. Scope. Excellent detached house, 2 reception, 4 bedrooms, garage and garden. Premium—1½ years' purchase, or near offer.—No. 1125.

NEAR MANCHESTER.—Very old-established middle and working-class PRACTICE in prosperous town. Very suitable for two friends in partnership, or may be run by one man and an Assistant. Cash receipts last year £3,320. Panel 3,000. Nice modern house, 2 reception, 4 bedrooms, garage and large garden. For sale at £1,177.
LANCS TOWN.—Unopposed Country PRACTICE, near to Manchester. Panel 340, plus mileage £1,000 p.a. 8 rooms, 2 Professional rooms, detached house, 8 rooms, 2 Professional rooms, 2 reception, 4 bedrooms, garage and garden. Premium—1½ years' purchase.—No. 1167.
NORTH-WEST LANCS.—PARTNERSHIP in old-established middle and better working-class Practice in pleasant town near Coast, owing to retirement of senior partner. Cash receipts last year £6,037. Panel 3,600 and appointments £450 p.a. Suitable for well-qualified physician, or one holding diploma in ophthalmology. Possible Hospital appointment. Purchaser may choose

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reception, 6 bedrooms, Professional rooms, garage and large garden. Premium—1½ years' purchase.—No. 1117.

CHESHIRE.—Old-established mixed Panel and Private PRACTICE in pleasant Country town. Average cash receipts £2,727 p.a. Panel 1,592. Attached house, 3 reception, 5 bedrooms, garage and large garden, with tennis court. Premium—1½ years' purchase.—No. 1140.

NORTHANTS.—Sound unopposed Country PRACTICE. Cash receipts approx. £1,600 p.a., of which £950 is derived from Panel and transfers. Appointments. Panel 900. Excellent house, 7 bedrooms, 3 Professional rooms, garage and pretty garden. Electricity. Main drainage and water supply. Price £1,200 or would let on lease. Premium—2 years' purchase.—No. 1160.

NORTH LANCS.—YORKSHIRE BORDER.—Old-established mixed Panel and Private PRACTICE; in present hands 20 years. Cash receipts £1,000 p.a. Panel 1,420 p.a. Well-built house, with 2 reception, 4 bedrooms, garage and garden (12 acres). Good house, 3 reception, 4 bedrooms, garage and garden (12 acres). Premium—best offer.—No. 1144.

YORKSHIRE (W.R.).—Old-established mixed Panel and Private PRACTICE in rural district. Cash receipts last year £1,186. Panel 1,354. Good house, 2 reception, 4 bedrooms, 3 Professional rooms; garden with tennis court. Rent £45 p.a. Premium—1½ years' purchase.—No. 1122.

MIDLAND SPA.—PARTNERSHIP in old-established PRACTICE. Cash receipts last year £2,500. Panel 1,200. Possible Hospital appointment. Excellent house available with garage and garden. Premium—1 share—2 years' purchase.—No. 1124.

MONMOUTHSHIRE.—Old-established PRACTICE. Cash receipts last year £2,113, of which £1,900 is from Contract work. Prospect of large increase. Good house, 3 reception, 4 bedrooms, garage and garden. Rent £150 p.a. Premium—best offer.—No. 1144.

LINCOLNSHIRE.—Mixed-class PRACTICE in prosperous town. Cash receipts last year £4,200 p.a. Panel 2,500. Good house, with garage and garden, to rent. Suit man whose wife is also a doctor. Premium—2 years' purchase.—No. 1164.

All communications to be addressed to the Branch Manager, BRITISH MEDICAL BUREAU, 33, CROSS STREET, MANCHESTER, 2.

BOVRIL MEDICAL AGENCY, LTD.

ALDINE HOUSE,

10-13 BEDFORD STREET, STRAND, LONDON, W.C.2.

Telegrams: BOVMEDICAL, LESQUARE, LONDON.

Telephone: TEMPLE BAR 1616 (3 Lines).

Chairman and Managing Director, Dr. J. FIELD HALL.

The maximum commission payable on the sale of any Practice or Partnership in Great Britain placed exclusively in the hands of this Agency is £50 (fifty pounds), which sum covers goodwill, drugs, surgery fittings, fixtures and furniture, instruments and book debts, but not house property. Schedule of Terms will be forwarded on application.

Accountancy and legal services furnished by the Agency, where desired, at moderate inclusive charges.

No charge is made to Principals for the introduction of Locum Tenens or Assistants.

NORTH LONDON.—Very sound upper- and middle-class PRACTICE averaging about £2,500 p.a. Panel of about 1,000. Excellent house, specially built, with ample accommodation. Freehold for sale. Premium 2 years' purchase.

WARWICKSHIRE.—PROSPEROUS TOWN.—ONE-HALF SHARE of good mixed-class practice, at present averaging about £1,500 p.a., with exceptional scope. Panel of 1,100 (steadily increasing). Choice of houses. Premium 2 years' purchase.

DEATH VACANCY.—LONDON, WEST.—Very old-established chiefly better-class PRACTICE. Receipts believed to be between £1,200 and £1,900 p.a. Selected panel of 600. Fees 10s. 6d. to 21s. Suitable house with 2 reception, 4 bedrooms, etc. Rent £150 p.a. Offers invited.

OUTLYING NORTHERN SUBURB.—Very sound PRACTICE in developing area, producing over £2,000 p.a., including panel of about 1,500. Very nice house and garden. Premium 2 years' purchase.

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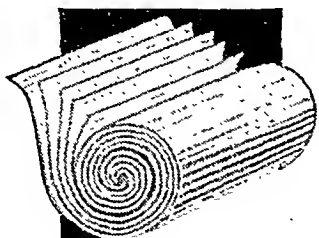
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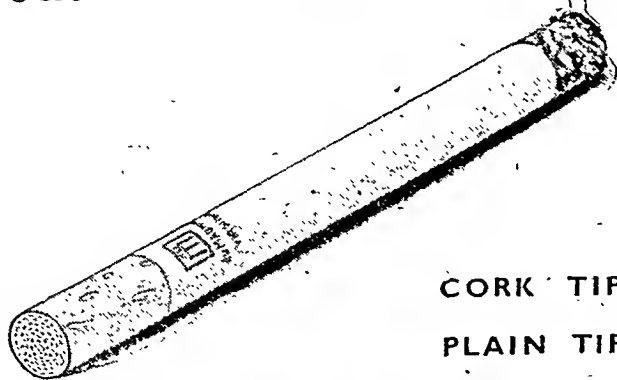
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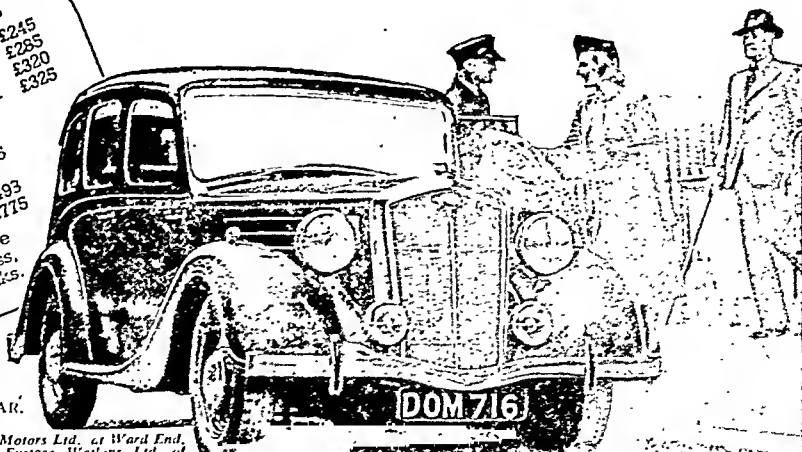
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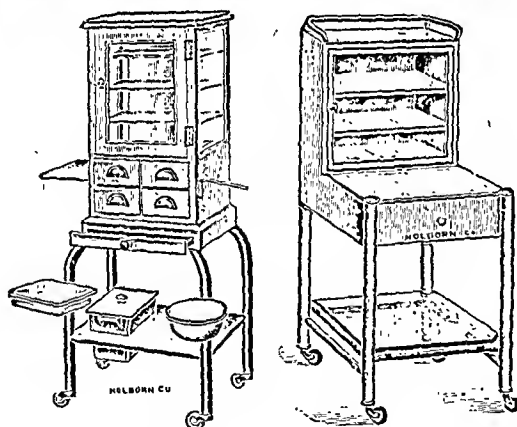
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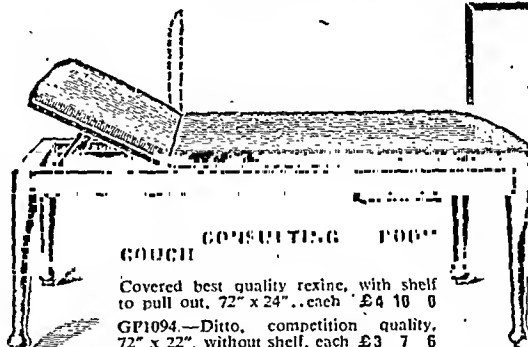
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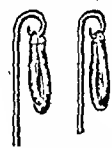
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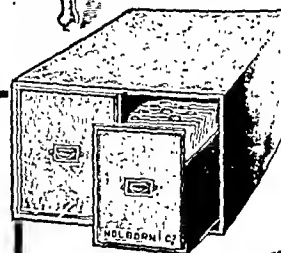


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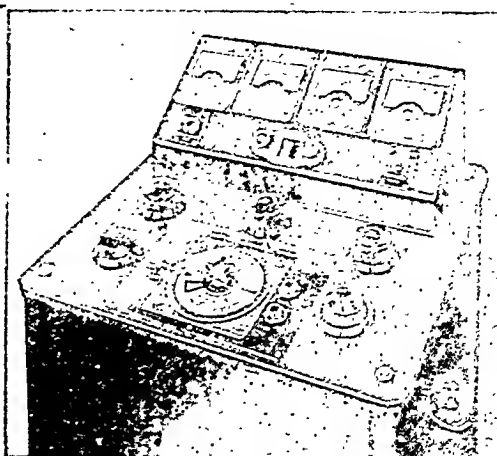
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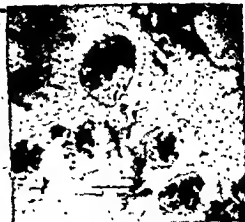


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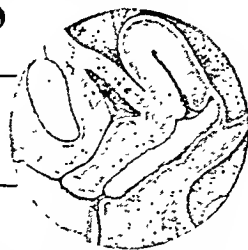


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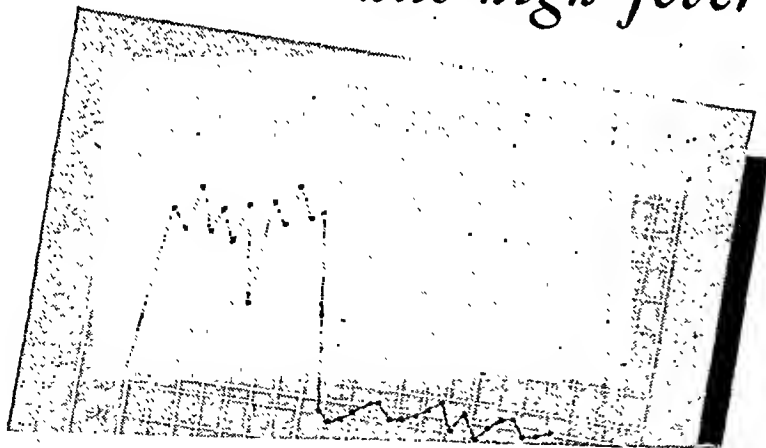
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HESPERIDIN TABLETS G.L.

(Vitamin P)

Associated with vitamin C in nature is found hesperidin—a flavone compound named "vitamin P" by Szent-Gyorgyi (Nature, 1936, 138.27).

Hesperidin is claimed to regulate vascular permeability: it appears to be effective in conditions involving increased permeability or fragility of the capillary wall.

Glaxo Laboratories Ltd. are now ready to supply tablets of hesperidin in standardised form for convenient administration. Each Hesperidin Tablet G.L. contains the equivalent of 0.25 gm. of the compound. The tablets are uncoated and without taste. Up to four tablets daily have been given with success.

IN BOTTLES OF
50 TABLETS 5/6.

This Price (not applicable in Eire) is subject to usual professional discount.

PRODUCT OF THE
GLAXO LABORATORIES



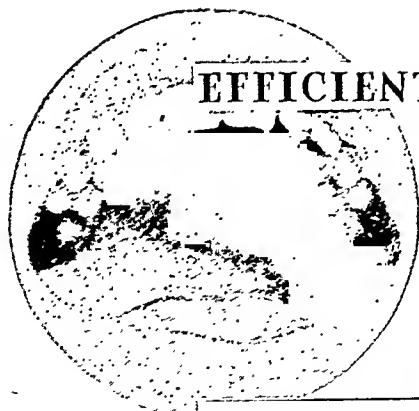
A report by two British investigators (Lancet, 1938, 2, 610) demonstrates that hesperidin can reduce the number of spontaneous and induced petechial haemorrhages in patients exhibiting general vitamin deficiency. The effect appears to be independent of the presence of vitamin C. The hesperidin, supplied for the trials by Glaxo Laboratories Ltd., was administered orally in doses of 1.0 gm. daily or less.

Hesperidin is clearly a dietary substance of some importance. It remains for further work to indicate its value and scope in clinical practice.

**To be shown for the first time at the London Medical Exhibition (Oct. 17th-21st). Stands No. 95, 96 and 109.*

GLAXO LABORATORIES LTD., GREENFORD, MIDDLESEX.

BYRON 3434



EFFICIENT

Oral ANTISEPSIS

demands HIGH GERMICIDAL
EFFICIENCY *plus* STABILITY
plus SAFETY

Regular gargling or spraying of the throat with an antiseptic is recognised as a valuable prophylactic measure against common winter ailments. For this important work, the selected antiseptic should possess certain 'plus' characteristics, in addition to efficient bactericidal action. Stability in the presence of saliva, mucus, blood and pus, and absence of caustic or irritant action are two vital additional properties, without which successful oral antiseptics is impossible.

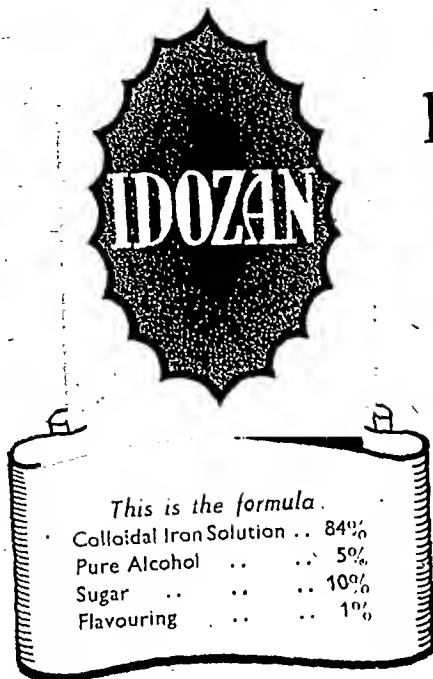
T.C.P. is indeed a 'plus' antiseptic, it combines the highest bactericidal efficiency with complete stability in the presence of organic matter. T.C.P. cannot harm or irritate the most sensitive tissues.

One other 'plus' feature—T.C.P. exerts a marked analgesic action, a grateful refinement in the treatment of painful inflammatory conditions of the throat.

BRITISH
ALKALOIDS
LTD., 69, OLD
BROAD ST.,
LONDON, E.C.2.,
will gladly send a
clinical sample of
T.C.P. to any
physician.

T.C.P.
*the plus
antiseptic*

To establish a strong positive Iron Balance



Idozan contains 5 per cent. assimilable iron. It is non-constipating and acts in fact as a mild aperient. Idozan is a neutral solution, and exerts no harmful effect on the teeth. A tablespoonful three times a day provides the patient with a daily intake of 2.25 grams of pure iron, and thus establishes, without contra indications, a strong positive iron balance.

Idozan is now made in England, and is regularly prescribed by doctors in no less than fifteen different countries.

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The most extensively prescribed iron preparation in the World.

Packings: 4 oz., 8 oz., 40 oz., and 80 oz. bottles.

Sample and literature sent post free on request to

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MARMITE

YEAST EXTRACT
for Vitamin B complex
in POLYNEURITIS

The close connection between polyneuritis and vitamin B₁ deficiency is well known. Not only is the polyneuritis of beri-beri considered to be due to deficiency of this factor, but so also is the polyneuritis associated with gastro-intestinal lesions, pregnancy, alcoholism and other toxic conditions.

Clinical tests have proved beyond doubt that Marmite therapy is effective in these cases of polyneuritis of nutritional origin. In a recent paper on peripheral neuritis, associated with pyloric stenosis and deficiency of vitamin B₁, it is recorded that the patient

"was advised to take Marmite, 2 drachms daily . . . made a gradual improvement and returned to work . . . still takes Marmite. . ."

(Lancet, May 7th, 1938, p. 1045.)

Sample and
literature
on request

THE MARMITE FOOD EXTRACT CO. LTD. - 35, Seething Lane - London, E.C.3

Jars: 1-oz. 6d., 2-oz. 10d., 4-oz. 1s. 6d., 8-oz. 2s. 6d., 16-oz. 4s. 6d.

Special terms for packs for hospitals and welfare centres.

Relief from the first application



Immediate relief from the discomforts of nasal congestion due to head colds, catarrh and hay fever, can be obtained from the use of 'Endrine,' which promotes nasal ventilation and sinus drainage.

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NASAL COMPOUND

Samples gladly sent on request to—
JOHN WYETH & BROTHER LTD.
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TRADE MARK

BRAND

ORAL COLD VACCINE

FOR PROPHYLACTIC IMMUNISATION TO RESPIRATORY INFECTIONS AND
PARTICULARLY TO THE COMMON COLD.

ISSUED IN PACKAGES OF 20 and 60 'PULVULES' brand filled capsules.

ELI LILLY AND COMPANY LIMITED,

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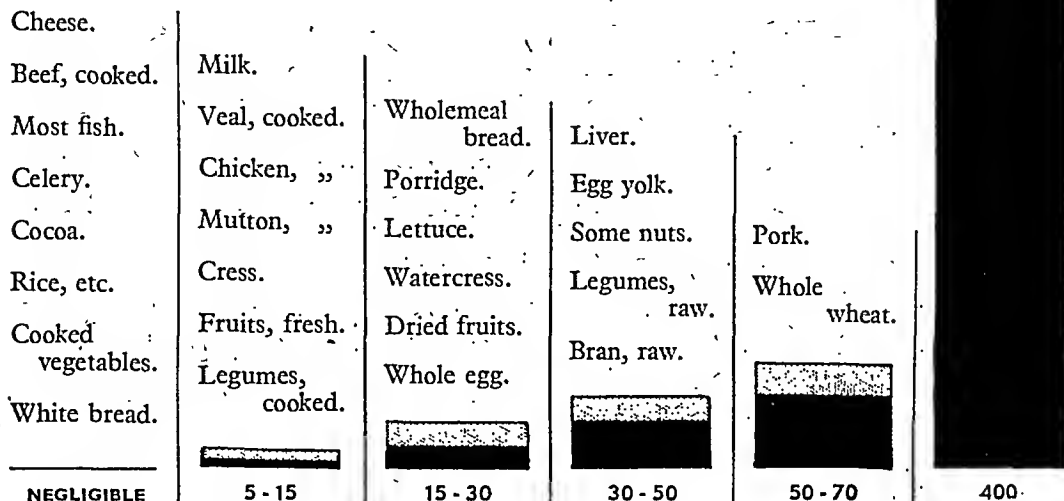
Distributing Agent in Britain for

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VITAMIN B₁ IN FOODS

Biochemical J., 1935, and other sources

BEMAX



The figures represent International Units per ounce.

"The grain products are the backbone of the nutrition of most races of the earth. As a rule they are our cheapest food fuel."

from "YOUR DIET AND YOUR HEALTH"

BREAD

... for energy

"Vitamin B₁ deficiency an outstanding fault in the diet of many millions of people"

(B.M.J., 16 Oct., 1937, p. 753)

The reduction in Vitamin B₁ intake, due to changes in dietary habits during the last hundred years, normally amounts to at least 50 per cent., and may be as much as 70 per cent. It has been demonstrated, both experimentally and clinically, that a shortage of Vitamin B acts as a limiting factor in the maintenance of health and nutrition, and often results in gastro-intestinal disorders, loss of appetite, indigestion, constipation and, if long continued, to neuritis and arthritis.

The logical way to rectify such shortage is to restore to the diet the Vitamin B-containing substance whose removal is responsible for the deficiency.

This substance is available in the form of Bemax.

For years it has been the policy of the proprietors of Bemax to ensure its Vitamin B₁ activity by biological assay of every day's output. So far as is known, Bemax is the only food product for which such a claim is or can be made.

The quantity of Vitamin B₁ supplied by the normal daily dose of Bemax—one tablespoonful—is 200 International Units, an amount sufficient to raise a deficient diet to an optimal level.

The normal daily dose of Bemax supplies, in addition to Vitamin B₁, significant quantities of Vitamin B₂ and B₆, Copper, Iron and Phosphorus as well as rich quantities of Vitamin E and other essential dietary elements.

Bemax is an entirely natural product consisting only of stabilised wheat germs selected for their Vitamin B₁ activity with no addition whatsoever. Clinical sample and literature on request. Vitamins Ltd., The Bemax Laboratories (Dept. B.69), 23, Upper Mall, Hammersmith, W.6.

Sterility and Habitual Abortion

The increasing use of Vitamin E for habitual abortion and sterility of dietary origin demands a wheat germ oil of proven high activity and of stable Vitamin value. Such an oil is available for the medical profession in Fertiol.

FERTIOL

- Wheat Germ Oil Capsules

A highly active source of Vitamin E.

A complimentary box of Fertiol Capsules and brochure sent on request.

Vitamins Ltd., The Bemax Laboratories
(Dept. B.69), Upper Mall, London, W.6.

*'... a very decided help especially in inflammatory
diseases of the lungs... I believe if it is used early it
will abort potential pneumonia cases' --- M.B. B.Ch.*

For more than a decade S.U.P. 36 has been employed with striking success for the control of inflammatory diseases of the respiratory system, and its use in every-day clinical practice for the treatment of influenza and pneumonia is now an established routine.

The administration of S.U.P. 36 has produced a satisfactory response in many other conditions in which pyrexia is an outstanding symptom. S.U.P. 36 is available in sterile solution in ampoules ready for intramuscular injection.

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THE BRITISH DRUG HOUSES LTD. LONDON N.1

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EVANS' ANTITOXINS

Diphtheria Antitoxins—

Concentrated

2,000 units per cc.

Super-Concentrated

3,000 (or more) units per cc.

Streptococcus Antitoxins—

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Tetanus Antitoxins—

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The use of the

B.D.H. GONADOTROPIC HORMONES

in the male

SEROGAN AND GONAN

Of the two B.D.H. gonadotropic hormones, Serogan and Gonan, Serogan stimulates the germinal epithelium of the testis, leading to active spermatogenesis; Gonan, on the other hand, acts primarily upon the interstitial cells and connective tissue, leading to increase in size of the testis, marked internal secretory activity and added mobility of the undescended organ.

Serogan is thus indicated in the treatment of impotence and sterility in the male, and Gonan in the treatment of undescended testes.

SEROGAN in the Treatment of Impotence and Sterility in the male

One ampoule of Serogan 200 R.U. (in resistant cases 1000 R.U.) should be administered by intramuscular injection twice weekly.

The length of treatment required depends, of course, upon the severity of the case, but carefully-controlled sperm-counts have shown that improvement may be expected in the majority of cases at the end of six to eight weeks' treatment.

GONAN in the Treatment of Undescended Testes

In the true cryptorchid in whom the testes are retained in the abdomen an injection of Gonan 500 R.U. intramuscularly is given twice weekly. In less severe cases, such as uncomplicated cases of canal-dwelling testis, the injections may be given once weekly.

*Further information in reference to these
products gladly supplied on request*

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Telephone: Clerkenwell 3000

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GLOBULIN **Lederle** MODIFIED

ANTITOXIN

THE GLOBULIN-MODIFIED *Lederle* technique, embodying the principle of peptic digestion, is the only practical procedure which permits such a high degree of concentration of antitoxin and reduction in the amount of troublesome proteins—the cause of serum reactions.

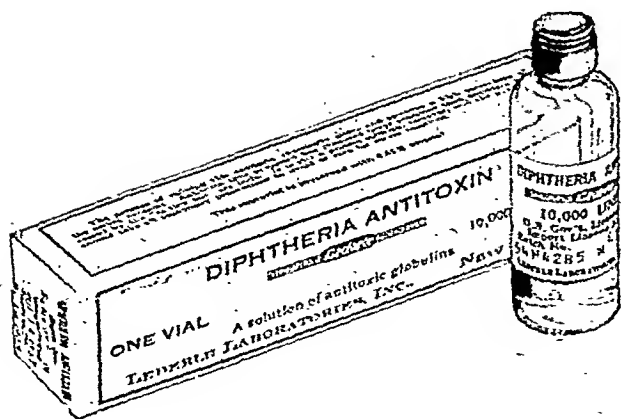
That is why Globulin Modified Antitoxins *Lederle* represent

- a reduction in the expected incidence and severity of serum disease;
- less inconvenience to the patient;
- a greater ease of administration;
- a greater potency per c.c.

DIPHTHERIA ANTITOXIN *Lederle* as prepared by the Globulin Modified Technique contains 6,000 to 7,000 units per c.c., except in the lower unitages where the volume is adjusted to facilitate ease of handling. A concentration which we believe has never been previously attained with commercially available antitoxins.

Since Diphtheria Antitoxin absorbs circulating toxins and checks the further spread of the toxæmia, prognosis is largely dictated by the promptness by which adequate dosage is injected and the route by which it is given.

The improved and refined *Lederle* product permits of the administration of large dosage in small bulk by the intravenous route without the fear of untoward reactions.



A PRODUCT OF THE
Lederle LABORATORIES
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Distributed in England by

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INDICATIONS FOR 'SANATOGEN'.

No. 17

FATIGUE IN CHILDHOOD

"I'm so tired!"

The Emeritus Professor of Diseases of Children at King's College Hospital has just written an interesting book on "Common Happenings in Childhood". One of his chapters begins with the words: "I'm so tired". The author points out that apart from the natural fatigue which vigorous exercise induces there is a morbid tiredness which is "unnatural". Examining the first hundred cases in his note book in which "tiredness" figures as a prominent symptom, this physician finds that nearly one-half of the children presented signs of faulty digestion.

Two factors presumably contributed to the pathologic state of these children—faulty absorption of essential food elements, and incomplete elimination of waste with consequent retention of toxic products. He concludes that in these cases there is some degree of starvation, and that the tissues consequently have less to draw upon for their "recuperation from the changes induced in them by fatigue".

When this symptom presents itself, 'SANATOGEN' has often been found of great value owing to its high protein and phosphorus content and its ready assimilability. 'SANATOGEN', containing 95 per cent. milk casein with 5 per cent. glycerophosphate of soda, is rapidly absorbed and utilised. It is non-irritative, and, in addition to its high nutritive value, it stimulates gastric functioning, increases appetite and promotes the digestion and absorption of other foods taken with it.

"I have found 'SANATOGEN' a most useful restorative after severe illness, childbirth, etc., and also in debilitated children."

—M.R.C.S., L.R.C.P.

"As for 'SANATOGEN', I have been using it for almost 30 years and ordered it with satisfaction in innumerable conditions. For non-thriving young children I think it is an excellent tonic."

—M.D., Ch.B., M.B.

"I could not bring about any improvement in a young girl I was attending. She was about fourteen years old, over six feet in height, thin and listless. In fact, the usual type who had 'outgrown her strength'. Her mother stated that she would never go out without her or with others of her age, liked school but dreaded going. In fact, she was so self-conscious that she was getting morbid. I tried the usual tonics but no improvement. I then prescribed 'SANATOGEN', and in a very short time there was marked improvement. The girl is now going about enjoying life like her contemporaries. Undoubtedly 'SANATOGEN' deserves all the credit for her remarkable improvement."—M.D.

'SANATOGEN'

(Trade Mark)

A brand of Casein and Sodium Glycerophosphate

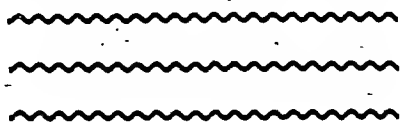
Sold by all chemists price 2/3 to 19/9

DOSAGE: For children and adults two teaspoonful three times daily, or according to circumstances. For infants 2 teaspoonful added to each bottle feed.

The word 'SANATOGEN' is the Trade Mark of Genatosan Ltd. and denotes their famous brand of Casein and Sodium Glycerophosphate. A 'GENATOSAN' product made by GENATOSAN Ltd., Loughborough, Leicestershire.

Clinical samples and literature available on request to

GENATOSAN LTD., LOUGHBOROUGH, LEICESTERSHIRE



THE ADVANTAGES OF COD LIVER OIL

as a source of

VITAMIN A and VITAMIN D

In view of the widely varying vitamin content of many liver oils available to the public, it is interesting to note that the British Pharmacopoeia in their most recent Addendum (1936) lay down a definite standard of vitamin content for cod liver oil, and also a definite dosage.

The vitamin content is standardised at not less than 600 International Units of Vitamin A and not less than 85 International Units of Vitamin D per gramme; and the dosage is given as a minimum of 15 minims (a quarter teaspoonful) three times a day. The oil itself is described as "from the fresh liver of the cod."

'SevenSeaS' Cod Liver Oil is extracted on the boat, within thirty minutes of the fish being taken from the sea. It is therefore fresh and easily digested. It is an interesting point of fact that the process of extraction on the boat is impossible with other fish liver oils. 'SevenSeaS' therefore obviates any need to resort to liver oils made from stale and rancid livers.

In its Standard form, 'SevenSeaS' is guaranteed to conform to the standard

vitamin content laid down by the British Pharmacopoeia. For practitioners wishing to administer Vitamin A and Vitamin D in cases where a large fat intake is contra-indicated, 'SevenSeaS' in its 'High Potency' form has a special significance. The vitamin content of this 'High Potency' oil is guaranteed to be four times the Pharmacopoeia standard, and the dosage can therefore be reduced to a few drops only. This is not a fortified oil, but is obtained simply by selection from the oils of the richest livers.

All 'SevenSeaS' Cod Liver Oil is tested and packed in strict conformity with British Pharmacopoeia requirements. Samples of the High Potency Oil, the Standard Oil, and the High Potency Oil in Capsules, will be supplied on request.

VEGETABLE PURÉES IN PEDIATRICS

A solution to the problem of home preparation

THE markedly improved nutrition and successful tolerance by infants to strained vegetables and fruits is rapidly securing a universal popularity for this dietary.

In theory there is no more desirable way of meeting systemic acidity, nutritional anaemia and supplying dietary bulk for intestinal residue in a non-irritant form.

In practice, however, defects in the home preparation of purées retard or defeat the end in view. The vegetables used are not fresh, overmuch water or boiling in uncovered kettles reduces the mineral and vitamin content, and coarse sieving allows harsh fibre to pass.


In consequence there is a growing demand on the part of physicians and mothers for such a product that shall have the highest possible nutritive value, and complete uniformity. Their attention having been drawn to this, the H. J. Heinz Company decided that here was a legitimate extension of their services in view of their wide buying resources and long experience in the preparation of foods.

This company is accustomed to buying vegetables in those regions where they grow best, and to dealing with them within a few hours of their harvesting at the correct season of the

year. This last is, of course, highly important.

The best factory practice is inevitably better than home preparation, however careful. After scrupulous cleaning, for example, vegetables are cooked in the Heinz factories under light steam pressure with exclusion of air until just soft enough to be comminuted by extrusion and cutting. The whole process is so regulated that the juices of the vegetables are retained throughout, there are no mechanical losses of mineral salts, vitamins or other soluble nutrients, and the resulting purée is adjusted to the proper consistency for satisfactory marketing.

Before filling and sealing, the product is subjected to a process for the removal of any absorbed air, and sealing takes place *in vacuo*. Finally, the sealed containers are immediately sterilised under known conditions of time and temperature. By these means are secured the high nutritional qualities, uniformity and convenience that physician, mother and patient desire.



| | |
|------------------|--------|
| PROTEIN | 4.5 |
| CARBOHYDRATES | 6.5 |
| CALCIUM | 0.012 |
| PHOSPHORUS | 0.023 |
| IRON | 0.0016 |
| VITAMIN A. | GOOD |
| VITAMIN B. | VG000 |
| VITAMIN C. | VG000 |
| VITAMIN G | FAIR |
| CALORIES PER OZ. | 17.0 |

A typical example of the high nutritive values retained in Heinz Strained Foods. (Figures show percentages on the wet basis)

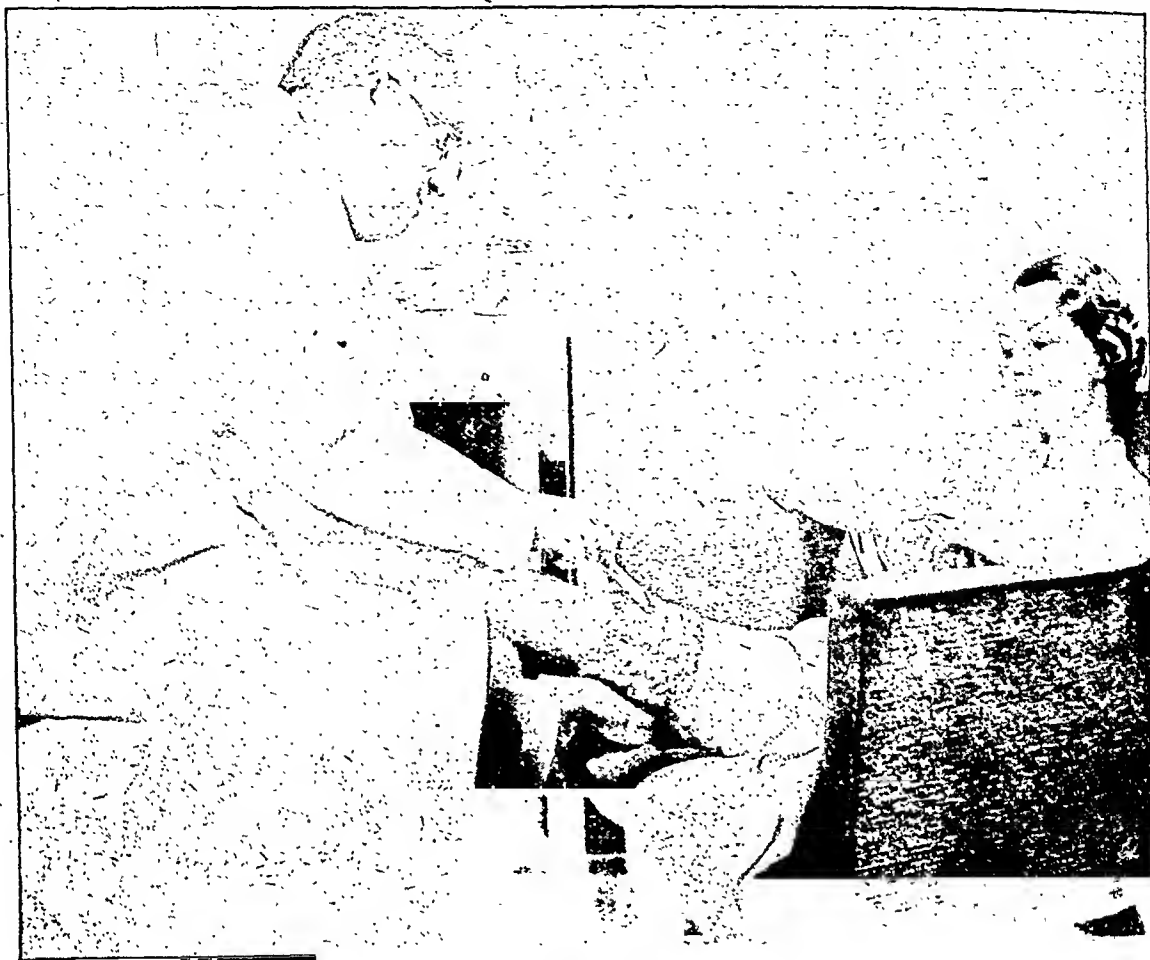
NOTE.—Heinz Strained Foods are not packed in glass, for it has been found that light has an adverse action on vitamin content and palatability.

HEINZ

STRAINED FOODS

SPINACH
TOMATOES
CARROTS
VEGETABLE SOUP
PEAS
GREEN PEAS
MIXED GREENS
BEETS
PRUNES
CEREAL
APRICOTS and
APPLE SAUCE
BEEF & LIVER SOUP

★ Fully explanatory literature and samples gladly sent on request.
Or if desired a special representative will be happy to call.



ARTHRITIS • SYNOVITIS • FIBROSITIS

ONE of the chief principles of treatment is the local application of prolonged, moist heat—efficiently supplied by the medicated cataplasm

Antiphlogistine
BRAND TRADE MARK DRESSING

It is also a satisfactory supplementary treatment to *ELECTROTHERAPY*, to augment the efficacy of the rays.

Sample on Request

MADE IN ENGLAND

THE DENVER CHEMICAL MANUFACTURING COMPANY
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THROUGHOUT THE SPAN

The problem of treatment in intestinal stasis is definitely settled in the minds of those thousands of physicians who depend on Agarol.

Agarol is a readily miscible emulsion of high-grade mineral oil and agar-agar with phenolphthalein. Free from alcohol, alkali and sugar, it is suitable for use in every condition where an evacuant is indicated and at every age period.

The palatability of Agarol appeals to all. In appropriate doses it is mild enough for infants, yet active enough for the demands of adult age.

Supplied in 4½ oz.,
7½ oz. and 17 oz.
bottles.

•
The average adult
dose is one table-
spoonful.

•
Agarol is not adver-
tised to the public.

WILLIAM R. WARNER & CO. LTD., POWER ROAD, CHISWICK, LONDON, W.4

AGAROL
BRAND COMPOUND
FOR CONSTIPATION

Similar names—but dissimilar properties

In scope and character 'Benzedrine' Brand Tablets and 'Benzedrine' Brand Inhaler are completely different

'BENZEDRINE' BRAND TABLETS

Restricted

These tablets contain the SULPHATE of β -aminoisopropylbenzene (5 mg.) and are administered orally.

On and after January 1, 1939, they can be supplied only on the written authority of a registered medical practitioner or on the signing of the Poisons Register.

'Benzedrine' Brand Tablets have a striking effect in stimulating the central nervous system and have proved of value in narcolepsy, post-encephalitic Parkinsonism, depressive and asthenic states, impaired mental efficiency, and gastro-intestinal spasm.



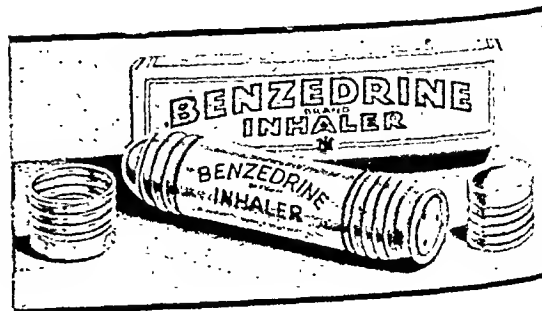
'BENZEDRINE' BRAND INHALER

Exempt from all control

'Benzedrine' Brand Inhaler consists of an aluminium tube packed with VOLATILE β -aminoisopropylbenzene, which possesses a decongestive potency greater than that of ephedrine.

After careful examination, this Inhaler has been totally and authoritatively exempted from all restrictions of sale by the Poisons (Amendment) Rules, 1938. It is perfectly safe, even for young children, and is indicated for shrinking the nasal mucosa in head colds, sinusitis, nasal catarrh, hay fever, and asthma.

Detailed literature concerning both these preparations is available on request.



Distributed by

Menley & James Ltd., 64 Hatton Garden, London, E.C.1
for Smith, Kline & French Laboratories, owners of the Registered Trade Mark, 'Benzedrine'



Simplify the Technique of Infant Feeding by using Allenburys Progressive System

ALLENBURYS SYSTEM EMBODIES THE FOLLOWING
ADVANCES IN THE SCIENCE OF INFANT FEEDING

- (1) Humanised Casein : lactalbumen ratio.
- (2) Intimate incorporation of Dextrin-Maltose, the benign starch-free mixture of non-fermenting carbohydrates.
- (3) Homogenised Cream in reconstituted Milk Foods.
- (4) Prophylaxis of Scurvy. Every tin of Allenburys Foods bears, and has borne in the past, explicit instructions for daily administration of vitamin C.
- (5) Prophylaxis of Rickets. Calcium : Phosphorus ratio adjusted. 560 units of vitamin D per quart reconstituted. Independent biological assay of antirachitic potency.
- (6) Prophylaxis of Anæmia. The reconstituted foods contain 4 parts per million of available iron.

Allenburys System provides every known Nutritional Requirement of the Infant
It enables the physician to replace unreliable home-made milk mixtures with readily prepared infant foods which eliminate the risk of enteral infection, and provide easily digested, scientifically balanced meals for babies at every stage in their development.

ALLENBURYS Humanised MILK FOOD No. 1 (Entirely Free from Starch)

The best first artificial food because it resembles breast milk closely in composition and in the ease with which it is digested.

| Composition when reconstituted by dilution (1-6) with water as instructed on tins: | | | | | | | | | |
|--|--------|-------------|---------|---------|---------|-------|-------------------------------|-------------|------------------------|
| Fat | Casein | Lactalbumen | Lactose | Dextrin | Maltose | Ca as | P. as | Fe. parts | Vitamin D per fl. oz. |
| 3.1% | 1% | 0.7% | 7.3% | | 3.3% | CaO | P ₂ O ₅ | per million | not less than 14 units |
| | | | | | | 0.09% | 0.16% | 4 | |

This food is intended for use from birth to 3 months, or for longer periods in dyspeptic infants, who tolerate it readily.

ALLENBURYS Humanised MILK FOOD No. 2 (Entirely Free from Starch)

Milk Food No. 2 is prepared in exactly the same way as No. 1 and retains its general features. It is intended for use during the second trimester when digestion is established, and it contains a higher proportion of milk protein and correspondingly less carbohydrate. The mineral content is adequate in respect of calcium, phosphorus and iron, and each fluid ounce of reconstituted food contains not less than 14 international units of vitamin D.

ALLENBURYS MALTED FOOD No. 3 (The First Step to Weaning)

This food introduces partially converted starch at the seventh month. It has a mineral and vitamin content equal to No. 1 and No. 2, and it is intended for use in conjunction with the broader dietary now recommended for the second six months of infancy.

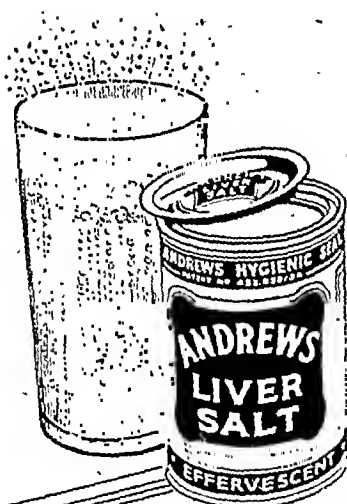
| Malted Food No. 3, prepared for use with cows' milk and water has this composition: | | | | | | |
|---|------|--------------|-------|-------------------------------|-------------|------------------------|
| Protein | Fat | Carbohydrate | Ca as | P. as | Fe parts | Vitamin D per fl. oz. |
| 2.8% | 2.2% | 9.7% | CaO | P ₂ O ₅ | per million | not less than 14 units |
| | | | 0.14% | 0.13% | 4 | |

Intestinal Disorders consequent upon Bronchial Infection

Partly owing to the considerable amount of sputum inevitably swallowed by the patient in bronchial affections (especially in children) disorders of the digestive organs may be produced.

A suitable diet and a free daily evacuation tend to prevent these disorders.

Andrews Liver Salt by its effervescence freshens the mouth (often so dry in bronchitis) and by its antacid reaction counteracts gastric catarrh. By producing an easy evacuation, safe even in the presence of myocardial degeneration, it removes the organisms introduced by the swallowed sputum.



★ *N.B.—A large size tin will be sent free on request to any member of the medical profession.*

ANDREWS LIVER SALT

SCOTT & TURNER LTD.,
Works and Laboratories at Newcastle-on-Tyne.



Scarlet Fever and Diphtheria Prophylaxis

TRADE MARK **'WELLCOME'** BRAND
**SCARLET FEVER
PROPHYLACTICS**

For Active Immunisation Issued in two strengths

A 2500 skin test doses per c.c. **D** 50,000 skin test doses per c.c.

TRADE MARK **'WELLCOME'** BRAND
**DIPHTHERIA
PROPHYLACTICS**

For Active Immunisation

'WELLCOME' BRAND **A.P.T.**

DIPHTHERIA PROPHYLACTIC
ALUM PRECIPITATED TOXOID

'WELLCOME' BRAND **T.A.F.**

DIPHTHERIA PROPHYLACTIC
TOXOID-ANTITOXIN FLOCCULES
(Suspension)

'WELLCOME' BRAND **T.A.M.**

DIPHTHERIA PROPHYLACTIC
TOXOID-ANTITOXIN MIXTURE

'WELLCOME' BRAND **F.T.**

DIPHTHERIA PROPHYLACTIC
FORMOL-TOXOID

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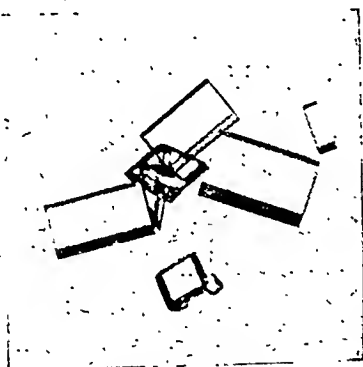
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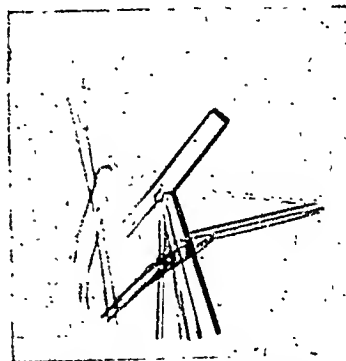
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Ergotamine Tartrate



Ergotamine (from aqueous acetone)

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Ergobasine (from acetone)

"The action of ergot on the uterus is not to be ascribed to any one alkaloid. For obstetric and gynaecological purposes the most suitable drug is one which combines both groups of alkaloids. Unfortunately, very few preparations satisfy this requirement. In the raw material, the alkaloids exhibit extreme variations in form and amount and the alkaloidal content may be reduced as a result of decomposition. Consequently in obstetrics when a rapid as well as a reliable action is required, the crude drug is unsuitable. In employing it, the obstetrician employs an unreliable medicament. In order to ensure certainty of action and accurate dosage, the use of pure active principles is inevitable."

"Combined treatment with ergotamine and ergobasine is to be recommended. Thus, a rapidly acting constituent is combined with one the action of which is long sustained. Side effects are reduced."

Helv. med. Acta, 4, 13, 1937.

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ORGANOTHERAPY*

BY

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At the outset I must insist that this is a discussion on organotherapy and not on endocrinology in general. I have said before that organotherapy of necessity lags behind endocrinology, which is as it should be; the scientific foundation must be secure before intelligent therapy is possible. Of late, however, therapy has made rapid advances, principally in relation to the sex hormones. This discussion is therefore timely, and should provide a useful antidote to the unscientific exploitation of endocrinology which is rife to-day. Every scientific advance seems doomed to be dogged and shadowed by a new quackery: hypnotism, electricity, light treatment, psychotherapy, and vaccines have each in turn suffered this, and it is too much to expect that biochemistry would escape. I read in a lay paper recently that 90 per cent. of bodily troubles were due to glands, and it was implied that they could be remedied by gland treatment. Organotherapy may well pray to be delivered from such friends!

My remarks will be almost entirely concerned with general principles, for I am to be followed by a number of speakers whose own researches have added to our knowledge and who will speak from their own experience on various topics. It is of interest to me to recall that the whole subject has grown up in my own professional lifetime. For it was in my second year at Cambridge that G. R. Murray first successfully treated a case of myxoedema by thyroid extract. He had been told he might just as well expect to treat tabes with an emulsion of spinal cord, so little had Claude Bernard's conception of internal secretion taken hold of the profession. We must not complain of scepticism, however, considering how much damage credulity has done. But it did seem to me that the late Professor Swale Vincent erred on the side of caution when he maintained that the fact that a juice possessing certain pharmacological properties could be squeezed out of the pituitary body threw no light on the function of the gland. Even as recently as 1921 Sir James Berry announced himself an impenitent sceptic as to the parathyroids having any separate function from the thyroid.

Three Lines of Advance

Starling's conception of a chemical control of the body by hormones which he enunciated in 1905 found powerful support, however, in three subsequent discoveries: first, of vitamins—exogenous hormones, as they have been

called; and, secondly, from the observations of Loewi and of Dale, from which we learned that the secretion of adrenalin and pituitrin by structures of nervous origin are only special instances of a general law—namely, that a chemical substance is liberated at every nerve-ending on stimulation. In Hopkins's illuminating phrase—chemical substances produced locally and temporarily translate for the tissues the messages received through the nerves. The histamine-like substance and the P-substance described by Lewis as playing an important part in manifestations of allergy and of pain constitute another instance of the chemical control of the body. A third line of advance was the discovery by the Needhams and Waddington that Spemann's organizer in the embryo was not cellular but chemical in its activities, and that it was closely related to oestrin. The relation between the stimulants to normal and abnormal growth has been ably demonstrated by J. W. Cook and E. C. Dodds (1934), and we know that from sterols normally occurring in the body a deranged metabolism may produce specific carcinogenetic substances which will stimulate certain cells to wild proliferation. There is indeed considerable overlap between the chemical constitution of certain hormones, vitamins, and carcinogens. Further, the co-operation of organic chemists with the biologists has led to the preparation of synthetic hormones, and it has been found that simpler chemical substances than those existing in Nature may be adequate to produce the biological effect. These basal groups are, in Dodds's happy phrase, skeleton keys which can pick the physiological lock. We are learning, too, that some of them can have other than their normal specific effects—these are, as he says, pass-keys.

Antihormones

Hormones belonging as they do to the innate defences of the body, it was assumed for a good many years that they would not act as antigens. Doubts on the truth of this generalization were first thrown by J. B. Collip's (1934, 1935) observation that parathormone gradually lost its effect on repeated injection. Subsequently the existence of antihormones was established for the gonadotropic growth and ketogenic hormones of the pituitary and suspected for the diabetogenic and adrenotropic hormones. Collip regards a hormone-antihormone linkage as a normal condition, but there is no evidence that these "anti" substances are produced in the endocrine glands (Loeser, 1937). Nevertheless they are not merely precipitin re-

* Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Plymouth, 1938.

actions, for they have been obtained against protein-free extracts, and although not always specific for the particular animal, they are absolutely specific for the individual hormone. It is of interest to note that while the antibodies for tropic hormones can be transferred from one animal to another, the antibodies for simpler hormones, such as parathormone, thyroxine, adrenalin, and insulin, cannot be so transferred (Bauer and others, 1936, 1937).

Hormones and Mineral Metabolism

A further advance in organotherapy was made when the interaction between hormones and mineral metabolism was realized. This was first recognized in the instance of calcium and phosphorus in relation to parathormone, but, not long after, the importance of sodium and potassium ions in relation to the adrenal cortical hormone was discovered. It is now claimed by Rivoire (1937) that just as generalized osteitis fibrosa is associated with a parathyroid adenoma, so myasthenia gravis is associated with a thymic adenoma, as indeed others have observed, and that just as sodium does good and potassium harm in adrenal cortical deficiency, so potassium is beneficial and sodium harmful in myasthenia gravis. Dr. R. S. Aitken informs me, however, that he has not found potassium salts of much benefit in myasthenia gravis. When we add to this list the well-recognized association between the thyroid and iodine and also between haemopoietin and iron in metabolism, it is clear that there is a field for research on the connexion between hormones and mineral metabolism. While on this topic it may be relevant to mention H. Zondek's (1935a) conception of hormones circulating in the blood in an inactive form, and only being activated on reaching their destination, where their action as physical catalysts is modified by electrolytes. Thus he claims that calcium inhibits and potassium increases the effect of thyroxine on the cell. Such matters, however, remain chiefly of academic interest at present, but I hope I have cleared the way for a consideration of the general principles of organotherapy.

Three Postulates for Rational Organotherapy

We may lay down these postulates for rational organotherapy:

- A. The gland in question forms an internal secretion.
- B. The active principle or principles of this secretion can be extracted.
- C. A method of administration of this extract is available which will admit of its utilization by the body.

If and when these postulates have been fulfilled, organotherapy may be employed in the following ways.

1. *As Substitution Therapy.*—To replace the absent or deficient secretion of a gland that is involved in a destructive lesion, or where there is relative insufficiency owing to overaction of some antagonistic gland. Here the hormone is intended to produce a chronic effect. It is only necessary to instance thyroid extract and insulin as examples, and I select them for this reason. For success it must be possible for intermittent doses to replace satisfactorily the slow and more constant secretion which normally occurs. Thyroid extract does this most satisfactorily, and the recent work on insulin has been directed towards slowing down its effect by combination with protamine and zinc so as to imitate more closely the conditions obtaining in the body. On the subject of the active absorption of hormones and the methods of prolonging their action I may refer you to the paper by Dr. V. S. Parkes (1938). It is important to observe that sub-

stitution therapy does not imply that thereby the body may be induced to form its own hormone; indeed, the evidence is all against any such effect.

2. *As Pharmacological Agents.*—Where their known physiological action may be useful, quite apart from any recognizable defect in the patient's own glands. Here a sudden effect is usually aimed at. The injection of adrenaline for the relief of an asthmatic paroxysm is a well-recognized example of this. The production of insulin shock in the treatment of schizophrenia might be cited as another example, though recent observations (Salm, 1937) on the damage which can be wrought on the nerve cells by this procedure should give us pause.

3. *As an Antagonist to Another Hormone.*—Here we can instance insulin in the treatment of hyperthyroidism, pitressin and adrenaline as antagonists to insulin, also oestrin in the attempt to neutralize an overacting pituitary, which has perhaps been more successful in menopausal disturbances than in other directions, though Kirklin and Wilder (1936) claim success for oestrone in the relief of acromegaly. Zuckerman showed that testosterone suppressed ovulation in monkeys, while Loeser found clinically that it led to atrophy of the endometrium and was of therapeutic value in menorrhagia. Levy Simpson (1938) has also used it with some success as a method of neutralizing the thyrotropic hormone in hyperthyroidism.

4. *To Influence General Metabolism.*—Thyroid may certainly help to quicken up general metabolism if it is desired to do so, even in the absence of hypothyroidism. Insulin, adequately covered by dextrose, is often helpful in anorexia nervosa and other wasting diseases. It is claimed for oestrin that it has a favourable influence on impaired carbohydrate metabolism; indeed, Glen and Eaton (1938) found that dihydroxyoestrin increased sugar tolerance in a severe insulin-resistant case of diabetes. But as this effect is presumably antagonistic to the diabetogenic pituitary hormone it should perhaps be classed under heading No. 3.

5. *As an Attempt to Utilize Antihormonal Activity.*—There are two possible therapeutic applications of antihormones to correct over-activity of endocrine glands: (a) *passive neutralization* by means of the antihormone produced in another animal by injecting it with the corresponding hormone, and (b) *active antagonism* by injecting the patient with sub-threshold doses of the hormone in question and thus causing him to produce his own antihormone. The first method has had some limited success experimentally, and Loeser (1937) found the antithyrotropic hormone effective even when given by the mouth. I am unaware, however, of any clinical successes by this method. The second method, although imitating vaccine therapy, does run the risk of aggravating the disease. Hertz and Hisaw (1934) have succeeded with sub-threshold doses of gonadotropic hormone in rendering an animal's ovaries resistant to subsequent large and usually effective doses.

It must be admitted, however, that antihormonal action has so far proved a hindrance rather than a help to organotherapy, particularly so far as the pituitary tropic hormones are concerned. Thus Spence and Wits (1933) found that patients soon became resistant to the thyrotropic hormone, and were able to demonstrate the presence of the antithyrotropic hormone in their serum. It seems generally advisable also to give the growth hormone periodically with intervals of rest, in order to avoid the development of the antihormone.

6. *Employed Empirically.*—As time goes on we may expect to find instances originally placed in this category

transferred to others. Indeed, this process is actually in progress. Thus while I can offer no rational basis for the relief given by pitressin for the pain of herpes zoster and its frequent neuralgic sequel (W. H. Marshall, in a private communication), the influence of parathormone on intestinal colic may perhaps be explained by the sedative effect of hypercalcaemia on muscular tone. The rationale of the treatment of chronic mastitis by oestrin with or without the addition of prolactin is not yet obvious, since both these hormones increase the activity of the breasts. The relation between oestrin and the condition of the nasal mucosa is, however, of special interest. In animals the olfactory sense is clearly associated with sex, and the observations of Mortimer, Wright, and Collip (1937) on the effect of oestrin in the treatment of atrophic rhinitis are important. This has led A. S. Hoseason (*Journal*, October 1, p. 703) to call attention to the opposite condition of vasomotor rhinitis, and compare it with the condition produced experimentally in monkeys by overdosage with oestrin.

I do not, however, intend to say much about organotherapy by sex hormones, because, this being at the moment the most rapidly advancing branch of endocrinology, some of the subsequent speakers will devote the whole of their contributions to it. I would, nevertheless, point out that the increasing use of oestrogenic substances in the treatment of disorders in the male supports Dodds's conception of the "skeleton key" action of certain hormones.

Deleterious Effects

That self-medication by thyroid extract often leads to disastrous effects is generally recognized. Any really active therapeutic agent is capable of misuse. The danger of repeatedly inducing insulin hypoglycaemia has already been referred to. Parathormone can clearly have a destructive effect upon bone and may induce the formation of renal calculi; fortunately these effects are partially limited by its exciting the production of an antihormone. The administration of oestrin for the vulvovaginitis of children has been followed by precocious puberty, both physically and psychically. Dodds and Noble (1937) have demonstrated the harmful effect of repeated injections of pituitrin on the gastric mucosa. Whether continued injections of adrenaline can produce arteriosclerosis has been much disputed. On the whole it seems unlikely. I saw one striking case under the care of Dr. George Graham where a young woman developed a systolic blood pressure of 280 mm. Hg after frequent injections extending over two years, but in view of the rarity of such a sequence she may have had a coincident malignant hypertension. I think the experimental evidence as to the carcinogenic effect of oestrin need not lead us to fear a clinical counterpart; it has been calculated that it would take fifty years for its ordinary administration to have this effect in human beings.

Routes of Administration

(a) *Oral*.—The early triumphs of thyroid medication by this route led to disappointment when it was found that it was not equally effective for other hormones. There seems to be a good case for the efficacy of this method for certain sex hormones, though about five times as large a dose is required compared with injection. Haemopoietin and ventriculin may fairly be regarded as hormones, and are undoubtedly effective given thus. As to certain properties of anterior pituitary, I must confess that *pace* the pharmacologists I have seen effects follow

its oral administration too frequently to believe they were merely due to coincidence. But here I expect I am in a minority.

(b) *Nasal*.—As the post-pituitary is an upgrowth from the nasal mucosa, it was suggested by Blumgart that this route might be effective for pituitrin, and so it proved to be. It remains true, however, that the

(c) *Subcutaneous* is the only effective route for the majority of hormones, reinforced by

(d) *Intravenous* administration in emergencies such as diabetic coma.

(e) *Rectal* administration is seldom called for, and though advocated for insulin it offers quite as great drawbacks as the hypodermic syringe.

(f) *Cutaneous*.—B. Zondek (1938) has called attention to the fact that the oestrogenic hormone dissolved in benzol, ether, or alcohol is completely absorbed by the skin.

Receptivity of Hormones by the Tissues

Although intensive study has been made of the pharmacology of hormones, there is evidently another aspect which has so far been little investigated. That is the receptivity of the tissues. How this normally varies in accordance with the needs of the body can be succinctly illustrated by the metamorphosing tadpole. Under the influence of thyroxine the cells of the gill-covers atrophy, while at the same time the limb-buds grow actively. This may perhaps be regarded simply as an example of thyroxine speeding up metabolism in the direction in which it is normally going, but other instances cannot be so simply explained.

Some thirty years ago Langley and Elliott independently postulated the existence of a receptive substance between the nerve-ending and the tissue as necessary to explain the facts then known. If such a postulate was required then, how much more is it needed to-day! Just as the appropriate chemical material, such as pilocarpine or atropine, may get into this receptive substance, so may a toxin. G. N. Myers has shown that a therapeutic drug may seize on the receptive substance and thus bar the way to the ingress of the toxin. It seems to me that the pharmacology of the future will have to concern itself with the natural history of these receptive substances, and find out in what manner they can be helped by drugs, both positively, by facilitating their reactions, and negatively, by blocking the way against the entrance of toxins. Nor is this topic remote from my subject, for H. Zondek (1935b) maintains that the absorption of a hormone, such as thyroxine, is decreased in the presence of narcotics such as the barbiturates, which are able to adhere to the cell surface and thus to displace the hormone from it. But it is also germane to my subject in a wider sense. We are still entirely without any conception why a particular cell should be sensitive to a particular chemical substance or why the same substance should augment the activity of one type of cell and inhibit that of another. The nature of these receptive substances is a problem to which many minds are beginning to devote themselves. The importance of the responsive capacity of the receptor tissues was clearly indicated by Harrison in his Harveian Lectures for 1934. He showed that when transplantation is effected between embryos of species of different sizes the transplant responds according to its inherited growth capacity rather than to its new endocrine environment. As Keith pointed out some years ago, the partial gigantisms in certain cases of hyperpituitarism can only be explained

on the theory that the locally hypertrophied tissues had developed a special sensitiveness to the growth hormone. H. M. Evans has shown that the response of the dachshund and of the sheep-dog to injections of the pituitary growth hormone is entirely different. Indeed, if such things were not so, it would be difficult to account for structural plasticity in the hands of the breeder.

It must have fallen to the lot of everyone who has treated cases of pituitary obesity to find some patients entirely refractory to treatment identical with that which has been successful with others. Yet clinically no difference could be detected between the two groups. I know that there are authorities who maintain that obesity can always be reduced by diet alone; I do not know if they would add that the patient can also be kept in good health. I believe that retention of water is one factor in preventing reduction of weight, and I sometimes speculate on the possibility of putting on weight by assimilation of oxygen: how otherwise does the hibernating animal become heavier? But apart from such controversial matters, it seems clear that cases of obesity of admittedly endocrine origin respond so differently that some difference of receptivity is probable.

In concluding this necessarily summary introduction to the discussion may I express the hope that research on the synthetic hormones may effect two things: first, the discovery of simple basal groups which can produce the biological effect and yet escape disintegration by the digestive juices; and, secondly, reduce materially the cost of production. At present the cost of many is prohibitive except for the very rich and for the hospital class.

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L. Rizzi (*Riforma med.*, 1938, 54, 1222), who records an illustrative case, states that in most of the cases of pituitary haemorrhages on record there are minute punctate haemorrhages indicating toxic degeneration, or merely sudden increase of pressure, corresponding to the small haemorrhages observed in all the other organs. Large pituitary haemorrhages are very rare, and their origin is obscure. Almost all cases of this kind have shown old haemorrhages, which had given rise to more or less definite pituitary syndromes. The present case was that of a woman, aged 49, the subject of diffuse glomerular nephritis with hypertension, who six days before death developed severe cerebral symptoms due to uraemia. In addition to well-marked arteriosclerosis and renal sclerosis a large haemorrhagic cyst in the hypophysis was found. The cause of death in this case was the compression of the mid-brain or the general endocranial hypertension produced by the haemorrhage.

TREATMENT OF TUBERCULOSIS IN GUINEA-PIGS WITH SULPHANILAMIDE

BY

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AND

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The experiments described in this paper were carried out in an attempt to repeat the work of Rich and Follis (1938), who obtained considerable inhibition of the development of tuberculous lesions in guinea-pigs infected with a human strain.

Technique

Infection of Guinea-pigs.—Suspensions of actively growing (six-day) cultures from Petragnani's medium were injected subcutaneously into the right leg of guinea-pigs which averaged 400 grammes in weight. Two virulent strains were used, as follows:

Human strain, R. 2: Twenty guinea-pigs received 0.05 mg. of culture and twenty 0.5 mg.

Bovine strain, BV. 28: Twenty guinea-pigs received 0.01 mg. and twenty 0.1 mg.

With the aid of an opacity standard tube we estimated that 1 mg. of culture contained approximately 2,000 million tubercle bacilli.

Treatment with Sulphanilamide.—Half the animals in each group were kept as controls and half were given sulphanilamide (50 per cent. suspension in 5 per cent. gum arabic) four times daily by mouth. A total of 500 mg. (100 mg. at 9 a.m., 1.30 p.m., and 5 p.m., and 200 mg. at 10 p.m.) was given daily for five days; these doses were halved from the sixth to the forty-second day, when all survivors in both treated and control groups were killed. Unlike Rich and Follis, who deposited the drug in the cheek pouch, we induced the swallowing reflex by ejecting the suspension from a syringe on to the back of the tongue and pharynx. Almost all the material thus administered was retained.

Toxic Effects of Sulphanilamide

The treatment we employed for the first five days of the experiment—namely, 500 mg. daily—was regarded as the optimum therapeutic dosage by Rich and Follis, who noted evidence of overdosage, however, in certain guinea-pigs which had been treated for three to six weeks. We reduced the dosage to 250 mg. after the fifth day, because some guinea-pigs undergoing treatment soon became ill with characteristic toxic signs—loss of weight and temporary paralysis.

The average weights of the treated and control groups of guinea-pigs were approximately the same (400 grammes) at the beginning of the experiment, but the treated animals lost an average of 50 grammes during the first week of treatment, whereas the weights of the untreated controls remained stationary. When dosage was reduced towards the end of the first week the general condition of the treated animals improved, although they remained lighter than the untreated controls. Unfortunately, in this preliminary experiment we did not continue to weigh the animals at weekly intervals.

Therapeutic Results

Sulphanilamide did not completely arrest the development of generalized tuberculosis. The lesions of the treated animals that died during the fourth or fifth week of the experiment appeared to be less than those of controls. All the survivors were killed on the forty-second day, when the differences between the groups were as follows:

HUMAN STRAIN, R. 2

The spleens of the control animals were very friable, but those of the treated animals were of almost normal texture. Although macroscopic tuberculous foci were present in the spleens of all the guinea-pigs, they were fewer, much smaller, and showed less tendency to coalesce in the treated group. Spleens from nine controls and nine treated animals were sectioned by Dr. C. L. Oakley, who reported that "tubercles were present in all, but were consistently smaller and showed less tendency to coalesce in the treated animals than in the controls. In many spleens from control animals no normal splenic tissue could be found; in most of the treated animals each tubercle was surrounded by a broad zone of more or less normal spleen. In no instance was there the slightest sign of healing."

In the third series of experiments of Rich and Follis no animals in the fifth week and only one of six animals in the sixth week in the treated group showed macroscopic lesions in the spleen, although all except one showed scattered microscopic tubercles. This is a better result than we were able to obtain in our preliminary experiment.

The spleens of our treated animals (average area of anterior surfaces, 460 sq. mm.) were less enlarged than those of the untreated controls (average, 822 sq. mm.), but this difference was probably partly due to the fall in weight of those treated. Our colleague, Dr. J. W. Trevan, kindly examined the data statistically, and concluded that the size of the spleen did not provide any important evidence as to the intensity of infection.

Many tuberculous foci were present in the lungs of both our treated and untreated animals, but they were somewhat fewer and more discrete in the former group, and had less associated basal consolidation. The inguinal and tracheo-bronchial lymphatic glands were much smaller and not so caseous in treated guinea-pigs.

The livers of many animals showed macroscopic lesions, and the variation in the extent of the infection in the treated and control groups was slight. There were no significant differences in the amounts of pus in the local lesions at the site of inoculation.

BOVINE STRAIN, BV. 28

Treatment had possibly a slight inhibitory effect in guinea-pigs—less than was obtained in the experiment with the less virulent human strain, R. 2.

A companion experiment in rabbits showed no evidence of inhibition of tuberculosis with treatment. Eight control and eight treated animals were used, 3,750 mg. of the drug being administered daily to each treated rabbit in divided dosage.

Summary and Conclusions

Sulphanilamide appears to produce some degree of inhibition of an infection of guinea-pigs with a human strain of the tubercle bacillus. Our results are less striking than those of Rich and Follis—possibly due to a difference in strain.

The drug had very little influence on the course of infection in guinea-pigs and none in rabbits when a bovine strain was used.

We agree with Rich and Follis that it would be regrettable if any premature and unjustifiable conclusions were drawn regarding the treatment of tuberculosis. Further prolonged investigations with sulphanilamide and other

preparations are clearly necessary under carefully controlled conditions, special attention being paid to the toxicity of the drugs employed.

We are indebted to Dr. A. Stanley Griffith for the virulent bovine strain, BV. 28, and to Drs. J. W. Trevan and C. L. Oakley for their valuable help.

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THE SARCOIDOSIS OF BOECK

BY

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(WITH SPECIAL PLATE)

The individual lesions of sarcoidosis have been recognized for many years, but, as patients would seek the advice of the dermatologist for one, the general physician for another, and the ophthalmologist for a third, the synthesis which showed them all to be expressions of the same morbid process was long delayed. However, the concept of a generalized disease with infiltrations of the skin in only a moiety of the cases is now widely admitted. Jonathan Hutchinson (1875) was the first to recognize the complaint, although priority is usually given to other workers—Besnier (1889), Tenneson (1892), and Boeck (1899). He "was accustomed . . . to designate the condition Mabey's malady"—from the name of his patient—"and although other and more scientific names might be devised, it is perhaps doubtful whether they would be more convenient" (1900). Longcope and Pierson (1937) quote nine other synonyms, and their list is by no means exhaustive. In the present paper the term "sarcoidosis of Boeck" is used, not for its intrinsic merit, which is little, but because it is familiar and bears no causative connotation.

The sarcoidosis of Boeck is a disease of long duration with a tendency to spontaneous remission; it is characterized by enlargement of lymph-nodes and spleen, by infiltrations of the skin, lungs, and bones of the fingers, by enlargement of parotid and lacrimal glands, and by iridocyclitis. One or more of these changes may be present in any individual case. It is my purpose to describe the clinical picture of the disease and to present very briefly eight new cases.

Sarcoidosis is not a rare disease, but it is difficult to give its frequency numerical expression as the patients are scattered through the special departments of a hospital. In over 300 histological examinations of lymph-nodes excised to establish a diagnosis of Hodgkin's disease, sarcoidosis was found once to every eleven cases of lymphadenoma; when to these are added the patients who attend the dermatologist for cutaneous sarcoid and some cases of "tuberculous" iridocyclitis from the ophthalmologist, it will be appreciated that its frequency demands for it a wider recognition. The eight cases reported here were collected in less than a year.

The Clinical Picture

The course of the disease is one of extreme chronicity unaccompanied in the majority by such symptoms of intoxication as pyrexia or emaciation, although there may be complaint of tiredness. The patient commonly comes

under observation on account of enlargement of lymph-nodes, or, if some other manifestation provides the first symptom, lymphadenopathy is found. The initial complaints in the present cases are tabulated below:

| | | | |
|-------------------------|---|----------------------------|---|
| Lymphadenopathy | 2 | Swelling in breast | 1 |
| Cutaneous lesions | 2 | Swelling of parotid and .. | 1 |
| Cough | 1 | lacrimal glands | 1 |
| Tiredness | 2 | Swelling of fingers | 1 |

Gradually other lesions appear while the earlier ones involute, and this process may continue over a number of years, tending often towards complete recovery.

Lymphadenopathy and Splenomegaly

Enlargement of superficial lymph-nodes is present at some stage in all cases; it is usually generalized and of moderate degree, but on occasions it is limited to one group of nodes and is of such an order as to raise the suspicion of Hodgkin's disease. The enlarged nodes are painless and insensitive, discrete and mobile; while the patient is under observation they may retrogress and become impalpable. Splenomegaly is common and may sometimes be considerable. The spleen was palpable in five of the present cases. It is probable that some of the cases reported as tuberculous splenomegaly with miliary tuberculosis of the lungs (Hickling, 1938) are instances of sarcoidosis.

Cutaneous Lesions

The infiltrations of the skin are often so bizarre that they have attracted much attention in the past, and in consequence sarcoidosis was for years regarded as a disease of the skin with occasional visceral manifestations. The frequency of these lesions is difficult to compute, but it is probable that they are found in not more than 50 per cent. of all cases of sarcoidosis; clinically the cutaneous lesions fall into four groups:

1. *Miliary Lupoid* (Boeck, 1899, 1905).—This occurs in two forms: first as an eruption of small red-brown papules affecting the cheeks, forehead, extensor surfaces of the arms, the buttocks, and the back of the legs. The papules are usually smooth, but may show hyperkeratosis. This fine form of miliary lupoid occasionally occurs in plaques resembling lichen planus (lichenoid variety). The second form is the nodular sarcoid where lesions occur most frequently on the face and limbs. The nodules during the stage of eruption may reach a diameter of 5 cm.; they are smooth, slightly elevated, and red-blue in colour; in the florid stage, which may last twenty years, they increase in volume, become violaceous, and the surface, which never ulcerates, is often telangiectatic. The whole process is one of extreme torpidity. In the stage of involution, central flattening gives rise to an annular appearance, and telangiectasis and pigmentation of the margins are common.

2. *Lupus Pernio* (Bcsnier, 1889; Tenneson, 1892).—This is a diffuse infiltrative lesion affecting the nose, cheeks, and sometimes the lobes of the ears. The eruption has a sharp border with a surface which may appear almost burnished. Perniotic lesions of the fingers with associated bone changes are common.

3. *Angio-Lupoid* (Brocq and Pautrier, 1913).—This lesion is less common. It occurs in women of middle age, and consists of soft infiltrated plaques on the sides of the root of the nose, violet-red in colour with marked telangiectasis.

Erythrodermie Sarcoidique (Schaumann, 1924) appears as large superficial serpiginous red areas on the front of the legs and thighs.

An isolated lesion of the skin, especially of the types described as miliary lupoid and angio-lupoid, is not always sufficient for a diagnosis of sarcoidosis, as cutaneous infiltrations which are macroscopically and microscopically identical may be due to other causes. These causes are leprosy (tuberculoid type; Motta, 1931), leishmaniasis ("bouton d'orient"; Dupont, 1930), and possibly tuberculosis and syphilis. Of the cases reported here four had skin eruptions at one time or another. Case I showed the coarse nodular sarcoid, Cases III and VII the fine miliary lupoid, and Case VIII was an example of lupus pernio.

Pulmonary Lesions

The intrathoracic changes are of two types; first and most common is the enlargement of mediastinal or hilar lymph-nodes, which may be sufficient to simulate Hodgkin's disease, although in sarcoidosis the hilar lymphadenopathy predominates, while in lymphadenoma the form is more commonly mediastinal. The second type of lesion is seen radiographically as a diffuse mottling throughout the lung fields, simulating that of miliary tuberculosis but usually coarser and less regularly disposed. There is evidence to show that this miliary lesion may result in pulmonary fibrosis and even produce heart failure. Five of the present cases showed hilar or mediastinal lymphadenopathy, and one the miliary change. It is remarkable that these extensive radiographic abnormalities are accompanied by so few symptoms and physical signs; cough was a feature of two cases, but there were no sputa, and the physical signs were limited to basal crepitation. It seems possible, as Bödecker (1932) has suggested, that some of the cases reported as chronic miliary pulmonary tuberculosis may be examples of this disease. (Plate, Figs. 1, 2, and 3.)

Bones

The changes occur almost exclusively in the phalanges of the hands and feet. Clinically they make their appearance as painful fusiform swellings of the fingers. The radiographic changes were fully described by Jüngling (1920) as osteitis multiplex cystica vel cystoides tuberculosa, although they had been recognized eighteen years previously by Kienbock (1902) and their association with lupus pernio noted by Kreibech (1904). The normal structure of the phalanx is replaced by a lace-like network with small areas of rarefaction often surrounded by a zone of increased density. On occasion these radiographic changes are unaccompanied by clinical evidence of disease, but the process may advance to cause mutilation or may heal so completely that the finger appears normal except for some deformity of the nail. Osteitis multiplex occurred in two of the present series (Fig. 4).

Other Lesions

Enlargement of the parotid and lacrimal glands has often been noted; in this series the parotid glands were enlarged in one, and the lacrimal glands in one, and both parotid and lacrimal glands in a third case. This patient presented the clinical picture of Mikulicz's syndrome. Three of Longepé and Pierson's cases showed affection of one or other of these glands.

Iridocyclitis is stated to occur in about 10 per cent. of cases of sarcoidosis (Blegvad, 1931); it is of the type described as "tuberculous" or "paratuberculous." This affection is often resistant to treatment, and may lead to blindness, as in one of the two cases affected in this series. Other ocular lesions are uncommon, but Blegvad (1931) has reported infiltration of the conjunctiva.

Several writers have suggested that the uveo-parotid syndrome of Heerfordt (1909) is inseparable from sarcoidosis; the histological changes are identical, and a perusal of case reports shows that all gradations, from iridocyclitis with swelling of the parotid glands to the well-known clinical picture of miliary lupoid, occur. Pautrier (1938) and Slot, Goedbloed, and Goslings (1938) have reported cases which show clearly that uveo-parotitis must be regarded as a clinical variant of sarcoidosis.

Infiltrations in many other sites have been recorded, but those already described occur often enough to constitute an easily recognizable picture. Boeck (1916) and Mylius (1928) have stressed the frequency of lesions in the mucosae of the upper air passages; the breast was involved in one of the present cases and in one seen by Goeckermann (1928). There are records of lesions in the testicle (Pautrier, 1935), the hypophysis (Schaumann, 1936), and the optic nerve (Reis and Rothfeld, 1931).

Treatment

It is difficult to evaluate the results of treatment in a disease which so often shows spontaneous involution. Radiotherapy, gold, arsenic, and tuberculin are generally held to be useless, although improvement followed the first two in some of the present cases. Lomholt (1937) has reported benefit from antileprol.

Pathology

The observation that a negative Mantoux reaction is common in sarcoidosis has given rise to much speculation. It has been urged that it is an instance of cutaneous "anergy" (Martenstein, 1924), but it has never been established that the reaction is negative more frequently than in a series of normal controls, and Kissmeyer (1932) concludes that the percentage of negative reactions is what would be expected in non-tuberculous subjects of the same age. The proportion of negative tests in different series varies considerably.

Anaemia is mild or absent, and examination of the blood often reveals a moderate mononucleosis; two of the present cases showed an eosinophilia such as was noted by Longcope and Pierson (1937). An increase in the plasma globulin has been observed by Salvesen (1935), and was present in one of my patients.

The histological changes are identical in all the affected tissues. There is a proliferation of histiocytes to form discrete collections of epithelioid cells, among which an occasional giant cell may be seen. Surrounding lymphocytic infiltration is lacking; there is no caseation, and tubercle bacilli cannot be demonstrated. The lesions may be said to consist of "pathological tubercles," and the changes are familiar to all morbid anatomists under the name of hyperplastic or endothelial "tuberculosis," although a more accurate descriptive term would be histiocytic sinus reticulosis (Fig. 5).

Aetiology

An acrimonious dispute over the nature of sarcoidosis has been in progress for many years. Three hypotheses have been adduced: first, that it is due to tuberculosis; secondly, that it is a non-specific tissue response which may be evoked by a variety of pathogenic agents such as the tubercle and lepra bacilli, the *Spirochaeta pallida*, and leishmania; and, thirdly, that it is a systematized disease of lympho-reticular (reticulo-endothelial) tissue comparable to Hodgkin's disease and similarly of unknown aetiology. The first hypothesis has been favoured

by dermatological opinion; but inoculation experiments, with a few doubtful exceptions, have been consistently negative, and acid-fast bacilli have been demonstrated only in a handful of cases, all of which Kissmeyer (1932) has shown to be open to criticism. The only facts favouring a tuberculous aetiology are the microscopical appearances, and the observations of Schaumann (1923) and others that some patients have died of phthisis. Most pathologists will admit that the histological signature of the tubercle bacillus is susceptible of forgery, and phthisis may clearly be a secondary infection in an occasional case; indeed, it is possible that the pulmonary fibrosis which sometimes occurs may be a predisposing factor. The second hypothesis also has its origin in dermatological writings, and, although it must be admitted that similar cutaneous lesions may be due to Hansen's bacillus (tuberculoïd leprosy) or leishmaniasis (Dupont, 1930), it is unbelievable that the whole characteristic and well-defined syndrome of sarcoidosis could be anything but a specific disease due to one cause. The suggestion that sarcoidosis falls into the same category as leucosis and Hodgkin's disease and must rank as a reticulosis (Pullinger, 1932; Ross, 1933; Bodley Scott and Robb-Smith, 1936) is finding increasing favour, although its cause remains as obscure as that of the other diseases of this group.

Case Reports

CASE I

A married woman, this patient came of healthy stock, and had had no illness, except catarrhal jaundice in childhood, until the age of 34 years, when she noticed an eruption above the right eyebrow. Ten months later similar spots appeared on the arms, knees, and neck; she began to tire easily and sweat at night, but there was no loss of weight. On admission to hospital at the age of 35 she was apyrexial and weighed 45 kg. The cutaneous lesions consisted of slightly raised infiltrated areas, oval or circular in shape, and in colour varying from violaceous to yellow-red. All the superficial lymph-nodes were enlarged and of an average diameter of 1 cm. The spleen extended 5 cm. below the left costal margin. A blood count showed a hypochromic anaemia with 58 per cent. haemoglobin and a normal differential count. A skiagram of the chest showed some enlargement of mediastinal nodes, and although the hands appeared normal the radiographic lesions of osteitis multiplex were found in the left middle finger. The Wassermann and Mantoux tests (0.1 mg. O.T.) were negative, and biopsy of a cutaneous nodule showed the histological changes of sarcoidosis. She was treated with ultra-violet light and discharged.

Six months later she was readmitted. The eruption was unchanged, her weight was steady, and lymphadenopathy persisted only in the posterior cervical triangles. The spleen and liver were palpable; the anaemia had been remedied and the differential leucocyte count remained normal. She was discharged after a fortnight, and two and a half years later her condition was the same although her general health remained unimpaired.

At the age of 39 an attack of iridocyclitis, from which she made a complete recovery, was treated at an ophthalmic hospital. During the next six years she improved considerably with injections of sodium morrhuate, but developed a morning cough with sputum. In her forty-fourth, forty-fifth, and forty-sixth winters she had attacks of "pneumonia." At the age of 48 she was still troubled with morning cough and dyspnoea on exertion. Her weight was 45 kg. The eruption had disappeared from the face, but persisted on the arms and back in the form of erythematous areas without infiltration but with an occasional yellow-brown nodule. Shotty lymph-nodes were palpable in the neck, axillae, and groins, and the spleen extended 12 cm. below the costal margin. Crepitation was audible at the base of both lungs. The hands and feet were clinically and radiographically normal, but skiagrams of the chest showed a diffuse fibrosis of both lungs (Fig. 3).

CASE II

In this case, that of a West Indian male native, who was first seen at the age of 18 years on account of palpitations, no cardiovascular disease could be found, but there was enlargement of lymph-nodes in the neck and epitrochlear regions, and the spleen was easily palpable. His weight was 60 kg. The patient's health remained good until the age of 19½ years, when for a few weeks he noted dyspnoea on exertion; his spleen was again found to be enlarged. He was free from symptoms until the age of 28, when he developed a feverish cold, followed a week later by painful swelling of both lacrimal glands. The swellings subsided after a few days and a dry paroxysmal cough appeared. Three months later he began to tire easily; his temperature rose occasionally to 99.5° F. and there was some dyspnoea. He had recurrent sore throat, and his left antrum was thought to be infected, but puncture led to no improvement.

He was admitted to hospital, then being 29 years old. His weight was 79 kg.; he was afebrile, and his pulse frequency varied from 90 to 110 per minute. There were enlarged lymph-nodes in the upper deep cervical groups and in both groins; they were discrete, firm, mobile, and of an average diameter of 1.5 cm. A few crepitations were heard at the base of both lungs. A skiagram of the chest showed great enlargement of the hilar nodes, particularly on the right. The sputum contained no tubercle bacilli. Blood count: erythrocytes, 5,240,000 per c.mm.; haemoglobin, 90 per cent.; colour index, 0.86; leucocytes, 7,700 per c.mm.; neutrophils, 60 per cent.; eosinophils, 9 per cent.; lymphocytes, 7 per cent.; plasma cells, 1 per cent.; monocytes, 14 per cent. Biopsy of a node revealed the changes of sarcoidosis, and the Wassermann reaction was negative.

He was discharged to a sanatorium; and there was a slow improvement in his condition in the next two years.

CASE III

This patient, a married woman with three healthy children, came from a healthy family and had always been well herself, although for as long as she could remember there had been "enlarged glands" in the left side of the neck. When 38 years old she noticed a painless swelling in the right breast, for which she sought admission to hospital. There were small discrete lymph-nodes palpable in the left side of the neck, and in the right breast was a hard mobile well-defined swelling measuring 5 cm. by 4 cm. On excision this was found to have the histological structure of sarcoid tissue, and a lymph-node showed similar changes. At this time she began to be troubled by pain in the left eye, and a year later the right one became similarly affected. At the age of 40½ she was readmitted: enlarged nodes were still present in the left side of the neck, and there was a swelling in the left parotid gland and paresis of the left facial nerve. The eyes showed bilateral iridocyclitis with secondary cataracts, and only perception of light was present. Lymph-nodes removed from the left side of the neck showed sarcoidosis. A radiograph of the chest was normal. Left iridectomy was performed with some improvement, and a year later a similar operation was carried out on the right eye.

At the age of 42 she was blind, apart from perception of light in the left eye; enlarged nodes were palpable on both sides of the neck, and she showed the classical features of myxedema. On the abdominal wall was one small patch of milium lupoid. The blood picture was normal and skiagrams of the chest showed a fine diffuse fibrosis; no radiographic changes were found in the hands. With thyroid therapy her general health improved, and apart from her blindness she began to feel well.

CASE IV

This patient came of a healthy long-lived family, although father, who died after an operation for urethral stricture, was said to have contracted syphilis before marriage. In infancy he had had scarlet fever, mumps, and chicken-pox, but was in good health until the age of 13½ years, when he

began to feel tired at the end of the day. At this time both eyelids and both parotid glands became swollen, there was some pyrexia, and he lost weight. After three months he was admitted to a sanatorium, where he improved and gained weight: the report stated that "no signs of tuberculosis were found." Two months later he was transferred to St. Bartholomew's Hospital; he had been in bed for the previous six weeks, but felt well and was gaining weight; there was no cough. His weight was 43 kg.; he was afebrile, but had a tachycardia of about 100 per minute. Both parotid and both lacrimal glands were enlarged, and there was oedema of the upper lids. The tonsils were fleshy, and shotty lymph-nodes were palpable in both upper deep cervical and inguinal groups. The liver extended 4 cm. below the costal margin, and the tip of the spleen was palpable. A skiagram of the chest showed massive enlargement of hilar and mediastinal nodes. Blood count: erythrocytes, 4,970,000 per c.mm.; haemoglobin, 78 per cent.; colour index, 0.8; leucocytes, 9,600 per c.mm.; neutrophils 58 per cent.; eosinophils, 5 per cent.; lymphocytes, 29 per cent.; monocytes, 7 per cent. Mantoux test (1 mg. O.T.), weak positive. The Wassermann reaction was negative. He was discharged from hospital and spent the subsequent year in Switzerland.

The patient continued to gain weight and to feel well. He was readmitted when 17 years old, and a node which showed the changes of sarcoidosis was removed from the groin (Fig. 5). At that time only the inguinal nodes were palpable; other physical findings were negative, but a skiagram of the chest showed little change from that of two and a half years previously.

CASE V

The patient came of healthy stock and had always been well, except for scarlet fever and mumps in childhood. At the age of 21 she married and subsequently had three pregnancies, all of which terminated in abortion. When 23½ years old red lumps appeared on the skin, following an attack of rheumatism; these faded after a fortnight. Six months later she developed a cough with yellow sputum; there was no sweating and no haemoptysis, but she lost 2 kg. in weight in a month. After six weeks she was admitted to hospital: her weight was then 47 kg.; her temperature occasionally reached 99° F. at night, but there was no tachycardia. Enlarged lymph-nodes were palpable in both sides of the neck and in both groins; none exceeded 1 cm. in diameter. There was flattening and reduced movement over the upper part of the right lung. Examination of the blood showed a haemoglobin of 75 per cent. and a lymphocytosis of 47 per cent. of 7,600 leucocytes per c.mm. The sputum contained no tubercle bacilli; the Mantoux test (0.1 mg. O.T.) and the Wassermann reaction were negative. A skiagram of the chest showed a shadow extending from the mediastinum into the right lung field, with a diffuse mottling of the right upper zone (Fig. 1); there was no radiographic abnormality of the hands. An excised node was histologically typical of sarcoidosis. The patient contracted measles while in the ward and was transferred to a fever hospital. On her return after four weeks the nodes in her neck had decreased in size, but those in the epitrochlear regions were palpable, as were some in the right costo-coracoid group. The tip of the spleen could be felt. Treatment with intravenous crisalbine was instituted, and she was discharged improved after a month. She received continued treatment as an out-patient, and a year later her weight had risen to 57 kg., her general health was excellent, a few small nodes were still palpable, and the mediastinal mass had almost vanished.

CASE VI

A married woman aged 21, who had always been healthy and came of sound stock, this patient had an eruption of painful red swellings on both legs which disappeared after a fortnight. About the same time she noticed a swelling in the right side of the neck; she began to lose strength, was listless, and sweated at night. Her condition remained unchanged until six months later, when swellings appeared under the chin and in the left side of the neck. The

increased steadily in size. She had no cough, but had lost weight. At the age of 22 she was admitted to hospital; she weighed 62 kg. and was aphyrexial. All superficial lymph-nodes were enlarged; the tip of the spleen was palpable and occasional rhonchi were audible in the chest. She had a moderate anaemia with 78 per cent. haemoglobin, but the blood count was otherwise normal. The Mantoux test (0.1 mg. O.T.) and the Wassermann reaction were negative. A skiagram of the chest showed mediastinal glandular enlargement. An excised cervical node had the microscopical appearance of sarcoidosis. After radiotherapy she was discharged from hospital; the nodes were then considerably smaller, but she had lost 4 kg. in weight.

Six months later there was further diminution in the size of the lymph-nodes, and after another three months only those in the axillae remained palpable. At this time a skiagram of the hands showed no bony lesion, but in the lungs a military type of infiltration (Fig. 2) had been added to the mediastinal lymphadenopathy. Her general health was good; she had regained 3 kg., but still complained of some tiredness at the end of the day. A year after her discharge from hospital her weight was 66 kg., she was free from symptoms, no superficial nodes were palpable, and the radiographic appearance of the lungs was normal.

CASE VII

This girl was one of a healthy family and had always been well herself, apart from childish ailments, until the age of 14½ years, when she noticed a small pimple on the right cheek. Six months later a painless swelling appeared in the right side of the neck, increasing slowly in size. At 16 years of age a similar lesion appeared on the left arm; a diagnosis of lupus vulgaris was made, and she was treated with injections and ultra-violet light. She lost no weight, had no fever and no sweats, and her general health was unimpaired. A year later she was admitted to hospital; she was aphyrexial and without tachycardia, and her weight was 46.5 kg. Small patches of typical military lupoid were present on the cheeks, arms, and back. There were enlarged lymph-nodes in both sides of the neck, the greatest measuring 2 cm. by 3 cm.; small nodes were palpable in both axillae and groins. The blood picture was normal; the Mantoux test (0.1 mg. O.T.) and the Wassermann reaction were negative. She was discharged after a stay of eleven days. Eight months later she was readmitted; her weight had increased by 4 kg., but her condition was otherwise unchanged. Skiagrams of the chest and hands were normal, and after a course of radiotherapy the lymph-nodes became smaller.

CASE VIII

A missionary worker whose father died of pulmonary tuberculosis, this patient had herself been healthy, apart from acute appendicitis, until the age of 28, when she had sudden pain and swelling in the fourth left digit. The swelling gradually involved the whole finger, and later the left thumb and index were affected. After a few months the hand became almost normal again. At the age of 42 a red eruption appeared on the right side of the face and slowly spread over the nose and left side of the face. Six years later there was swelling of the lymph-nodes in the left side of the neck which subsided after six months.

She was admitted to hospital when 55 years old. There was some dyspnoea on exertion, but no cough, no loss of weight, and no fever. A typical eruption of lupus pernio affected both cheeks and the nose; shotty lymph-nodes were palpable in both posterior triangles, and a persistent rale was audible at the base of both lungs. There was a fusiform swelling of the proximal phalanx of the left fourth digit, and the terminal phalanx was hyperextended. The blood picture was normal; the Mantoux test (0.1 mg. O.T.) and the Wassermann reaction were negative. Serum proteins: albumin 5.2 grammes and globulin 5.2 grammes per 100 ml. Skiagrams of the chest revealed some fibrosis involving particularly the right lower lobe, and the hands showed the radiographic changes of osteitis multiplex in the first and fourth left digits (Fig. 4).

She was treated with solganol-B-oleosum intramuscularly, and after seven months her health remained good, while the local lesions were unchanged.

Conclusions

1. Sarcoidosis is a systematized disease of lymphoreticular (reticulo-endothelial) tissue in which changes are found particularly in the lymph-nodes, spleen, skin, bones of the hands, lungs, eyes, and salivary glands.
2. The uveo-parotid syndrome of Heerfordt is a clinical variant of sarcoidosis.
3. Its course is prolonged and benign, and it has a tendency towards spontaneous recovery.
4. There is no convincing evidence that sarcoidosis is a manifestation of tuberculosis.
5. It is of common enough occurrence to be a disease of interest to all general physicians.
6. Eight new cases of sarcoidosis are reported.

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E. H. J. Warns (*Nederl. Tijds. Geneesk.*, 1938, 82, 4426) treated twenty-six patients with osteo-articular tuberculosis by large doses of vitamin C for four and a half months, but without any therapeutic effect except possibly a slight improvement in the general condition. On the other hand, the frequently reported deficiency of vitamin C in tuberculosis was confirmed: its daily consumption by the patients was three to five times the normal. There also appeared to be a certain relation between the daily consumption of vitamin C and the activity of the tuberculous process.

FURTHER EXPERIENCES WITH TOMOGRAPHY IN PULMONARY TUBERCULOSIS

BY

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(WITH SPECIAL PLATE)

The theory of tomography, and the principles governing this method of taking x-ray pictures of a section of an organ, have been described in several papers (McDougall, 1936, 1937; McDougall and Crawford, 1937), and the present position has been well summarized in a leading article in the *British Medical Journal* (1937). The value of tomography in cases of pulmonary disease is now fully recognized, and with the elaboration and perfection of relatively simple apparatus this method of investigation is likely to enjoy an increasing popularity.

Technique of Tomography

We have continued to use the Sanitas machine as devised by Grossmann (1935), and since March, 1936, when we first began to use tomography at Preston Hall, nearly 400 patients have been investigated by this method. Grossmann's tomograph has been criticized as expensive, but the quality of the pictures is excellent, and post-mortem confirmation of the appearances of the lesion at different sections has been obtained; these afford complete proof of the general accuracy of the apparatus. Furthermore, the resultant films seem to us to present a greater degree of contrast, a more complete obliteration of unwanted shadows, and a more sharply outlined general detail than are usually obtained with simpler apparatus. Nevertheless, we agree that elaborate and costly apparatus is not essential for tomography, and Twining (1937) and Colyer (1937), working independently in this country, and Ziedses des Plantes (1932) in Holland, have all shown that simple attachments to an ordinary x-ray machine can successfully fulfil the requirements necessary for the production of tomograms.

In Grossmann's tomograph the tube and the Potter-Bucky film holder are attached to opposite ends of a pendulum, and in taking a photograph the tube describes an arc, the extent of which can be controlled. The axis in which the pendulum swings can be brought opposite any desired plane in the patient's body, and it is only objects on this particular plane which are sharply defined on the film. The geometrical principles have already been fully outlined in the papers referred to above; further details need not be discussed here.

Twining realized that an ordinary Potter-Bucky couch, embodying as it does two convenient mechanisms—namely, (1) a column capable of moving parallel to the couch, and (2) a Potter-Bucky film carrier moving along the long axis of the couch—was easily adaptable for tomography. By connecting the tube carrier and film carrier by a suitable lever he obtained the movement required—namely, proportional and opposite movement of the film. In this method, as with Grossmann's tomograph, the patient lies in the recumbent position, but in Colyer's adaptation the tube and film carrier move in a vertical instead of a horizontal plane, and thus the patient

can be photographed in the upright position. It is claimed that with this technique the upper limit of a pleural effusion or the line of a fluid level in a cavity is not obliterated.

Clinically, the widest application of tomography has been in the field of obscure pulmonary lesions, but whilst our own work has been almost entirely limited to cases of pulmonary tuberculosis, valuable information can be obtained by the use of this method in many other regions of the body. Twining has found it of considerable value in certain bone work—for example, the radiology of thin cancellous bones which are obscured by denser structures: the patella, sternum, and sternoclavicular joint, temporo-mandibular joint, zygoma, and cribriform plate, the atlas and axis. In addition the larynx, the pharynx, and the nasal cavity can all be investigated by tomography, and more precise information be obtained than by ordinary radiography.

Descriptive Cases

The cases to be described are offered as a further example of the value of the tomograph in the elucidation and localization of cavities, and the more precise analysis and interpretation of complicated fibrotic disease. A full discussion on the clinical value of tomography has already appeared in the *Proceedings of the Royal Society of Medicine* (1938), and readers are referred to this for further details.

CASE I

A patient aged 48, with a four-years history of pulmonary tuberculosis. Fig. 1A is the ordinary radiograph of the chest; the lesion is seen to be fibrotic in type and bilateral in distribution. The right lung appears to contain old-standing fibro-cavernous disease of the upper zone, with an area of recent infiltration in the lower zone; the dome of the diaphragm on this side is peaked and adherent, and the costo-phrenic angle is obliterated. The left lung shows chronic infiltration over the upper two-thirds, while the lower zone is emphysematous, the diaphragm here being sharply outlined.

Fig. 1B is a tomogram taken at a level of only 5 cm. from the back of the chest. On the right side two air loculi are now apparent over the upper and middle zones, being separated by a band of fibrous tissue at approximately the level of the interlobar fissure. Close to the mediastinum, in the inner part of the upper lobe, is a well-defined cavity, and in the lower lobe diffuse infiltrative disease is present. The left lung shows generalized fibrotic disease with a well-defined cavity in the mid-zone (which was not apparent on the ordinary film).

We feel that in this case the antero-posterior film gave an entirely incomplete picture of the actual pathological features of the lesion, and in view of the fact that the physical signs in this case were most indefinite, the existence of the spontaneous pneumothorax on the right side must have remained unsuspected in the absence of tomography. The presence of the spontaneous pneumothorax was later confirmed by inserting a pneumothorax needle, when a slightly positive pressure reading was obtained. A thoracoscopy was advised to determine the state of the collapsed portion of lung, but unfortunately the patient refused this investigation.

The entire series of tomograms in this case (not shown here for reasons of space), taken at intervals of 2 cm. from the front to the back of the chest, illustrated very beautifully the gradual appearance of the pneumothorax from the level of the plane of the lung root to the level of the paravertebral sulcus, and also indicated the general position of the cavity shown in the left mid-zone on the tomogram. The topography of the lesion was thus determined.

strated in a way that we have never been able to equal by any other method of radiological investigation, including lateral, stereoscopic, and oblique films. In this particular case the main lesion was found to be situated in the deeper portions of the lung tissue: this finding has been borne out so often in other patients investigated by us that it would appear that the majority of tuberculous lesions in the lung begin at the back and extend by advancing into the anterior sections. Hence it may often occur that ventral tomograms fail to reveal any evidence of disease, while the dorsal sections may indicate extensive lesions.

CASE II

This patient, aged 30, was admitted with a two-and-a-half-years history of pulmonary tuberculosis. Fig. 2a is the ordinary radiograph of the chest taken on admission. On the right side the apex is seen to be cramped and fibrotic, with some "hard" infiltration in the infraclavicular zone. Over the lower zone, in the inner half of the lung field, is a ring shadow; just above the diaphragm the appearance is suggestive of bronchiectasis. The diaphragm itself is well raised, but the patient had not had a phrenic operation. On the left side the apex is also cramped, and the upper and middle zones show some increase in the normal striation, but no definite infiltrative disease.

Fig. 2n is the tomogram of this patient taken 5 cm. from the back of the chest; a very large cavity in the right lower lobe is now quite obvious, with small "daughter cavities" at its lower pole.

CASE III

This patient was 18 years old, and had a history of only six months' duration. Fig. 3a, the ordinary radiograph taken in the erect position, reveals a very large cavity occupying the whole of the left upper lobe and showing a fluid level; below this is considerable mottling and infiltration. The right lung shows fine mottling over the infraclavicular zone, and suggests a recent exudative spread from the main lesion.

Fig. 3b is a lateral tomogram taken of the left lung in the plane of the mid-clavicular line; the upper lobe cavity is now seen to occupy almost the entire depth of the lung from front to back. A second cavity is also visible below the large one, and appears to be lying in the paravertebral sulcus close to the bodies of the vertebrae. This second cavity was not seen on the ordinary type of lateral film which was taken in this case, no doubt being obscured by the dense shadow of the vertebral column.

CASE IV

A young man aged 20 was admitted with a three-months history of chest symptoms. His general condition was good and his sputum negative. The ordinary radiograph, shown in Fig. 4a, revealed, on the left side, slight infiltration at the apex and more definite infiltration over the mid-zone. The right side, appears a little hazy, but shows no definite lesion. His blood sedimentation rate was normal and his physical signs were scanty and indefinite; in view of these findings surgical treatment was not contemplated, but to be completely certain of the extent and nature of the infiltration on the left side tomographic investigation was carried out.

Fig. 4b is the median tomogram in this case, taken midway between the front and back of the chest; in the mid-zone of the left lung, can be clearly seen a fairly large, well-defined cavity with a good deal of pericavernous infiltration. The right lung is clear.

This cavity was quite obscured on the ordinary film, and a further interesting point in Case IV is that the cavity was revealed in the median section only, and was entirely missed on a preliminary series of films which were taken, thus indicating the great importance of careful "sectioning" in cases with an early lesion.

Because of the tomograph findings, repeated cultural examinations of the sputum were done, and the third specimen cultured on Löwenstein's medium proved to be

positive. Meanwhile an artificial pneumothorax had been attempted on the left side, but the pleura was found to be adherent and the induction failed. A left phrenic crush was subsequently carried out, and after five months (during which time he was also at rest) tomography confirmed that the cavity had closed, leaving only a small fibrotic patch. His sputum is now repeatedly negative to culture and the patient has returned to full work.

Conclusions

In view of the many exhaustive papers that have already been published on the additional information given by tomography in the investigation of pulmonary lesions, we have not gone into the discussions of the cases presented here in any great detail, preferring to allow the films to demonstrate for themselves the greater detail and clarity with which a lesion is revealed. A practical point we would stress is that when a large series of tomograms has been taken on an individual patient the films should be placed together on a sufficient number of viewing screens in order that they may be seen *simultaneously*; in this way the gradual change in the distribution of a lesion is emphatically brought out. The method of successive scrutiny of single tomograms on one viewing screen is quite inadequate for the correct assessment of the series as a whole.

We feel that not the least advantage of tomography is the added impetus it gives one to reconsider old problems in a new light, and to delve into the difficulties of the "pathology of the living," to use the late Lord Moynihan's phrase.

It is true that up to the present we have concentrated mainly on the formation and localization of cavities, and the exact determination of the precise area of lung tissue involved by gross disease. But in these days, with the surgical closure of cavities playing an increasingly important part in the treatment of phthisis, it is essential to adopt a more scientific approach to this particular problem than is possible with ordinary methods of radiology of the chest. With very dense lesions, or lesions of homogeneous densities, stereoscopic films are valueless, and with lesions above the clavicle lateral films often fail to be of assistance. But if cavities are to be closed with a minimum of trauma to the patient and a maximum of efficacy, it is essential to know beyond all doubt the *exact* site and extent of the cavities. From the description of the cases given it is obvious that of all the elements of a tuberculous lesion that comprising a cavity system is revealed most clearly by tomography, and we therefore feel that no apology is needed for stressing the value of this mode of investigation for all patients about to undergo a major thoracic operation.

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The London Spectacle Mission, which since 1885 has supplied spectacles to deserving poor persons, is now incorporated with the Royal Surgical Aid Society, which has lately celebrated its jubilee. Nearly 2,000,000 sufferers have been supplied with artificial limbs and other surgical aids through this charitable organization, and now spectacles are added to the many other boons it can bestow.

A COMPARISON OF CLINICAL AND BLOOD PICTURES IN ADULT SCURVY

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(WITH SPECIAL PLATE)

Cases of scurvy such as were described by clinicians in past generations are becoming very rare, and at the same time more and more accurate laboratory methods for diagnosing the malady in a latent or pre-clinical stage are being evolved. So accurately quantitative are some of these tests that there might seem to be little place for the clinician in the diagnosis of scurvy, and a consequent danger that he may miss the condition even in its more flagrant forms. For this reason, and because of the rather unusual and deceptive blood picture in one of our cases, we have ventured to present them in this paper.

Case I

This patient, a man aged 52, had led an active and energetic life, and apart from a period of war service spent in India and Mesopotamia had worked continuously on the railways since the age of 18. He came of healthy stock, with no familial tendencies, was married, but had no children. Twenty years ago he had had malaria, and about seven years ago a severe attack of bronchitis; otherwise he had enjoyed good health. For several years, however, he had noticed a tendency to excessive breathlessness on exertion, but could not date the onset of this symptom.

In August, 1937, he noticed a sudden pain in the right shoulder, which he ascribed to rheumatism. The shoulder was not swollen or discoloured; the pain persisted for about four weeks, and then passed completely away. In November he found on rising one morning that the right knee was swollen. The swelling was followed by pain, which gradually increased in severity over a period of fourteen days and then as gradually passed off. The pain kept him awake at night, but was not increased by movement and did not prevent him from getting about. In December he was admitted to the surgical department at the Postgraduate Medical School for treatment of the condition in the right knee. The knee was found to be grossly swollen, with effusion into the joint and much periarticular bruising and redness. Flexion was possible to a right angle only. It was thought that the condition might be of infective origin, although the Wassermann test, the gonococcal complement-fixation test, and culture of aspirated fluid yielded no positive information. While he was in hospital it was noted that he had anaemia with a colour index below unity and a red count of 3,200,000. Radiographs of the joint showed no recognizable abnormality. With symptomatic measures the swelling and pain in the knee cleared up in three weeks, and he was discharged to the out-patient department for treatment of his anaemia. The anaemia, however, progressed, and by January the red count had fallen to 2,240,000, with a colour index of 1.27. Accordingly he was admitted to the medical department on January 15, 1938, with a provisional diagnosis of pernicious anaemia.

CONDITION ON ADMISSION

The patient was a well-built, cheerful man, with pallor of the mucous membranes and a sallow muddy tinge to the skin; he was not in any pain or distress, and was not

dyspnoeic at rest. Temperature, pulse, and respiration rate were normal. The mucosa of the tongue was smooth at the edges but not atrophic. The jaws were edentulous and the gums healthy, with no tendency to sponginess or bleeding. The heart was normal apart from a slight apical systolic murmur. The blood pressure was 155/80. The lungs showed slight emphysematous changes, and the liver was soft and a trifle enlarged; there were no other findings in chest or abdomen. The central nervous system was normal. The right knee was stiff, full flexion not being possible; and there was infiltration and staining of periarticular tissues as a result of former blood extravasation. Multiple small raised petechiae into the hair follicles were present on the extensor aspects of both legs. The patient stated that these had been noticed for some time, but he did not remember when they first occurred as they had never troubled him.

INVESTIGATIONS

Blood Count (15/1/38).—Red cells, 1,900,000 per c.mm.; haemoglobin, 40 per cent.; colour index, 1.05. White cells, 3,000 per c.mm.; reticulocytes, 3.2 per cent.

Price-Jones Curve.—Definitely megalocytic (see chart).

Marrow Puncture.—Definite hyperplasia, the early red cells being more affected than the white cells. Percentages of total marrow cells: haemocytoblasts, 5.5; primary erythroblasts, 39; normoblasts, 14; megaloblasts, 0.5. These findings were compatible with a diagnosis of pernicious anaemia.

Bleeding Time.—Eight and a half minutes.

Coagulation Time.—1 minute 45 seconds (Dale), 12 minutes (Lee)—that is, high normal.

Blood Bilirubin.—0.5 mg. per 100 c.cm.

Urine.—Some red blood cells and leucocytes.

Gastric Juice.—Absence of free acid after histamine.

Gastroscopy (Dr. R. S. Aitken).—Moderately extensive gastric atrophy with several recent haemorrhages in the mucosa.

Electrocardiogram.—Normal.

COURSE AND TREATMENT

On the whole these findings appeared to justify the diagnosis of pernicious anaemia, and liver therapy was at once instituted, at first with anahacmin (8 c.cm. in all) and later with hepastab (14 c.cm. in all). In spite of the high dosage no response was elicited in the blood picture. On February 3 a 600-c.cm. blood transfusion, given with the idea of stimulating the marrow, had no such effect.

The reticulocyte count, while remaining persistently high, showed no crisis, readings fluctuating between 4 per cent. and 9 per cent. being obtained. The blood sedimentation rate corrected for the anaemia present on February 4 was 64 mm. at the end of one hour, and in view of this high reading, the reticulocyte count, and the absence of response to liver a neoplasm was suspected, a suspicion hardened by the finding of occult blood in the stools at this time. Accordingly, full x-ray investigations of the principal bones, the thorax, and the abdomen were carried out, but no evidence of neoplasm was obtained. Liver was discontinued and large doses of iron were tried. The blood picture showed at first some slight improvement with iron, but soon relapsed again (Table I).

On February 8 a cluc was given to the condition underlying this puzzling blood picture when an effusion of blood occurred into the tissue of the left popliteal space and the lower thigh muscles. By the next day the effusion in the left thigh muscles had increased, forming a deep painful bruise, the swelling reaching half-way up the under surface of the thigh. On February 14 another effusion occurred into the right thigh, forming an extensive haematoma around the external malleolus, and the discoloration round the right knee increased in extent. On February 22 a haematoma on the right thigh with overlying oedema was noticed, and there was a further and more extensive bruising of the left thigh muscles (Figs. 1, 2, and 3).

Clinically the condition now was definitely scorbutic, and inquiry elicited the information that since childhood he

TABLE I

| Date | Red Blood Cells per c.mm. | Reticulo-cytes % | Hb+% | Colour Index | White Blood Cells per c.mm. | Polys % | Lymphs % | Large Monos % | Eosins % | Basos % | Treatment |
|---------|---------------------------|------------------|------|--------------|-----------------------------|---------|----------|---------------|----------|---------|---|
| 3/12/37 | 3,200,000 | | 60 | 0.93 | 5,000 | 60 | 35 | 3 | | 2 | Nil |
| 11/1/38 | 2,240,000* | 2.4 | 56 | 1.27 | 6,000 | 71 | 22 | 3 | 3 | 1 | Nil |
| 15/1/38 | 1,900,000 | 3.2 | 40 | 1.05 | 3,000 | | | | | | Nil |
| 21/1/38 | 2,100,000 | 6.0 | 46 | 1.09 | 4,000 | | | | | | <i>Liver</i> 17.1.38 Anahaemin 4 c.cm. |
| 31/1/38 | 1,540,000 | 6.4 | 38 | 1.05 | 5,000 | 65 | 33 | | 2 | | 24.1.38 " " " |
| 4/2/38 | 2,200,000 | 7.2 | 38 | 0.86 | 4,600 | 62 | 32 | 2 | 2 | 2 | { 31.1.38 Hepastab 8 c.cm. 2.2.38 to 7.2.38 Hepastab 2 c.cm. on alternate days |
| 15/2/38 | 2,900,000 | | 52 | 0.90 | 5,000 | 62 | 28 | 7 | | 3 | <i>Blood and Iron</i> 3.2.38 Transfusion 600 c.cm. blood |
| 21/2/38 | 1,800,000† | | 34 | 0.94 | 3,400 | 49 | 45 | 3 | 2 | | 7.2.38 to 19.2.38 Ferriet ammon. cit. gr. xxx L.D.s. |
| 25/2/38 | 2,000,000 | 3.6 | 36 | 0.90 | 4,400 | 55 | 35 | | 6 | 4 | <i>Vitamin C</i> |
| 1/3/38 | 2,200,000‡ | 5.6 | 40 | 0.90 | 2,400 | 56 | 37 | 1 | 5 | 1 | 22.2.38 to 6/4/38 Ascorbic acid orally 600 mg. daily |
| 8/3/38 | 3,000,000* | | 54 | 0.90 | 3,200 | 50 | 46 | 3 | 1 | | |
| 16/3/38 | 3,900,000 | | 72 | 0.92 | 7,000 | | | | | | 25/2.38 Extra dose of 1,000 mg. ascorbic acid orally |
| 22/3/38 | 4,000,000 | 1.0 | 77 | 0.96 | 4,500 | 50 | 40 | 5 | 4.5 | 0.5 | |
| 29/3/38 | 4,400,000 | | 86 | 0.98 | 9,000 | | | | | | |
| 19/4/38 | 4,800,000 | | 92 | 0.95 | 5,000 | | | | | | Orange juice also given from 8/3/38 onwards |

* Anisocytosis. † Considerable anisocytosis with many megalocytes. ‡ Anisocytosis and polychromasia.

patient had had a distaste for fruit and fresh vegetables amounting to a phobia, the sight of a tomato or an apple being enough to cause nausea. Most of the meat which he had at home was twice cooked in the form of puddings and pies, and his only source of vitamin C appeared to be potatoes. It was not at the time realized, however, that avitaminosis C could cause such a profound anaemia of a hyperchromic type, and it was thought that it was only a contributory factor in the production of this anaemia. The iron therapy was discontinued on February 19, and on February 22 and the ensuing days quantitative tests for scurvy were performed (Table III).

The decolorization time of intradermal 2:6-dichlorophenol-indophenol on February 22 averaged seventeen minutes, and the total urinary output of ascorbic acid in twenty-four hours was only 6.7 mg. Treatment was at once begun with ascorbic acid, 600 mg. daily by mouth. On February 25 urinary excretion was still deficient, and an extra dose of 1,000 mg. by mouth was given. The total output during the ensuing twenty-four hours, however, was only 12.9 mg. The red cell count had risen to 2,000,000 per c.mm.

On March 5 the haemorrhages into the hair follicles of the leg had completely disappeared, and the larger ones were absorbing satisfactorily. On this, the thirteenth day of treatment, the excretion test showed a greatly increased figure for the first time, the intradermal test having become normal on the fourth day of vitamin C therapy. On March 8 extra vitamin C, in the form of orange juice, was administered, and apparently saturation was achieved a week later, after three weeks' therapy and the administration of over 14 grammes of ascorbic acid; for on March 15 235 mg. of the test dose of 600 mg. were excreted. Throughout this period, on vitamin C therapy alone, steady improvement was made, the red cell count being 3,900,000 per c.mm. by March 16 and 4,400,000 by March 30. As by the latter date the patient's haematoma were completely absorbed, his joints normal, and his other scorbutic signs gone, he was discharged. With continued vitamin C therapy the blood count soon became normal.

Case II

This case makes an interesting comparison with Case I, for it presented more of the commonly described features of adult scurvy. But in spite of certain differences the two cases were obviously examples of the same disease.

The patient, a married man aged 65, had previously been very healthy. From 18 to 41 years of age he had been at sea, often on long voyages of eighteen months or two years. During this time he had seen men with scurvy, but his ships had always allowed rations of lime juice and fresh food. Only in the last four years had his diet become deficient in vitamin C, consisting mainly of porridge, milk puddings, bread and butter, fish, and eggs. His appetite had deteriorated, and at the time of admission was very poor, particularly for fruit, tomatoes, and the like. He felt generally unwell, but his chief complaints when first seen were of pain and swelling of the right knee for two months, and of progressive soreness and swelling of the gums for nine months. The latter had become so bad that he could eat soft food only.

CONDITION ON ADMISSION

On admission into Redhill County Hospital under the care of one of us (G. H. J.) the patient showed anaemia and wasting. The skin of the face, forearms, and hands was of a sallow muddy colour. The gums were striking (Figs. 5 and 6), being swollen, blue, and mauve, and bleeding very readily. The teeth showed marked caries and pyorrhoea, and there was a most unpleasant oral fetor. The right forearm showed a number of subcutaneous bullous haemorrhages, which had been caused by slight injuries a year before (Fig. 4). There were large ecchymoses on the knees, left shin, and left ankle. There were again many follicular petechiae on the shins and around and above the knees. The right knee was distended with fluid. Other symptoms revealed little of note, though there was some arteriosclerosis, and the blood pressure was 180/90. The tourniquet test was strongly positive, the whole forearm being smothered with large petechiae after five minutes of arm compression at 80 mm. Hg.

INVESTIGATIONS

Blood Count (8/7/38).—Red cells, 3,420,000 per c.mm.; haemoglobin, 67 per cent.; colour index, 0.98. White cells, 6,000 per c.mm.; reticulocytes, 0.8 per cent.

Marrow Puncture (15/7/38).—Megaloblasts, 1 per cent.; primary erythroblasts, 2 per cent.; late erythroblasts, 3.5 per cent.; normoblasts, 11.5 per cent.

Bleeding Time.—Less than five minutes.

Coagulation Time.—Three minutes (Wright).

It was unfortunately impossible to get a sample of gastric juice from this patient.

COURSE AND TREATMENT

The patient continued with a diet poor in vitamin C, but from his sixth day in hospital 600 mg. of ascorbic acid were given daily by mouth. By the end of a week's treatment his gums were much better, his bruises were much less marked, and his knee less swollen. After a fortnight's treatment his knee was still slightly swollen, but the gums and the skin were almost entirely free of haemorrhages. The tourniquet test by now was much less positive, fifty tiny petechiae being produced. On the fourth day of treatment there was a reticulocytosis (6 per cent.), but the anaemia again only improved slowly (Table II). As in the first case, however, the anaemia was completely cured as a result of vitamin C therapy, in this instance after about a month's treatment. At the time of the last blood count the tourniquet test was almost negative, only five minute petechiae being produced.

TABLE II

| Date | Per cent. Reticulocytes | Hb. | Color Index | White blood cells (per cmm.) | Platelets | Temperature | Large Monocytes | Leucocytes | Reticulocytes | Treatment |
|---------|-------------------------|-----|-------------|------------------------------|-----------|-------------|-----------------|------------|---------------|--|
| 7.1.38 | 3.20 (0.000) | 62 | 0.9 | 8,000 | 61 | 27 | 8 | 1 | 1 | Nil |
| 18.2.38 | 3.50 (0.000) | 70 | 1.0 | 8,500 | 71 | 19 | 9 | 1 | | 12.7.38 to 9.8.38 600 mg. ascorbic acid daily; fruit juice also daily from 27.7.38 |
| 25.2.38 | 4.40 (0.000) | 79 | 0.88 | 6,500 | 74 | 22 | 4 | | | |
| 18.3.38 | 4.50 (0.000) | 94 | 1.0 | 11,200 | 68 | 20 | 5 | 1 | | |

* At 2 p.m. on 25.2.38, a pinkish systolic and diastolic anaemia. † Slight anaemia.

The treatment given to this patient was 600 mg. of ascorbic acid daily by mouth. All other vitamin-C-containing food and iron-containing food was excluded from his diet as much as possible until July 27, when a liberal allowance of fresh fruit was introduced. The excretion of ascorbic acid in the urine was estimated daily (Table IV), and it was found that saturation was reached on the twelfth day of treatment and after the administration of 6.6 grammes of ascorbic acid. As might have been anticipated from the shorter history of deprivation, this case was less dehydrated in vitamin C than Case I. With the general improvement in the patient's condition his appetite improved, and when seen recently he reported that he was "eating like a horse" and taking plenty of fruit.

Discussion

There are many features of interest in these cases, and not the least is that they were married men with devoted wives. Schultz (1936) and others have drawn attention to the liability to scurvy of single and solitary men, but the first patient was most unwilling to come into hospital because only his wife was able to give him "the food that suited him." She had indeed, with the best will in the world, severely and carefully limited the vitamin C in his diet for many years! His extreme aversion to fresh fruit and vegetables, which appeared to have increased with the severity of the scurvy, was another interesting feature. After his scurvy had been successfully treated he was able to take fruit juice with a certain amount of relish.

The clinical features in these cases were, of course, quite typical: the sallow muddy complexions; the extravasations of blood behind the knees (Figs. 1 and 3) and around the ankle (Fig. 2); the swollen knee-joints; the oedema; the petechiae in the hyperkeratotic hair follicles on the legs (Fig. 3); and the spongy gums in Case II (Figs. 5 and 6).

Bondurant (1934), Schultz (1936), and Nisenson and Cohen (1937) have all recently reported similar cases, and among these and other recent ones the characteristic gum bleeding and mouth fetor occurred only occasionally. In the other cases teeth had been removed, and the most obvious evidence of scurvy was not therefore

prominent. In view of the recent importance attached to the discovery of latent scurvy as a cause of ill-health and its appearance after comparatively short periods of time in the dietary treatment of peptic ulcer (Mourne, 1938), it is interesting to observe from the first case the length of time during which scurvy will remain latent. It is fair to assume that for forty years at least this man had lived on a diet grossly deficient in vitamin C, and yet only for a few years had he had any symptoms. The first of these symptoms, dyspnoea, was presumably due to anaemia, and had been present increasingly for three or four years. In his case the haemorrhagic symptoms had only just appeared when he was seen, but Schultz's (1936) cases show that severe haemorrhagic phenomena may make scurvy evident before anaemia has developed.

The anaemia in this case was of peculiar interest, and because it proved deceptive to us we now propose to consider it in detail. The blood counts and their relation to the treatment given are shown in Table I. The megalocytic and hyperchromic tendency of the anaemia up to the time of vitamin C therapy is evident from this table and from the Price-Jones curve (see chart) of January 11. On January 11, before any treatment, the mean corpuscular volume was 113.6 cu (normal, 75.7 to 96 cu), and there was anisocytosis. A little later the sternal marrow showed a hyperplasia chiefly affecting the early red cells, and the gastric juice revealed an achlorhydria. The blood cells at this time showed also a considerable variation in density of staining.

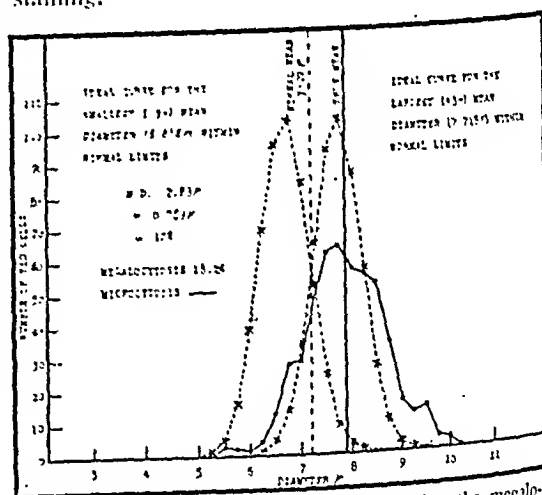


Chart of Case I: Price-Jones curve, showing the megalocytosis before the beginning of treatment.

These findings are similar to those described in pernicious anaemia, but there was a persistent reticulocytosis (2.5 to 9 per cent.), and neither the blood count nor the reticulocytes gave any response to liver therapy. Iron, as was anticipated, also had no effect. That a megalocytic anaemia of this type might occur in scurvy was first

suggested by Mettler, Minot, and Townsend (1930), who found that in the severe anaemia of some scurvy cases there might be enough red cells larger than normal to suggest a diagnosis of pernicious anaemia. Nisenson and Cohen (1937) have described a severe case of scurvy, very much like Case I, with marked anaemia and a colour index of 1.16. Among eight cases of infantile scurvy Parsons and Smallwood (1935) report one case of megalocytic anaemia, while two of their anaemia cases were normocytic and orthochromic, and two were hypochromic. Three cases had no anaemia at all. Mettler, Minot, and Townsend state that of cases of clinical adult scurvy a third are not anaemic, while half the remainder are severely anaemic and half moderately anaemic. As a general rule they found an orthochromic normocytic anaemia in scurvy, and this type of anaemia, shown by the second case, has also been found by Bondurant (1934) and Wood (1935).

The anaemia of scurvy is attributed by Parsons and Smallwood to deficient oxygenation of the marrow. Vitamin C takes up oxygen and releases it in the tissues, and when vitamin C is deficient in the marrow the maturation of red cells is retarded by lack of oxygen. While the stage of maturation of normoblasts to erythroblasts is most usually disturbed, the megaloblast maturation to normoblast may be chiefly affected in some cases, as in the first case just described. This case, with a very low level of vitamin C in the tissues, showed in the marrow a great interference with the maturation of the early cells of the red cell series, and a severe megalocytic anaemia resulted. Case II, with a less marked vitamin C desaturation of the tissues, showed no definite interference with the maturation of the early red cells and only a moderate normocytic anaemia. Such findings suggest that there is some relation between the extent of vitamin C lack in the tissues and the point at which marrow-cell maturation is chiefly affected.

In cases of scurvy anaemia, vitamin C administration provokes a reticulocytosis (see Case II), but the high reticulocyte count in Case I before treatment is a curious finding, though it was a feature to a lesser degree (2.5 per cent.) in Nisenson and Cohen's megalocytic case. The hypochromic anaemias found in scurvy result from blood loss and an associated iron deficiency, and in such cases a partial response to iron may be expected.

Achlorhydria may be a contributory factor in producing scurvy, as was pointed out by Schultzer (1933): for vitamin C is only stable in an acid medium. Injection therapy is therefore preferable in such cases.

We employed as confirmatory of the diagnosis of clinical scurvy three tests which have been used to make the diagnosis of latent scurvy. These were the ascorbic acid saturation test of Abbasy (1935); Rotter's intradermal test with 2:6-dichlorophenolindophenol (Rotter, 1937); and the capillary resistance test. The position of these tests in relation to scurvy in general and to our cases in particular may be summarized briefly as follows:

I. THE ASCORBIC ACID SATURATION TEST OF ABBASY

In this test the patient is kept on a diet free of vitamin C, and after a short control period 500 to 1,000 mg. of vitamin C (ascorbic acid) is given daily by mouth and the amount excreted in the urine is estimated. The saturation point is usually reached when half the quantity administered daily is excreted, but even on vitamin-C-free diets some ascorbic acid is excreted by severe cases of scurvy (Schultzer, 1936). All Schultzer's cases excreted as much as 17 mg. daily, and one excreted 33 mg. under these conditions.

Our first case was given 600 mg. of ascorbic acid by mouth on all the days shown in Table III, except on the fifth day (February 25), when an extra 1,000 mg. was given, also by mouth. Fruit juice was added from March 8 to 14, and was discontinued for the excretion test on March 15. The table reveals several interesting facts, the first being the comparatively large amount of ascorbic acid excreted when the body was still as markedly desaturated as it was on the day preceding therapy and in the early days of treatment. Also interesting was the long delay of eight days before there was any appreciable increase in the amount excreted. In the last place, if

TABLE III.—Results of Quantitative Tests for Scurvy in Case I

| Date | Daily Amount of Ascorbic Acid Excreted | Volume of Urine | Daily Amount of Ascorbic Acid Administered |
|---------|--|-----------------|--|
| | mg. | c.cm. | mg. |
| 21/2/38 | 6.7 | 1,150 | Nil |
| 22/2/38 | 14.9 | 950 | 600 |
| 23/2/38 | 9.3 | 790 | 600 |
| 24/2/38 | 15.9 | 1,000 | 600 |
| 25/2/38 | 14.6 | 1,305 | 1,600 |
| 26/2/38 | 12.9 | 1,220 | 600 |
| 27/2/38 | — | — | 600 |
| 28/2/38 | 14.5 | 1,310 | 600 |
| 1/3/38 | 13.5 | 1,230 | 600 |
| 2/3/38 | 12.9 | 750 | 600 |
| 3/3/38 | 27.8 | 1,310 | 600 |
| 4/3/38 | 44.7 | 970 | 600 |
| 5/3/38 | 110.0 | 1,160 | 600 |
| 6/3/38 | 85.2 | 1,270 | 600 |
| 7/3/38 | 59.7 | 1,030 | 600 |
| 15/3/38 | 235.2 | 1,670 | 600 |

TABLE IV.—Results of Quantitative Tests for Scurvy in Case II

| Date | Daily Amount of Ascorbic Acid Excreted | Volume of Urine | Daily Amount of Ascorbic Acid Administered |
|---------|--|-----------------|--|
| | mg. | c.cm. | mg. |
| 8/7/38 | 5.5 | 292 | Nil |
| 9/7/38 | 7.4 | 356 | Nil |
| 10/7/38 | 18.4 | 469 | Nil |
| 11/7/38 | 7.0 | 234 | Nil |
| 12/7/38 | 9.4 | 347 | 600 |
| 13/7/38 | 18.3 | 571 | 600 |
| 14/7/38 | 11.6 | 365 | 600 |
| 15/7/38 | 13.9 | 395 | 600 |
| 16/7/38 | 29.5 | 735 | 600 |
| 17/7/38 | 6.0 | 200 | 600 |
| 18/7/38 | 22.5 | 925 | 600 |
| 19/7/38 | 74.2 | 1,050 | 600 |
| 20/7/38 | 147.0 | 1,260 | 600 |
| 21/7/38 | 74.0 | 900 | 600 |
| 22/7/38 | 123.0 | 1,050 | 600 |
| 23/7/38 | 348.0* | 675 | 600 |
| 26/7/38 | 270.0 | 820 | 600 |

* Only a half-day's specimen.

50 per cent. excretion of administered ascorbic acid indicated saturation, our first patient was apparently just short of this point after three weeks' treatment. By then 13.6 grammes of ascorbic acid tablets had been administered and much more had been given in fresh fruit, a considerable difference from the 0.5 gramme to 2.3 grammes which Wilkinson and Portnoy (1938) find will saturate a normal person.

Case II, as previously pointed out, was much less deficient in vitamin C, and was saturated after eleven days' treatment and the administration of 6.6 grammes of ascorbic acid (Table IV).

2. PORTNOY'S INTRADERMAL TEST (1937)

In Table V the times of decolorization by Case I of an intradermal spot of the blue dye 2,6-dichlorophenolindophenol are charted. As described by Wilkinson and Portnoy (1938) 0.1 ccm. of a solution of the dye (2 mg. in 4.9 ccm.) was injected intradermally in four places. Normally the blue spots are decolorized within ten minutes, and this was the case in our healthy controls. But in cases of rheumatism, rheumatoid arthritis, and other infective conditions we found the time to be prolonged (up to thirty minutes in one instance). In scurvy it is usually much prolonged, and Case I at first showed average decolorization times of seventeen and twenty-one minutes. But after three days of oral ascorbic acid treatment the time became normal.

TABLE V

| Date | Average Decolorization Time of Intradermal Test* | Treatment (Oral Ascorbic Acid) |
|---------|--|--------------------------------|
| 22/2/38 | 17 | 100 |
| 23/2/38 | 21 | 100 |
| 24/2/38 | 7½ | 1,000 |
| 26/2/38 | 8 | 100 |
| 1/3/38 | 8 | 100 |
| 2/3/38 | 7 | 100 |
| 12/3/38 | 4 | 100* |

* Fruit juice also given from March 8

It will be observed by comparison of Table III with Table V that the cutaneous dye test shows a normal result much more quickly than the excretion test—that is, it becomes normal in the presence of vitamin C deficiency. This fact was further exemplified by Case II, the patient giving a normal result (three to six minutes) before any treatment. Inquiry revealed that in the week before admission he had taken two bottles of lime juice, his only appreciable intake of vitamin C in four years. It is possible that this was the cause of his normal intradermal test time, though he was still very deficient in vitamin C and clinically a clear case of scurvy.

3. THE CAPILLARY RESISTANCE TEST

This test has slight technical variations, and for the cases in this paper a pressure of 80 mm. Hg was sustained for five minutes. Dalldorf (1931) has shown that in the experimental scurvy of guinea-pigs a decreased capillary resistance is the first sign of the disease. Bourne (1938) has used the test to disclose latent scurvy during the treatment of peptic ulcers, but it must be remembered that normal people may at times give positive results to variable

small extents. The height of the blood pressure and the state of the vessels influence the results. For these reasons it is perhaps not surprising that Case II initially gave a far more extensive response to the test than did Case I. In Case II numerous large petechiae appeared over the whole forearm; in Case I there were about fifty petechiae in the ante-cubital fossa. In both cases the test results approached normal very early in treatment. In Case I the result was negative on the eighth day, and by then the skin petechiae elsewhere were almost gone. This early decrease in capillary permeability corresponding with the rapid clearance of the haemorrhagic manifestations has been commented on by Schulz (1936), and is the converse of Dalldorf's observation. In Case II the capillary response was a little slower, being almost negative by the fifteenth day and quite negative at the end of a month's treatment. Rather surprisingly in Case I it was found that on the thirty-fifth day of treatment the test was again definitely positive. Schulz (1936) has also commented on this variation in the result of the capillary resistance test in cases of treated scurvy. In this connexion it is interesting to note that Greene (1934) found a positive tourniquet test in 10 per cent. of healthy children and only a similar number of positive results in a group of children who might have been suspected of latent scurvy. He found variations in the test from time to time, and even a difference between the responses on the two arms of a normal subject.

Summary

Two cases of adult scurvy have been described which showed many of the classical features of the disease. The first case revealed a megalocytic anaemia not often associated with scurvy. A constant reticulocytosis, polychromasia, anisocytosis, and leucopenia were also observed in this case. A hyperplastic bone marrow showing many early red cells, a smooth tongue, gastric mucosal atrophy, and achlorhydria were further features of the case which simulated those of Addisonian anaemia. This case has been contrasted with a second case in which the anaemia was of the more usual orthochromic and normocytic type, and in which the characteristic gum lesions made the diagnosis evident, although the latter was otherwise a less severe case. An attempt has been made to find some relation between the clinical and haematological differences in the two cases and the different vitamin C levels demonstrated in their tissues by an excretion test. The initial differences of tissue vitamin C levels in the two cases seemed to be related to the lengths of their respective periods on scorbutic diets. The value of the intradermal test and the capillary resistance test in the diagnosis of scurvy has been discussed.

In the first case a megalocytic anaemia failed to respond either to liver or to iron, but in both cases the anaemia was cured solely as a result of vitamin C therapy. The clinical pictures improved more rapidly than the blood pictures. The comparative slowness of the responses in the blood might have been ascribed, to defective absorption of the orally administered vitamin C as a result of an atrophic alimentary mucosa and lack of gastric acid. But the early disappearance of the superficial manifestations of the disease and the early normality of the intradermal test make this explanation unlikely. The great ascorbic acid desaturation of all the tissues, particularly in Case I, is the probable explanation of the slowness of the blood response. In Case I it is evident that the anaemia was much the earliest manifestation of the disease, so that it is not surprising that it should have been the last to disappear. The history of this case showed that

vitamin-C deficiency must have been present for many years before the scurvy became clinically manifest.

We are indebted to Dr. Janet Vaughan, Dr. R. G. MacFarlane, and Dr. G. A. D. Haslewood for help with the investigation of the first case, and to Dr. J. H. Patterson for similar assistance with the second. The first case is published by permission of the Chief Medical Officer of the L.C.C., and the second by permission of the Chief Medical Officer of the Middlesex County Council.

* Through a clerical error, discovered too late, Surgeon Lieutenant A. J. Glazebrook's initials are incorrectly given on the plate.

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Clinical Memoranda

A Tumour of the Male Breast

This case, recently under my care, appears to be worth recording by reason of the very interesting differential diagnosis.

CLINICAL HISTORY

On October 4, 1937, I admitted a man about 35 years of age, complaining of a lump in his left breast. His attention had been first drawn to it eight months earlier by pain, though the pain had at no time been at all severe. Since then the size of the tumour had slowly increased. He also complained of pain in the right knee and ankle. He was thin, and had evidently lost a good deal of weight.

On examination there was an obvious lump in the left breast, mainly in the right upper quadrant. It stood out about three-quarters of an inch from the chest wall, was roughly oval in shape (2½ in. by 2 in.), and the margins were ill defined. There was no change in the skin. On palpation the tumour was of firm consistence and did not fluctuate. It was attached to the deeper structures, being fixed to the chest wall, but not adherent to the skin, which was freely movable over it. The lump was not at all tender. In one part over the third rib there was just palpable a very narrow ridge of bone standing up one-eighth of an inch or less, and running across the rib. In the axilla were two enlarged, firm, painless, discrete, and freely movable glands, the largest of which, the size of the shell of an almond, it was easy to take up with the fingers. There were one or two similar but smaller glands in the subclavicular region, but the clavicle appeared free above. There were no abnormal physical signs in the chest, and the patient had no cough. On admission he had a temperature of 99.8° F., which responded to quinine at once. (I had treated him for malaria about two weeks previously.)

DIFFERENTIAL DIAGNOSIS

The diagnosis appeared to lie between tuberculosis and carcinoma, although a sarcoma and gumma had also to be borne in mind.

Against carcinoma there were the following points: (1) Carcinoma is reputed to be very rare amongst the natives,

although in my nine months out here I have had several cases. (2) The first symptom being pain, though at no time was pain a marked feature, and there was a complete absence of tenderness on examination. (3) The presence of the small bony ridge. In favour of carcinoma there were: (1) The general impression on examining the tumour. (2) The consistency and mobility of the glands. A supporting factor was the presence of pain in the knee and ankle, possibly of metastatic origin. There was no local abnormality to be discovered.

Against tuberculosis there were: (1) The absence of pyrexia save for that which responded to the quinine. (2) The absence of fluctuation. (3) The absence of any evidence of perilymphadenitis. (4) No evidence of any other focus of infection. In favour of tuberculosis there were: (1) The presence of the bony ridge, suggesting a bony origin of the tumour. (2) The extreme frequency of all types of tuberculous infection in this part of Central Africa. (3) The deep attachment with no skin involvement, though a sinus might have been expected. (4) Pain being the first symptom.

OPERATION

A radical operation was decided upon. The axilla and sub-clavicular region were cleared of infected glands. No evidence of periglangular reaction was found. On turning the pectoralis minor forwards and inwards a tuberculous abscess was found in the muscle, larger in size than a large walnut: it was in direct communication with an abscess in the third rib. There was a small bony ridge to the left margin of the opening into the bone. As the general condition of the patient contraindicated a partial resection of the rib the bony cavity was scraped and filled with bipp. There was an uneventful recovery.

Discussion

I consider that the presence of the bony ridge was of important diagnostic significance. I shall be interested to learn if the presence of such a ridge, due presumably to the hyperosteoitic reaction sometimes found in tuberculous infection of the bone, has often been noticed in these lesions of the ribs. A blood count might have helped in the diagnosis, and a radiograph certainly would have, but there are no facilities for this out here.

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Drainage of Pelvic Abscess in Acute Appendicitis

In cases of acute appendicitis with rupture of the appendix it is common to find, especially in late cases, that an abscess has formed in the bottom of the pelvis. This abscess is most safely and conveniently drained by the introduction of a tube through a small suprapubic incision.

I have devised a simple, quick, and easy method of doing this, as follows:

Place an ordinary sewing thimble on the forefinger of the left hand and introduce it through the wound made for the removal of the appendix, keeping it close to the anterior abdominal wall, till the tip reaches the central suprapubic position. The finger is now pressed against the anterior abdominal wall, and an incision, about three-quarters of an inch long, is made over and down to the thimble, which can be felt under the skin. The thimble is now pushed up through this incision and removed. A drainage tube is then placed on the tip of the left forefinger and guided by it down to the abscess cavity. By this method there is no danger of incising distended bowel, distended bladder, or the operator's finger.

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Reviews

RESPIRATION

Adventures in Respiration: Medals of Asphyxiation and Methods of Revivification. By Yandell Henderson. (Pp. 316; 15 figures. 3 dollars.) Baltimore: Williams and Wilkins; London: Baillière, Tindall and Cox. 1938.

This book contains two very interesting photographs of the Pike's Peak Expedition of 1911, showing some of the members busy with scientific observations at high altitudes. One of the members is the late John Scott Haldane, to whose memory the book is fittingly dedicated. It was during talks on respiration while on that expedition that the ideas set forth in the present book began to take shape. In 1885 Miescher or Haldé wrote, "Over the oxygen supply of the body carbon dioxide spreads its protecting wings," but it was not until 1905 that the pressure of carbon dioxide in the arterial blood was proved—by the Oxford school under Haldane—to be the main controlling mechanism of respiration. Throughout his long scientific career Professor Yandell Henderson has also been engaged with similar researches concerning carbon dioxide and other gases, and he is part-author of the standard book *Noxious Gases*. In these labours he has been assisted particularly by Dr. Howard W. Haggard, and the present book is written chiefly around some of their joint researches, many of them dealing with public health problems investigated for the U.S.A. Bureau of Mines. This work has led Professor Henderson towards two new conceptions, which are now dealt with in detail. One is that of muscle tonus as a major factor in the control of the circulation and of failure of muscle tonus as a cause of failure of circulation. He considers that carbon dioxide at a normal pressure in the tissues is necessary for normal muscle tonus, which is required to maintain normal venous pressure, and this in turn helps to maintain a normal circulation. The other conception is that of "acarbina" (lack of carbonates in the blood) as induced by "hyperpnein" (hypothetical substance or condition produced by muscle contraction and stimulating the respiratory centre) in place of "acidosis" induced by lactic or other acid. He thus includes two stimulants for the respiratory centre—namely, carbon dioxide and "hyperpnein." Hyperpnoea removes not only carbon dioxide from the blood but also bicarbonates, which pass into the tissues.

The book is mainly of interest to researchers working on the study of respiration. When dealing with acclimatization to high altitudes the author unduly neglects all other systems, particularly the cardiovascular system, which really cannot be so precisely separated from the respiratory or any other system. The term "acclimatization" is also used rather loosely. Low oxygen pressure experiments on mammals and observations on natives attempting to live continually near 20,000 feet in the Andes prove that there can be no complete acclimatization much above 20,000 feet. Professor Henderson also deals rather leniently with the theory of oxygen secretion by the lungs, since studies of oxygen pressures in the tissues during prolonged exposures of mammals to low oxygen pressure in the air or to chronic carbon monoxide poisoning prove that there is no active secretion of oxygen by the lungs. He also says—rather courageously—that there is no chronic carbon monoxide poisoning in man, but there are many animal experiments dealing with this state—that is,

continued exposure to non-fatal concentrations of carbon monoxide. Further, the value of oxygen administration near the summit of Mount Everest seems to us to be underestimated.

For the medical practitioner there are important and interesting facts scattered throughout the book. A disadvantage is the absence of a short summary to each chapter, which would so much help the clinician. To sum up recommendations: carbon dioxide should be administered temporarily—either with fresh air or pure oxygen—when there is depression (without paralysis) of the respiratory centre—for example, in carbon monoxide poisoning and asphyxia neonatorum. Also it should be given to remove anaesthetics after operations—that is, to prevent post-operative complications; for example, atelectasis of the lung and pneumonia. Of course, rebreathing is used in anaesthesia to prevent over-removal of carbon dioxide from the blood. Professor Henderson also recommends carbon dioxide to help to preserve muscle tonus in shock, but it is harmful in conditions which resemble that produced by injections of acids. Moreover, carbon dioxide is useless in complete paralysis of the respiratory centre: here oxygen should be insufflated into the lungs. The author recommends caffeine (coffee) and not lobeline as a respiratory stimulant, and gives his support to strychnine as a therapeutic measure in loss of muscle tonus (shock).

The bibliography is complete as regards the author's own publications, around which the book is written. Search in the text for the proper authority for any particular statement is thus not always easy, and there are few dates in the text to help application of the references which are given in the bibliography. The book is written in the author's usual vigorous and very entertaining style, and recalls many interesting scientific incidents and adventures of peace and war.

DISEASE AND ITS SOCIAL SETTING

Cliniques de Médecine Sociale à l'Hôpital Saint-Fient. By Dr. René Sand. (Pp. 187. 20 fr.) Brussels: Jean Vromans. 1938.

Those who were interested in Dr. René Sand's suggestive and informative book *L'Économie Humaine* (reviewed in these pages on October 24, 1932, p. 732) or in its English translation *Health and Human Progress* (reviewed on December 21, 1935, p. 1211) will welcome this book. It is the obvious sequel to the first, for it shows how Dr. Sand has put into practice his doctrine that sociology and clinical medicine are closely related. Dr. Sand, in addition to being secretary-general of the Public Health Ministry of Belgium, is professor of social medicine (the first of the kind anywhere) in the University of Brussels. These lectures have been published as an incentive to others who may believe, as he does, that the practical application of his doctrine is urgently needed.

In his former book Dr. Sand showed the great part that medical science is playing in the science of sociology, and argued that it could do much more if the knowledge already acquired could be systematized and taught as an essential part of clinical medicine. His dual position has enabled him to show how it can be done. The ten lectures described in this book were given to his students, with the collaboration of a clinician. The intention is not so much to contribute to the teaching of medicine or of sociology as to show, by taking concrete examples, the connexion between certain maladies and the social conditions of the patients. The subjects dealt with are: anaemia due to poverty, pulmonary tuberculosis, lupus, Pott's disease in adults, pregnancy and syphilis in

unmarried women, diabetes necessitating a change of employment, rheumatism, weakly children, mentally deficient children, and syphilis and hereditary syphilis.

The effect of reading the studies of the individual cases discussed reminds one of what might be the result of an examination of the case in this country by a super-almoner and a medical man of broad sympathies and clinical acumen. The lecturer gives what he calls a "social diagnosis" followed by "social treatment" in the course of which the students are informed of the various social measures at the disposal of the doctor. It is not suggested that the doctor should take the place of the almoner or the public assistance officer, but that he should realize that all his medical prescriptions may be of little effect if the social factors at work are not evaluated and dealt with. Dr. Sand ends his stimulating lectures with these words to his students: "Though we have had for more than fifteen years an organized social service covering the whole nation, it is evident that a long education will be required before its principles penetrate the ensemble of our public assistance and private charity. I trust that you will desire to contribute to this education by your personal action."

A. C.

THE VIRUS OF LYMPHOCYTIC MENINGITIS

La Maladie d'Armstrong: Chorio-méningite Lymphocytaire. Une Nouvelle Entité Morbide? By Boris Kreis. (Pp. 160; 14 figures. No price given.) Paris: J.-B. Baillière et Fils. 1937.

The discovery by Armstrong and his associates that certain cases of benign lymphocytic meningitis in man were due to a virus which they had previously found as a spontaneous or accidental infection of laboratory monkeys gave fresh interest to this disease. Dr. Boris Kreis has now collected all the known facts about this virus, as well as his own studies of it, in a small monograph. The virus has two interesting characteristics. So far as we know it is the only virus which may be found in the cerebrospinal fluid of man. It is also the only virus which may be communicated to man under natural conditions from mice. The evidence for the latter is not conclusive, but there seems to be little doubt that it occurs as a natural epizootic in both white and grey mice, and it can be found in the urine of infected mice. Other laboratory animals are less susceptible to infection, and the fact that some batches of mice show a varying degree of immunity to the virus makes its study more than usually difficult.

The relation of the virus to human disease is still uncertain. Although it, or a closely similar virus, has been recovered from human cases of lymphocytic meningitis in England, France, and North Africa, as well as in America, less than twenty strains have so far been isolated, and in the majority of cases which show the clinical picture of benign lymphocytic meningitis, and which have been examined, the cerebrospinal fluid has not contained any virus. It seems probable that these cases may be due to more than one type of virus; those of mumps and of "louping ill" have been definitely incriminated in some cases, and the relation of others to epidemics of influenza suggests that the recently discovered virus of this disease may be sometimes responsible.

Dr. Kreis has tried subcutaneous inoculation of this virus in the treatment of two cases of general paralysis, and has shown that it is possible to infect human beings, but this seems to have no therapeutic value.

DISEASES OF THE CHEST

Introduction to Diseases of the Chest. By James Maxwell, M.D., F.R.C.P. (Pp. 328; 95 figures. 12s. 6d. net.) London: Hodder and Stoughton. 1938.

The responsibility attached to the writing of a textbook for medical students is a heavy one, for the undergraduate of to-day is the doctor of to-morrow and of many years afterwards, and the general practitioner finds it hard to keep abreast of developments and changes in medical science and practice. It is all the more important, therefore, that the student should have impressed upon him early in his career correct basic principles and a sense of proportion. This is just what one would expect in an introduction to a special branch of medicine, particularly when this concerns a branch that has witnessed so many fundamental changes in recent years as has diseases of the chest. We feel that Dr. Maxwell has not been altogether successful in his attempt to do this, chiefly perhaps because he has tried to be too comprehensive with an eye to the student's examination requirements. For this purpose the book should serve admirably. On the other hand, it contains, apart from much sound clinical advice based on the author's experience, several statements, repeated in textbook after textbook, that have never been scientifically confirmed, and classifications that are not only useless but may be misleading in actual practice. Again, though the teaching of pathology is not the prime purpose of the book, sound pathological notions are essential for a proper understanding of the clinical aspects of disease. In this respect Dr. Maxwell is not always quite up to date. Finally, the illustrations, which consist almost entirely of skiagrams reproduced on a small scale, may confuse rather than assist the student because of the inadequate captions and the absence of their detailed explanation in the text.

Despite the above criticisms Dr. Maxwell's book should be of value, for it succeeds in its purpose—"to present to the student the clinical aspects of respiratory disease, to correlate the history with the physical examination, and to indicate the various special investigations which are likely to assist in making an assured diagnosis."

A METHOD OF ANATOMY

A Method of Anatomy: Descriptive and Deductive. By J. C. Boileau Grant, M.B., Ch.B., F.R.C.S.Ed. (Pp. 630; 564 figures. 27s. net.) London: Baillière, Tindall and Cox. 1937.

This work, by Dr. Boileau Grant of Toronto, is a departure from the traditional precepts of the older textbooks of anatomy. The author has studied the subject principally from the mechanical standpoint, and has sought to correlate anatomical facts by considering their mutual relations and purpose. In this respect he has been specially successful; for example, in his descriptions of the articulations, and in his account of these and of other systems, such as the skeletal and muscular, he has contributed many useful new observations which are of practical importance. The general trend of the book is confined to the spatial relationships of one structure to another, with brief statements on the significance of these contacts.

Unfortunately, though the descriptions in the text are for the most part regional, the general appearance of the regions as a whole are not depicted in such a way that a student, approaching the subject for the first time, would be able to recognize easily the individual structures or organs that he is investigating. Thus, there are very few illustrations giving the complete picture of such regions as

the back, the front of the forearm and palm of the hand, or the extensor region of the leg and dorsum of the foot. A complete view of such muscles as the trapezius and latissimus dorsi, or of the gluteal region after reflection of the gluteus maximus muscle, is invaluable. Since these illustrations usually form the first introduction to the student's general conception of the parts under consideration and serve as an example of how the parts should be displayed in a good dissection, their absence must be regarded as a grave defect. Moreover, the technique of the illustrations, as a whole, is much below the modern standard of achievement, and there are numerous crudities of expression—for example, U.-G. TRACT & CO., or G.-I. TRACT & CO.—both in the legends and text, which, combined with a lack of uniformity in spelling, gives an impression of carelessness, in place of one of the most valuable side-issues which arises indirectly from a sound training in anatomy—namely, a scrupulous regard for exactitude in observation and respect for niceties in literary expression.

There are also some very important limitations in the scope of the book. Thus, we find no description of the brain or spinal cord; and there is little or no indication, either in the figures or in the text, of the internal structure of such organs as the spleen, liver, salivary or ductless glands. The surroundings of these organs are accurately described, but the contained organ appears to be regarded as a "cast of the mould," and the reader is, in one instance, informed that if (he) "makes a careful study of the mould (he) need not devote time to the cast which is but a counterpart of the mould." A "careful study" is, however, advocated and described, for example, of the membranes which surround the brain and of the capsule of the parotid and other glands along with the related nerves and vessels; and if it is borne in mind that the book deals with the form rather than with the internal structure of the organs described it may be recommended as a help to the comprehension of the subject from the mechanical standpoint and as a supplement to those general treatises which give a more complete account of the structure and development of all the important organs and tissues.

Notes on Books

The sixth supplementary volume of HEFFTER'S *Handbuch der Experimentellen Pharmakologie* contains two articles: one by Professor Gessner of Halle, which deals with animal poisons, while the second, by Professor George Bayer, describes the alkaloids of ergot. The subject of animal poisons is a very wide one, and the author has summarized briefly, in about eighty pages, the important advances that have been made since 1924, when Professor Faust reviewed the subject in Heffter's textbook. The article will be found very useful for reference by those working on such problems as the pharmacology of snake venoms. Ergot was previously dealt with in Heffter's textbook in an article written by the late Professor A. R. Cushing in 1914 and published in 1924. Professor Bayer contributes an authoritative review of the chemistry and pharmacology of the alkaloids of ergot, on which he has worked for more than thirty years. These alkaloids have presented peculiar difficulties both to chemists and to pharmacologists. Tarret in 1875 isolated a crystalline alkaloid from ergot, but it was not until 1936 that the most important alkaloid—namely, ergometrine—was isolated. Similarly, the pharmacological action of ergotoxine was determined in 1906, but the action of ergometrine was not demonstrated until 1932, although it would now appear that the action of ergot in child-

birth, upon which depended its introduction into clinical use, is due more to the ergometrine than to the ergotoxine content. Professor Bayer gives a full account of the pharmacological evidence, which, owing to this slow development in knowledge, is confused and often contradictory. The monograph concludes with an article on the history of ergotism. Professor Bayer's clear review of this difficult subject, with its long and confused history, is of great value. The volume is published in Berlin by Julius Springer at RM. 30.

Drugs, their Use and Abuse (Kegan Paul, Trench, Trubner and Co., 7s. 6d.), by LOUIS LEWIS, is an English translation of the second German edition of *Phantastica*. The author is renowned for his encyclopaedic knowledge of drugs and their history. The volume under review deals with the drugs of addiction, which the author divides into five classes: euphorica—for example, morphine and cocaine; phantastica—for example, mescal and cannabis indica; inebriantia—for example, alcohol and the anaesthetics; hypnotica—for example, chloral hydrate and veronal; excitantia—for example, coffee and tobacco. A special feature of the volume is that it gives an account of the effects not only of the well-known drugs of addiction but also of rarer varieties, such as mescal binisteria, loco weed, etc. It provides interesting and easy reading, since the author gives many accounts of the strange habits of peoples in all parts of the world, and the translation has been carried out very successfully.

Preparations and Appliances

IMMERSION AUTOCLAVES

Messrs S. Maw, Son and Sons, Ltd., have devised a simple apparatus wherewith moist heat at temperatures above 100° C. can be applied to instruments such as syringes or to vessels containing solutions in order to ensure complete sterilization. It consists essentially of a strong metal cylinder with a pressure-tight lid into which a small quantity of water (about one-thirtieth of its total capacity) is introduced as well as the material to be sterilized. This is completely immersed in glycerin, which is raised by a Bunsen flame or otherwise to a temperature of 115° to 116° C. and maintained at this for the requisite time, which is usually about half an hour. The apparatus is made in three sizes, the smallest taking a 1 c.c. syringe, the second a large syringe or other instrument of corresponding size, and the third being intended for vessels containing solutions. A heating-bath is also available, intended chiefly for use with the largest size, in which a temperature of 115° C. is automatically maintained by the boiling and recondensation of a mixture of water and glycerin in certain proportions.

ELECTRIC HEATING PAD

An electric heating pad which would seem to have a variety of medical and nursing applications has been introduced into this country. A solidly constructed switch, so arranged that it can be altered with certainty by touch alone, is incorporated in a strong flex connecting the pad to the source of electric current. Four thermostats form part of the pad itself, and when the switch is turned to "low" the temperature of the entire pad is maintained at approximately 115° F. When the switch is at "high" the temperature is in the neighbourhood of 185° F., and with the switch in the "medium" position a temperature of 150° F. is maintained. The pad is of a convenient size, and is soft and flexible enough to conform comfortably to the contour of any part of the body to which it may be applied. The pad is known as the "Universal positive control automatic three-heat pad," and is obtainable from L. G. Hawkins and Co. Ltd. of 30-35, Drury Lane, W.C. to whom all inquiries should be directed.

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A MATERNITY SERVICE FOR NEW
ZEALAND

Early last year the Government of New Zealand appointed a committee of inquiry into maternity services in that Dominion. Its report, which has recently been published, is worthy of attention here as well as in the country of its origin. Part I of the report—three-fifths of the whole—contains an extensive and careful survey of the available facilities for the supervision and conduct of maternity, district by district (forty-eight in all) throughout New Zealand, together with recommendations for making good such deficiencies as were found to exist. Part II, which includes a brief history of the development of maternity services in New Zealand from 1882 to 1937, is largely occupied with the discussion of more general questions. Four or five of these have an interesting bearing upon similar discussions here. It has to be borne in mind, however, that conditions are by no means identical in the two countries. In New Zealand distances are greater, transport is more difficult, and the population much more sparse; social customs differ in several respects, and the routine and distribution of medical practice are not quite the same. Moreover, there is only one university and medical school for the whole of the Dominion—that in Dunedin—and hospital administration is quite different from that in Great Britain. Though these considerations may easily and properly give rise to divergencies of view, the answers given in the report to certain questions may be of value in both countries. What should be the respective roles of the doctor, the midwife, and the nurse in any maternity scheme? Is hospitalization or domiciliary attendance at confinement the better method? Should the general practitioner be able to continue his attendance and responsibility while the patient is in hospital? How far is it desirable to make the relief of pain in childbirth a first consideration? How can the training of the midwife, the maternity nurse, and the medical man best be provided for? These are not, of course, the only questions dealt with in the report. Among others, the problem of domestic help and the Maori problem are considered, and there are clear indications that the committee would like to make the provision for maternity an integral part of a national health insurance system.

The committee wisely remarks that it is "not impressed with the arguments of those who contrast the midwife system at its best with the doctor service at its worst." It is more concerned to decide which system at its best offers the fullest advantages, and concludes that, "although the midwife system is giving a safe and efficient service, the combined system of doctor and nurse attendance can give a still more efficient and more satisfying service." Its unanimous opinion is that a doctor should from beginning to end be definitely responsible for each case, and should be available to attend during labour if sent for by the midwife or nurse in the event of any difficulty or abnormality. Further, with the exception of two of the medical members, who think that the proposal would not be feasible in many rural areas, the committee would require the doctor to attend at certain stages of the confinement whether sent for or not. It seems that already in New Zealand three-quarters of all cases are attended by both doctor and nurse, and, except in England, this method is tending to become increasingly that on which organized maternity services are based. Some 82 per cent. of the total number of confinements in the Dominion take place in maternity hospitals, and this percentage tends to increase. It is not surprising, therefore, that the committee favours institutional rather than domiciliary attendance. It regards the former as being on the whole more efficient and less expensive to provide, apart from capital charges. There are, however, provisos to these conclusions. Every hospital must be of the highest efficiency or it may become a danger. The hospitals must be graded and well placed. They are declared to be less expensive to maintain only in comparison with the services of two nurses and domestic help in the home of the patient, and not with those of the peripatetic midwife. The conduct of midwifery by the latter, the committee declares, would not be tolerated in New Zealand. A further condition of hospitalization—and this is of the utmost importance—would be that the general practitioner in attendance on the patient should be able to continue that attendance in the institution. The committee is emphatic about this on several grounds, and though (with the exception of the chairman) it would prefer a "close" staff for the larger hospital in each of the four cities—Wellington, Auckland, Christchurch, and Dunedin—which undertake the training of midwives as distinguished from maternity nurses, even there it would establish other hospitals in which the general practitioner would attend his own patients. Much attention is given in the report to the relief of pain in labour. Though the committee appears to think that in private practice more care is given to this in New Zealand

than elsewhere. it states that this is rare in the public hospitals, and the majority of the committee wish that there should be greater provision for it. This, indeed, is one of the reasons why it favours the attendance of a medical practitioner at each confinement, though it would be prepared to extend the powers of midwives and nurses to administer at least sedatives and analgesics under the direction of, though not necessarily in the presence of, a doctor.

The training of midwives, maternity nurses, and medical students in midwifery is sufficiently discussed for the purposes of the report. That there are difficulties and inefficiencies in such training is clear; and those relating to medical students appear to be much the same as in Great Britain. Though in some parts of the country it is essential that every practitioner should practise obstetrics, the process of partial specialization in such practice is proceeding in the Dominion as elsewhere. The committee wishes to facilitate and perfect this, for it does not think it well, even if it were possible, that maternity practice should be for the most part in the hands of the obstetrical specialist. Successful midwifery, it remarks, is not his prerogative: "It is a field in which the general practitioner may, and frequently does, excel; and it is on the men and women who have devoted time and means to the development of obstetrics as a branch of general practice that the safety, health, and happiness of the child-bearing woman must, in the long run, depend." Finally, there is one pronouncement on the economic aspect of the matter which will be welcomed by practitioners in this country. The committee is "satisfied that, taking into consideration the range of service involved, the responsibility and the exacting nature of the work, and the great additional demands of modern ante-natal and post-natal care, the medical fees in midwifery practice are moderate and in some cases quite inadequate. Thus, while the total costs when paid by the individual may appear considerable, the charges for the various items of the service are by no means excessive."

THE STATISTICS OF WAGES

In his very important book, *The Human Needs of Labour*, reviewed in our issue of May 22, 1937 (p. 1074), Mr. B. Seebohm Rowntree gave weighty reasons for thinking that the cost of supporting a family consisting of father, mother, and three dependent children and the cost of supporting an adult independent woman worker were data of fundamental sociological importance. By means of a careful statistical analysis he showed that, though the most frequent existing family was not

of the size mentioned, when consideration was given to families of different sizes and to the difficulty of arranging family allowances, it was desirable to choose an over-all average in the way he had done. The interest and importance of the case of independent women workers hardly need a gloss. It follows that a computation of the numbers of male adults in occupations which do not enjoy average earnings equal to Mr. Rowntree's estimated minimum amount, and of the numbers of women employed in occupations not providing an average above the minimum for independent females, would be a useful addition to knowledge. We cannot, of course, say, because the average wages of, for instance, men aged 21 years or over employed in cotton weaving were 49s. 6d. a week in 1935, and Mr. Rowntree's minimum was 53s., that the whole population concerned—namely, these workers and their dependants—were necessarily underfed. Some of the workers may have had no dependants. Even if all were married men with families, some will have earned more than the average, unless every man earned precisely the same wage. But we can safely believe that, unless the composition of the population by age and civil state were extremely abnormal, an average wage below the minimum implies much hardship, to use no harsher term. Similar remarks apply to wage statistics of women aged 18 years and over; this group must include some who are not independent workers in Mr. Rowntree's sense.

Mr. Jürgen Kuczynski in his book *Hunger and Work*¹ has estimated the numbers of men and women in a large number of occupations whose average earnings do not reach the minima, and the results should be of definite value in sociological research. He has been obliged to base his calculations on sampling inquiries made by the Ministry of Labour, and allowance must be made for the incompletely representative character of the sampling, particularly the over-representation of large firms. Mr. Kuczynski's figures may well be taken as indices of unsatisfactory conditions, and from the census returns of occupied persons in 1931 it might be possible to obtain weighting factors to allow for differences in age composition and proportions of married men in different occupations. Mr. Kuczynski has in fact provided further data of value in a complete study of the condition of England. Mr. Kuczynski himself thinks he has done more: that he has proved that "10,000,000 working men, women, and children are living under such conditions that they cannot even keep fit for work, they are not able to recuperate completely from the exhausting work half

¹ *Hunger and Work: Statistical Studies.* By Jürgen Kuczynski. (London: Lawrence and Wishart. 3s. 6d.)

of them are continuously doing, and they have to spend more strength than they can get back through the purchasing power they earn." This estimate is, we think, little more than guesswork; in spite of a friendly hint from a trade union official that an average is, after all, an average. Mr. Kuczynski is emotionally convinced that, if one assumes that all persons in groups whose average earnings are below a certain minimum earn less than that minimum, the error is compensated by neglecting the numbers of persons in groups earning on the average more than the minimum who receive less than the group mean. Those who cannot share this faith may be tempted to dismiss the book as mere rhetoric. It does indeed contain much very bad rhetoric. But, if we use the arithmetical results as *indices*, they are significant contributions to knowledge and deserve most careful scrutiny. Medical readers should have no difficulty in separating the wheat from the chaff.

UNEXPECTED SCURVY

A revival of interest in Antarctic adventures—perhaps stimulated by the republication last year of Mr. Cherry-Garrard's *The Worst Journey in the World*—brings to the fore once again the problem of what part scurvy played in the final tragedy of March, 1912. It seems almost unbelievable in these days, when vitamin C can be easily synthesized, that in August, 1911, Dr. E. L. Atkinson, surgeon to Captain Scott's last expedition, could express the view that the cause of scurvy was tainted food, producing "acid intoxication." Yet knowledgeable as the public and the medical profession have now become about the cause and cure of scurvy, the disease still occurs in unexpected ways, as Dr. G. H. Jennings and Surgeon Lieutenant A. J. Glazebrook—it is appropriate that the Navy should still display interest in this disease—record elsewhere in this issue (p. 784). It is realized that single men living alone, often with dietetic habits that are peculiar from choice or necessity, may become scorbutic, and there is a similar risk in the dietetic regime prescribed in the treatment of peptic ulcer. But both patients described by Dr. Jennings and Surgeon Lieutenant Glazebrook were married men with devoted wives. It is particularly interesting that one patient, whose wife had for years carefully limited his vitamin C intake, was able to take fruit juice with a certain amount of relish when his tissues had become saturated as a result of massive dosage with ascorbic acid. "The clinical features in these cases were, of course, quite typical," state the authors, but perhaps this is wisdom after the event, for a study of the case records and details of treatment of Case I shows clearly that the combination of a megalocytic anaemia, bone marrow hyperplasia, and achlorhydria led to a provisional diagnosis of pernicious anaemia. After liver therapy had failed, the finding of occult blood in the stools suggested a neoplasm. It was only when further spontaneous haemorrhages into

various parts of the body occurred that the diagnosis of scurvy was made. The response to ascorbic acid was dramatic, full saturation of the tissues being obtained after three weeks with 14 grammes of ascorbic acid in all. The second patient, after escaping scurvy in over twenty years at sea on long voyages, despite his seemingly satisfactory home conditions, appears to have drifted into a dietetic programme which was grossly deficient in vitamin C. Here the diagnosis was prompt and the treatment completely effective within about a month. Besides serving as a reminder that scurvy must still be considered in the differential diagnosis of obscure anaemic and haemorrhagic states, this contribution also usefully analyses the various diagnostic aids available. But even if these give some indication of the degree of vitamin C deficiency present they would not appear as valuable in the absolute diagnosis as a history of a scorbutic diet and the effect of treatment, now happily possible in a simple and concentrated form. With tablets of ascorbic acid available in 1912, Polar history might have contained one more happy ending.

SEEPAGE IN POROUS SOILS

In view of the importance attached to the possible pollution of water supplies by seepage the experiments recently carried out by members of the Field Research Laboratory of the Alabama State Department of Health¹ are worthy of close attention. These experiments, conducted with extreme care, were fostered by the Health Division of the Rockefeller Foundation, and although the results in many respects run counter to preconceived notions and commonly accepted statements they are not on that account alone to be lightly set aside. The object of the present investigation was to determine over a prolonged period the nature, course, and characteristics of the seepage flow from a pit latrine situated in porous (sandy) soil in a river valley, and it was in fact a continuation of similar previous studies.² The experimental source of pollution was a privy pit constructed to bottom in about a foot of ground water and used continuously by a family of nine persons. The results of elaborate investigation of the physical, chemical, and bacterial characteristics of the surrounding soil having previously been recorded, concentric arcs of small tube wells were made around the pit, from which samples of the ground water were drawn for analyses. Contrary to current theory, it was found that traceable pollution did not travel radially in all directions but formed a diminishing "tail" in the direction of the ground-water flow with practically no extension up-stream, and, further, that the bacterial stream formed a defined cone within the chemical stream of less diameter and much less length—roughly about one-tenth. The tracing of faecal organisms was made the subject of special study, and it was found that the anaerobes (for example, *Cl. welchii*) penetrated much further than the aerobes—up to fifty feet—while the *B. coli* were not found beyond ten feet, and laterally not beyond

¹ *J. infect. Dis.*, 1938, 62, 225.

² *Ibid.*, 1937, 61, 148, 270.

five feet. The suggestion offered in explanation of the curtailment of the bacterial cone is that the organisms do not penetrate by growth in the soil but are mechanically carried in the flow. In time the soil in their path becomes clogged by gelatinous material, which forms an effective barrier, the process, in fact, being comparable to the "ripening" of a bacterial filter. At all times the pollution flow was found to be enveloped by fresh water. At times it would "swing" laterally with oscillations of the ground-water flow, increasing in width owing to lag and becoming correspondingly more shallow, but tending always towards its former shape. In a supplementary investigation the vertical seepage from a privy pit on top of a cliff face was undertaken, and here again the spread of pollution was remarkably limited. If the pit was kept dry, faecal organisms could not be found at one foot below; if it was exposed to saturation by rain *B. coli* were found at three but not at four feet; and if the pit were flooded with water (100 gallons daily) the distance was extended to six but not to seven feet. The lateral spread in all these cases was insignificant, amounting to not much more than a foot either way—that is, the pollution flow was steeply dome-shaped. By keeping the pit flooded with water for a prolonged period the progressive clogging effect could be demonstrated as well as the shortening of the penetration distance of the faecal organisms, the maximum penetration being observed after two months' use. It is claimed that these investigations demonstrate an important principle not heretofore developed—namely, that a pollution stream describes a path which is the resultant of the interacting forces of lineal flow with the ground water toward the discharge stream, and of variations in densities of the effluent flow in comparison with the ground water.

MALARIA THERAPY

A useful summary of the arrangements made by the Ministry of Health for malaria therapy is given in *A Report on the Provision and Distribution of Infective Material for the Practice of Malaria-Therapy in England and Wales*.¹ A scheme was initiated in 1923, and within two years the requests for infective material became so numerous that the Ministry of Health, in consultation with the Board of Control, the London County Council, and the authorities at Horton Mental Hospital, decided to establish a unit consisting of a treatment centre and a malaria laboratory at Horton. There, apart from treatment of cases and provision of material for treatment in other centres, research on malaria therapy has been steadily continued. Various strains of all the species of human malaria and also *P. knowlesi* have been investigated, but the "Madagascar" strain of *P. vivax* is usually employed for routine purposes. This strain has several advantages: it produces large numbers of gametocytes, making it easy to infect mosquitos; mosquito transmission is very certain; the incubation period of the induced

fever is relatively short (about ten to fourteen days) and shows little variation; few patients in England are resistant to infection with this strain; and the infection, although vigorous, with proper care is not unduly dangerous. Other species of *Plasmodium* are used for patients who do not develop satisfactory infections with the routine strain or have acquired immunity to *P. vivax*. The detailed descriptions of standardized procedures which have been developed for the breeding, maintenance, and infection of mosquitos will be of value to all who are working in this field. The general reader will be most interested in the arrangements that have been made for the treatment of cases outside the unit. On request, infected mosquitos are sent with a trained assistant where possible. Usually, however, infective material is supplied in the form of defibrinated infected blood, which is dispatched in small ampoules, packed in ice if the journey is likely to take more than eighteen hours. Any objection to infection by blood probably rests upon theoretical rather than practical grounds. A small record card is supplied, which the doctor in charge of the case is asked to complete and return in due course to the Ministry of Health for research analysis. Advice, if asked for, will be given during the course of treatment and blood films will be examined for parasites free of charge. The report contains a table which records the results of treating between five and seven hundred cases of general paralysis of the insane yearly since 1927. Over 50 per cent. had some favourable result, about 15 per cent. being discharged "cured" and almost 10 per cent. being discharged "improved." The conclusion is that the method at present offers one of the most satisfactory forms of therapy for sufferers from this disease, but the report does not concern itself with the mechanism of the therapeutic action or with any comparison of other methods of inducing pyrexia. The opinion is expressed that if malaria therapy is applied in a sufficiently early stage of the disease the patient will usually recover and be able to return to normal life again; but even if applied later it is found that in a large proportion of cases the expectation of life is increased, and, though institutionalized, many patients will show definite mental and physical improvement. It is to be hoped that the convenient arrangements now existing for this treatment are being fully utilized.

CAUSES OF BLINDNESS

An excellent piece of work is embodied in the thirty-second annual report of the Northern Counties Association for the Blind, a body which covers Yorkshire, Lancashire, Northumberland, Durham, Cumberland, and Westmorland in endeavouring to promote the welfare of the blind and prevent blindness. The medical subcommittee, of which Dr. Kay Sharp, consulting ophthalmic surgeon, West Riding County Council, is chairman, has analysed 10,000 cases of blindness with a view to ascertaining the causation. The classification follows the sections of forms B.D. 8 and 37 D, which are used now by all the forty-six authorities in the

¹ Reports on Public Health and Medical Subjects. No. 84. H.M. Stationery Office. Price 6d. net.

area. Of the 10,000 cases, 6,406 were found to be due to congenital or undetermined causes, primary cataract accounting for more than one-half, and primary glaucoma for one-sixth. The number of cases due to infectious and bacterial causes was 1,791, of which 405 were ascribed to ophthalmia neonatorum, and 492 to syphilis, congenital or acquired. The cases of blindness due to traumatic and chemical causes numbered 580, industrial trauma accounting for 262, and non-industrial (including 44 relics of war injury) for 286. Under "general diseases" 300 cases of blindness are listed, the largest subsection being vascular diseases, including cerebral vascular lesions, and the next largest diabetes. Of the 10,000 cases, no information as to cause was obtainable in 423. The number of females was slightly in excess of the number of males in all categories except the traumatic; in that category there were nearly four times as many males as females. The classification will form the basis of the work of the subcommittee during the coming year, when the information contained in it will be further elaborated. Another piece of work on which the subcommittee is now engaged is the production of a film for projection in schools, factories, and workshops with a view to preventing blindness.

RESPIRATION AND ANAESTHESIA

The present state of knowledge as to the regulation of respiration, with particular reference to anaesthesia, has recently been reviewed by Schmidt.¹ During normal respiration only the muscles of inspiration—namely, the diaphragm and external intercostals—are active. Their nerve centres in the medulla have the lowest threshold for chemical stimuli, and function under resting conditions, but are the most resistant to depressant drugs and other influences. Thus, in deep anaesthesia or depression due to drugs, respiratory movements may be reduced to a series of inspiratory gasps—a warning of impending respiratory failure. The Hering-Breuer reflexes from the lungs, which control inspiration and expiration, provide a factor of safety in ether anaesthesia, for the irritant action of the vapour leads to violent expiratory efforts and more complete emptying of the lungs. These efforts reflexly cause an increase in the rate and depth of respiration, which may thus be maintained at a normal level in spite of severe depression of the respiratory centre. With increasing narcosis the depth of respiration decreases, but the rate of breathing is maintained until expiratory paralysis and slowing of the rate indicate a dangerous degree of depression. The respiratory centre is also affected by other nerve impulses and by chemical stimuli, while its proper functioning depends on adequate oxygenation. It is very sensitive to changes in hydrogen ion concentration, and normally responds promptly to changes in the carbon dioxide tension of the blood—the ordinary regulator of respiration. Lack of oxygen alone acts merely as a depressant, and the stimulating effect of anoxaemia is due to afferent nerve impulses from specialized receptors in the carotid

bodies and aorta; these impulses are quite distinct from the reflexes arising in the carotid sinuses and aortic arch, which mainly control the heart rate and blood pressure. The carotid body appears to be adapted for the transformation of chemical changes in the blood into nerve impulses to the respiratory centre. These reflex impulses are more resistant than the centre itself to depressants, so respiration may be continued through the stimulus of anoxaemia although the centre fails to respond directly to the stimulus of increasing carbon dioxide. Under such conditions respiration may fail entirely when the anoxaemia is relieved by the administration of oxygen, but this risk must be taken, for continued anoxaemia implies prolonged and possibly permanent damage to the brain and heart, and it may be particularly dangerous when combined with depression caused by drugs. The hyperpnoea brought about by lobeline, cyanides, etc., appears to be due to reflexes from the carotid bodies. Though carbon dioxide is a powerful stimulant to the normal respiratory centre, it may act as a depressant when the centre is heavily narcotized, due to a direct narcotic action, or by increasing the centre's demand for oxygen when its supply is barely adequate, or, if given with oxygen, by removing an anoxaemia which was reflexly maintaining respiration. The recovery of a patient with extreme depression of breathing resulting from narcotics depends less on the administration of respiratory stimulants than on (1) removal of the drug from the brain, and (2) maintenance of oxygenation. The former is facilitated by improving the cerebral circulation, by transfusion, etc., and also by lowering the cerebrospinal fluid pressure by the intravenous infusion of hypertonic sucrose (50 per cent.) solution; glucose or saline infusions may increase the cerebrospinal fluid pressure. The value of the usual stimulants—strychnine, caffeine, camphor, coramine, picrotoxin, etc.—is questionable, for they have little effect on the severely depressed centre. Lobeline is probably the best stimulant, but its action is transitory and may be followed by depression; it is not indicated when the breathing is weak or absent in the presence of severe cyanosis, for the cyanosis shows that the centre is too depressed for reflexes from the carotid body to be effective. The increasing incidence of asphyxia neonatorum in recent years is probably due to the greater use of non-volatile narcotics during labour. The foetal brain is normally in a state of anoxaemia, and is thus unduly sensitive to depressants; where possible volatile agents which are rapidly excreted should be used. Asphyxia is best treated by insufflation of oxygen by means of a tracheal tube; carbon dioxide should be added not for its stimulant effect but to prevent undue depletion of its tension in the blood.

The Semon Lecture, entitled "Laryngology's Debt to Research," will be given by Mr. W. M. Mollison at the Royal Society of Medicine, 1, Wimpole Street, W., on Thursday, November 3, at 5 p.m. The lecture is under the auspices of the University of London, and the chair will be taken by Mr. C. A. Scott Ridout, president of the laryngological section of the Society.

¹*Anesth. & Analges.*, 1938, 17, 24.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

INFECTIONS OF THE HAND AND FINGERS—III

BY

NORMAN C. LAKE, D.Sc., M.D., M.S., F.R.C.S.

Incisions

Infection of the pulp of a finger is best dealt with by an incision that skirts the end of the finger about one-eighth of an inch from the nail margin, which it follows. The whole pulp is raised as a flap from off the periosteum of the underlying bone (Fig 6, *a*). The wound is kept wide open by packing the interval with gauze soaked in a suitable antiseptic, such as 1 in 1,000 flavine. In this way all the loculi previously described are drained, as this incision cuts across the bases of them all. The spread of infection is thus arrested, and the bone, unless already involved, is saved. When the infection has been overcome the flap falls back readily into position with an intact

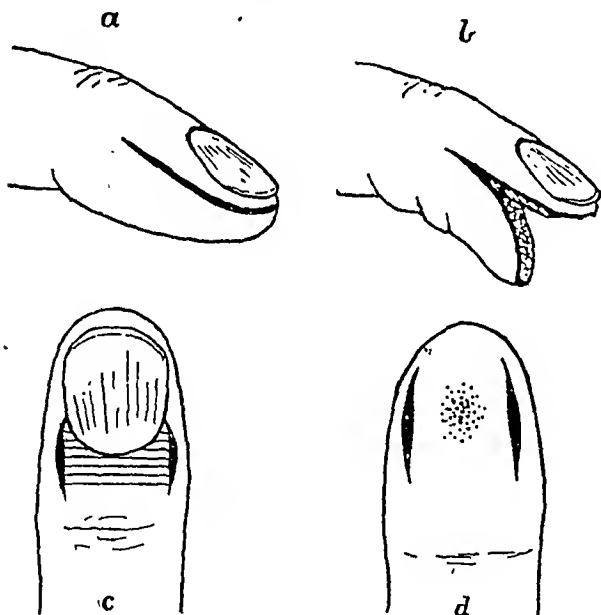


FIG. 6.—Incisions for drainage of infections of terminal phalanx. (*a*) Incision for draining pulp. (*b*) Flap turned back. (*c*) Flap to be turned back for drainage of infection of the root of the nail. (*d*) Transfixion incision for drainage of central pulp infection.

nerve and blood supply; the final sear is obviously well removed from all pressure points. In some cases half only of the flap is raised: this is especially useful when one side of the nail groove is involved. Exceptionally, a central infection of the pulp may be treated by a transfixion incision extending from one side to the other (Fig. 6, *d*).

Infections under the nail are best dealt with by removal of that structure, either wholly or in part. For central infections of the nail bed it is sometimes recommended that a small trephine hole be made through the underlying nail, but this is apt to provide very inadequate drainage, and in the long run little time is saved over the more certain removal of half or the whole nail. When the root of the nail is involved, as in onychia, two lateral vertical incisions are made, continuing the line of the

lateral nail groove for about half an inch (Fig. 6, *c*). The whole skin flap thus outlined is raised off the nail root and packed as above. Multiple chronic infections of the nail groove are not uncommon. In some cases there may be a general syphilitic or tuberculous infection; in others, infection is due to a ringworm; but in a third variety, of increasing frequency, manicuring is to blame. For this group in the earlier stages local antiseptic applications, especially those having great penetrating powers, are advisable. Ultra-violet light has also proved effective in many instances, but for those intractable cases where,

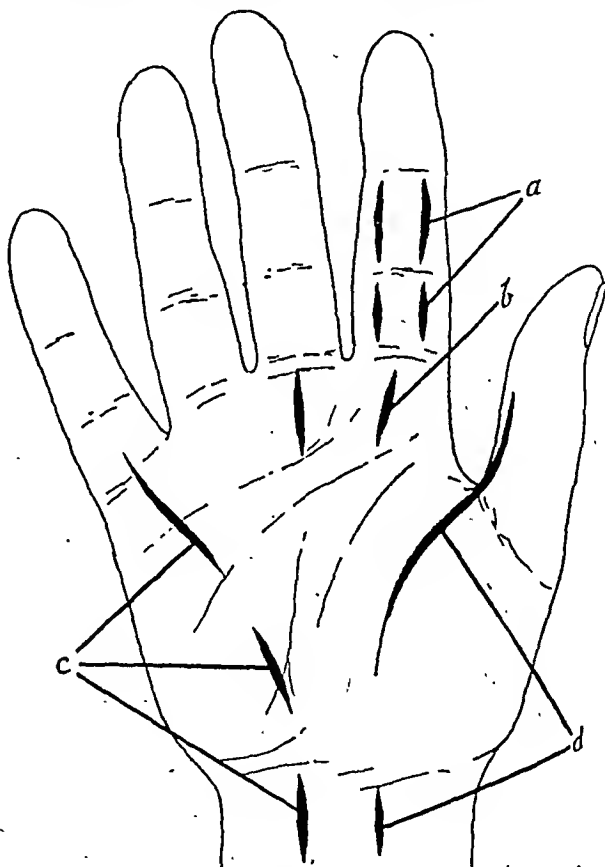


FIG. 7.—Diagram indicating position of incisions for drainage: (*a*) of digital thecae, (*b*) of proximal end of digital thecae, (*c*) of ulnar bursa, (*d*) of theca of thumb.

owing to reinfection or lack of resistance, the condition fails to respond to other methods, removal of all the nails may prove the quickest method of clearing up the infection.

Infections in the intermediate and proximal sections of a digit are drained by lateral incisions which avoid the nerves and vessels by keeping well on to the palmar aspect. These incisions into the subcutaneous tissues may cross the skin creases with impunity. Drainage of the thecae is a much more difficult problem. If the whole length of a theca were to be opened by a median incision an adequate drainage would undoubtedly be established, but the tendons would retract out of the wound like a "bow-string." It is true that this might be avoided by splinting in complete extension, but dense anterior adhesions would form which it would be impossible to break down subsequently. In addition the sheath would

be weakened at its most important part and the sear would be right over the pressure area. For these various reasons the incisions are usually made in a bridged fashion (Fig. 7, *a*) leaving the intervening portion of the theca intact. They are placed at the lateral borders of the sheath, but carefully avoid the digital nerves and vessels. With these provisos the incisions should be made as extensive as possible.

The extension of a theca into the palm may be drained by a median incision (Fig. 7, *b*): care is necessary, however, in the case of the index finger to avoid the nerves and vessels which cross it (see anatomical section, Fig. 3).

There is some divergence of opinion as to the best position into which to fix a finger in these cases. If

approached directly through the palm without grave risks of damage to important structures. The routes by which these infections spread naturally have already been outlined, and it is along this same track that the surgeon should attempt their drainage. The incisions are therefore made in the appropriate web spaces, and, from these, sinus forceps are carefully pushed into the deep spaces until pus is reached. The operator must visualize the position of these spaces in so doing. Drainage may be maintained by keeping the tracks open with strips of thin glove rubber. No drainage tube should be used owing to the great risk of causing pressure necrosis and secondary haemorrhage. In view of what has already been said on this subject in previous paragraphs there should be no

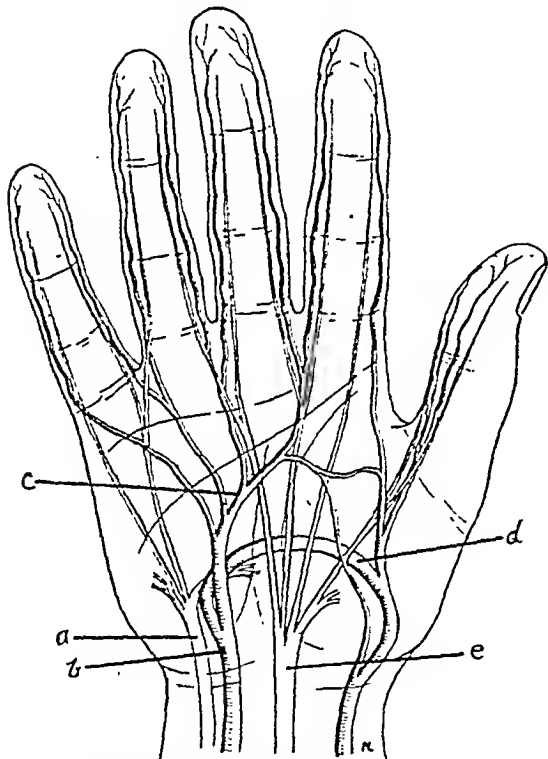


FIG. 8.—Diagram of the important structures in the palm. (a) Ulnar nerve. (b) Ulnar artery. (c) Superficial palmar arch. (d) Deep palmar arch. (e) Median nerve.

the theca is not divided in its whole length there is little fear of tendon prolapse, and a somewhat flexed finger is much easier to manipulate than one which is fully extended, so that any subsequent adhesions can be more easily dealt with. Difficulties may arise when it has been impossible to say before operation whether the theca is involved. In these circumstances the surgeon should first dissect carefully down to the theca. If it is obviously infected it can then be opened; if it is doubtful the wound may be left wide open and a fresh observation made in twenty-four hours. In exceptional cases the discreet use of a needle and syringe may decide the issue, but the greatest care should be taken not to introduce infection in so doing.

Drainage of the Palm

A glance at the anatomical diagrams (Figs. 8 and 9) will indicate that infections in the palmar spaces could not be

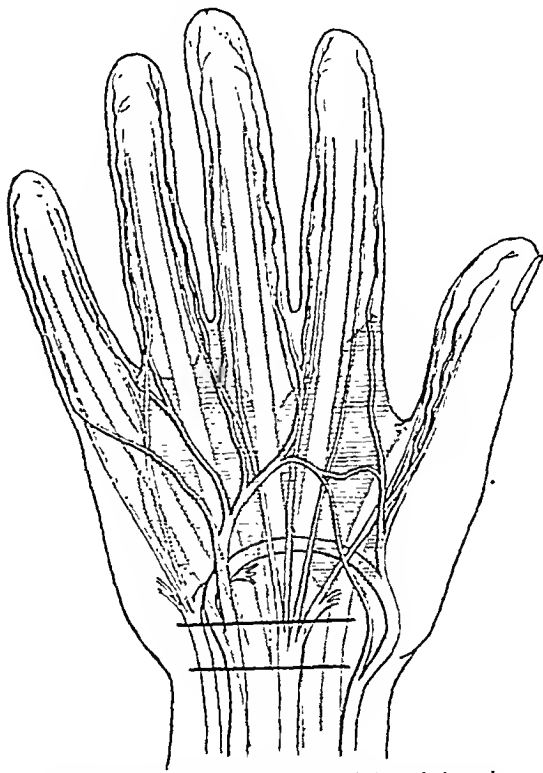


FIG. 9.—Transparency showing the relation of the palmar and thenar spaces of Kanavel to the chief overlying structures. The horizontal lines represent the limits of the anterior annular ligament.

need to warn the unwary against making incisions into the swollen tissues on the dorsum of the hand.

The proper drainage of the theca of the thumb and of the main palmar bursa demands a rather high degree of skill, otherwise considerable damage may be done to the important structures which are crowded together in this region. These thecae may be approached through the lateral and medial extensions of the palmar fascia, which are much thinner and less important than the central portion. Before dealing with these cases the operator should review the anatomical diagrams (Figs. 4 and 9). The incision for drainage of the thumb theca skirts the inner margin of the thenar eminence. The sheath is first opened in its distal portion, where it is easy to find, and is then followed upwards towards the wrist. Part of the vascular and sensory nervous supply to the thumb crosses the sheath, and should if possible be

preserved. In any case the incision must not extend so far proximally as to endanger the motor nerve supply of the thenar muscles from the median. The proximal end of this bursa may, however, be drained in the forearm immediately above the annular ligaments (Fig. 7, *d*).

The common palmar bursa and its extension to the little finger is drained by an incision which follows the ulnar border of the sheath. Part of the sensory nerve supply of this digit crosses the sheath and may perforce have to be sacrificed. The incision must be strictly limited proximally to avoid damage to the ulnar nerve, but the proximal end of this bursa may be drained in the forearm, as in the case of the thumb (Fig. 7, *c*). The deep space of the forearm, which may become infected by extension from the palmar space and which lies deep to the tendons and their bursae, is drained by medial and lateral incisions which approach the space from both aspects; the superficial structures are retracted forwards.

Involvement of bones will be very largely avoided if early and adequate drainage of more superficial infections is instituted. Bone infection, especially of the terminal phalanx, may be suspected if the wound or sinus does not readily close, if the finger remains swollen, or if fresh abscesses and sinuses form. The use of a probe will reveal a necrotic bone, and in these cases, although not in the initial stages of bone involvement, a radiograph is of great value. At the earliest possible moment the cavity should be laid freely open and all necrotic bone removed. It has already been mentioned that the terminal joint and the tendon sheaths usually escape. The final result following necrosis of the terminal phalanx, when the soft tissues have not been allowed to become extensively destroyed, is good.

Necrosis of the long flexor tendons is a serious outcome of infection. This sequel could be very largely avoided by the early recognition and energetic treatment of infections by operation. Efficient drainage of a sheath as soon as it becomes infected, followed by splinting of the digit, allows adhesions to form between the tendon and the sheath, which limit the further spread of the process. These adhesions are usually thin, and can be easily broken down subsequently. For the reasons already given, if the sheath be not drained early the tendon will surely undergo necrosis and the function of the finger be thus destroyed. A dead tendon must be removed, since it is otherwise a source of prolonged suppuration, and there is nothing to be gained by its retention. At a later date the question of a plastic operation or of amputation of the digit will have to be considered.

Infection of joints is luckily uncommon, at least until the general condition of the digit has become so serious that there is little hope of retaining it. In the rare examples of solitary joint infection the condition is recognized by the localization of the swelling and the immobility of the joint concerned. As in the case of joint infections elsewhere, incisions are made down to and through the capsule, but no drainage material is allowed to enter the joint cavity.

It remains to consider the value of hot baths, Bier's congestive bandages, etc., in the treatment of these cases. Many have great faith in the value of hot arm baths with various antiseptics, and in cases where adequate drainage has already been established there may be some virtue in the method. Frequently, however, the use of these measures leads to procrastination in dealing with the spread of infections by surgery, and in these circumstances they are to be condemned. Hot baths, etc., must never be allowed to replace surgical drainage; but there

may be little harm, and possibly equally little value, in using them after such drainage is established. Occasionally, if the edges of an incision tend to become encrusted with discharge which prevents free drainage, a bath of weak flavine, eusol, or milton may be used, but it should be repeated with caution lest the skin become sodden.

The application of a Bier's congestive bandage appears at times to be of some value, but it must not be expected to replace surgical measures. It may be used both in the very early stages to help localization, and later, after drainage, to flush the wound with serum and assist free discharge.

The treatment of the chronic infections previously mentioned falls outside the scope of this article.

Prophylaxis

Finally a word must be said concerning prophylaxis. It has been pointed out that many of these cases arise from wounds and injuries, so that, except for certain difficulties already considered, it would appear feasible to prevent the complication of infection in a large number of them. In the hand, with its anatomical complexity and the contraction and retraction of structures after division, immediate complete sterilization of the wound will very often prove impossible. It is therefore frequently an error to attempt immediate closure. The wound should be left wide open, after a preliminary cleansing, and packed lightly with some suitable antiseptic gauze. After a few days a secondary suture may be attempted without fear of gross infection. Divided structures of importance may have an identifying suture passed through them, to prevent retraction and to aid recognition at the secondary suture. Punctured wounds—for example, those produced by needles—present a special problem in prophylaxis. If the penetration is known to be of very limited extent, it may be proper to attempt sterilization by the passage, along the track, of the eye end of a needle dipped in carbolic. In most cases, however, it is wise to avoid the use of strong antiseptics and to rely upon suction or the use of a congestive bandage above the part for twenty-four hours or so.

LISTER AT UNIVERSITY COLLEGE AND HOSPITAL

ADDRESS BY SIR SICLAIR THOMSON

At a reception held at University College Hospital on October 11 Sir StClair Thomson, who was house-surgeon to Lister in 1883, delivered an address on Lister at University College and Hospital.

Sir StClair said that University and King's Colleges had only recently celebrated their first centenary and both could rejoice in cherishing the memory and example of the greatest of all the masters of surgery, for Lister felt the first impulse towards his great life-work in University College Hospital, and this reached its fruition during the sixteen years that he worked in the wards of King's College Hospital to demonstrate the truth of his principles. Lister was a "true-born Englishman." His people came from Yorkshire. His father was a wine-merchant in the City of London, and had a love of learning and a taste for scientific pursuits, for he was deeply interested in the science of optics, helped to perfect the microscope, and was a Fellow of the Royal Society. He was also a good classical scholar and skilful both with his brush and pencil. Moreover he was a Quaker, and Joseph Lister grew up in the atmosphere of that rather serious-minded sect.

R. BODLEY SCOTT: THE SARCOIDOSIS OF BOECK

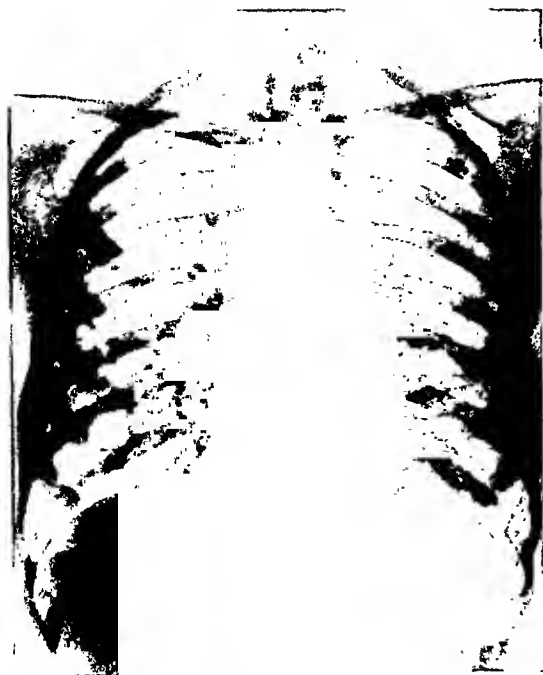


FIG. 1.—Case V. Radiograph of chest showing enlargement of mediastinal and hilar lymph-nodes.



FIG. 2.—Case VI. Radiograph of chest showing enlargement of hilar lymph-nodes with the miliary type of sarcoid lesion.



FIG. 3.—Case I. Radiograph of chest showing diffuse pulmonary fibrosis.

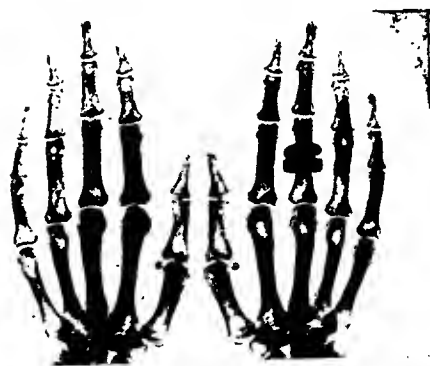


FIG. 4.—Case VIII. Radiograph of hands. Changes of osteitis multiplex are seen at distal end of proximal phalanges of left thumb and third finger and right third finger.



FIG. 5.—Case IV. Photomicrograph of lymph-node showing changes of sarcoidosis.

J. B. McDOUGALL AND J. H. CRAWFORD: TOMOGRAPHY IN PULMONARY TUBERCULOSIS



FIG. 1A.—Ordinary radiograph of chest of Case I. Lesion fibrotic and bilateral.

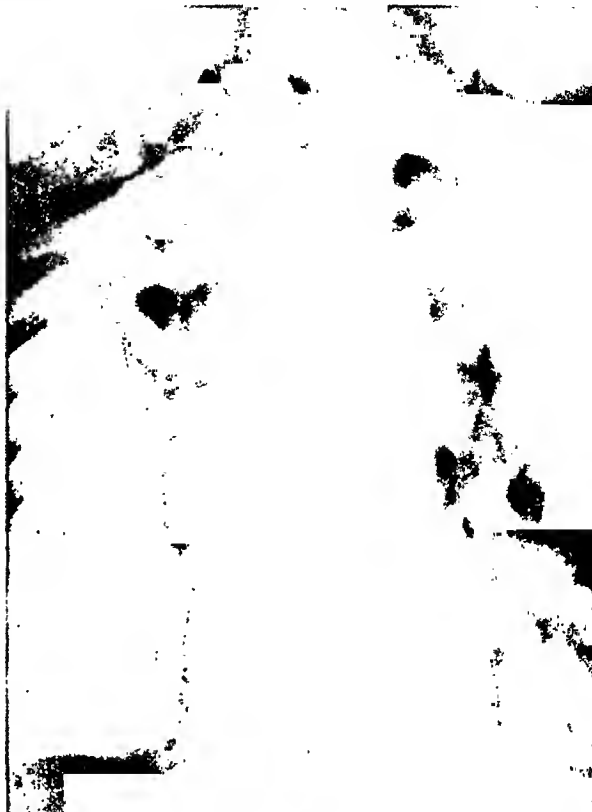


FIG. 1B.—Tomogram of Case I taken at level of 5 cm. from back of chest.



FIG. 2A.—Ordinary radiograph of chest of Case II.



FIG. 2B.—Tomogram of Case II taken 5 cm. from back of chest. Large cavity in right lower lobe now obvious.

J. B. McDOUGALL AND J. H. CRAWFORD: TOMOGRAPHY IN PULMONARY TUBERCULOSIS

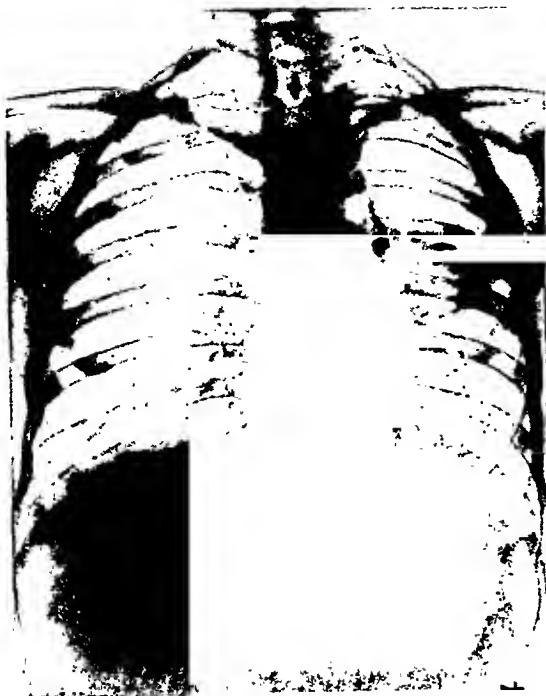


FIG. 3A.—Ordinary radiograph of Case III taken in the erect position.



FIG. 3B.—Lateral tomogram of the left lung of Case III taken in the plane of the mid-clavicular line.

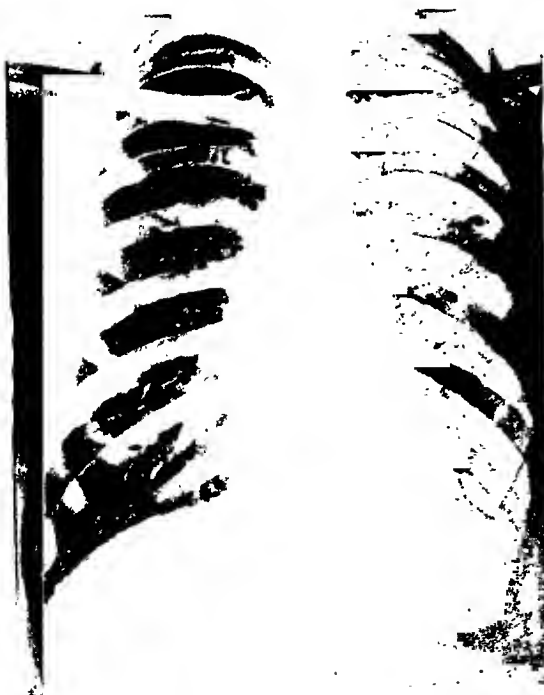


FIG. 4A.—Ordinary radiograph of Case IV.



FIG. 4B.—Median tomogram of Case IV, taken midway between front and back of chest.

G. H. JENNINGS AND J. G. GLAZEBROOK: CLINICAL AND BLOOD PICTURES IN ADULT SCURVY



FIG. 1.—Case I. Adult scurvy, showing extensive extravasation of blood in right popliteal fossa and posterior part of thigh.



FIG. 2.—Case I. Extravasation of blood around right ankle and on right shin. Some oedema of foot.



FIG. 3.—Case I. Showing swelling of left knee with peri-articular and popliteal extravasations marked by tight bandage. Petechiae into hair follicles.

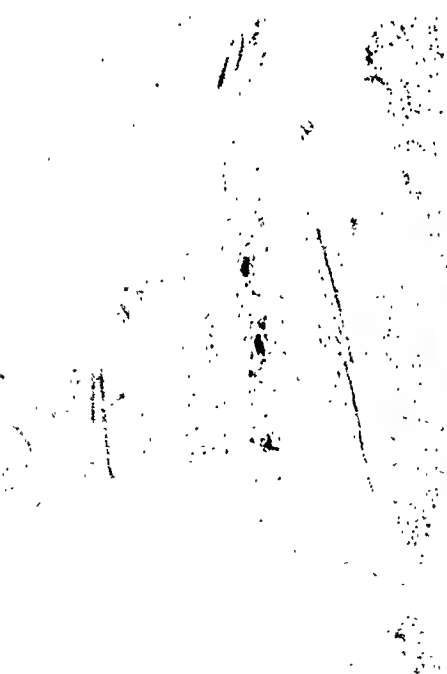


FIG. 4.—Case II. Forearm with bleb-like extravasations of blood resulting from slight traumata a year previously. Result of a recent tourniquet test also seen.



FIGS. 5 and 6.—Case II. Gums of upper and lower jaw showing considerable swelling and discoloration.

Lister's Student Days

Being debarred from Cambridge and Oxford, Lister entered University College in the spring of 1844 at the age of 17. The College had been founded recently as a non-sectarian institution, just as King's College was started a few years later to maintain the tenets of the Church of England. Lister, a Quaker, began his long life of study in the one college and finished it in the other, having on his marriage at the age of 29 joined the Church of England. He bequeathed £10,000 to King's College Hospital and exactly the same amount to University College Hospital—nearly one-third of his fortune. The remainder of his fortune—not a large one—was all, except a small amount, left for public use.

Three years were passed at the College in taking the degree of B.A. Apparently these were not the happiest of his life. During this period Lister was described by a junior fellow-student as "rather dwelling apart and not making any strong fellowship with his fellows." He had an attack of small-pox, returned too soon afterwards to his studies, and then had a serious nervous breakdown which necessitated a long holiday.

Lister was 20 years of age when he entered the medical department in 1848, and was fortunate in coming under the care of such eminent teachers as Lindley, teacher of botany; W. B. Carpenter, of medical jurisprudence; Graham, of chemistry; and Ellis, of anatomy. Another well-known teacher was Wharton Jones, who, although ophthalmic surgeon at the hospital, was better known as a philosopher and a man of wide culture.

Lister took his M.B. in 1852, and not only obtained distinction in other subjects but carried off the gold medal and scholarship in surgery. In 1852 he obtained the F.R.C.S., having already served as house-physician to Dr. Walsh and house-surgeon to Sir John Erichsen. It was not necessary in those days to be qualified before holding a resident appointment. He was thus, Sir StClair continued, 25 years old when he finished his long student-ship and close association of no less than nine years (1844-53) with your great school. In his student days Lister was an active member of the debating society and an energetic supporter of the hospital medical school. The direction of his thoughts, even in these student days, towards science and towards the cause of sepsis was shown by his reading a paper on the use of the microscope and one on hospital gangrene.

"First Operation with Anaesthesia"

The first operation ever carried out in this country under a general anaesthetic was performed in University College on December 21, 1846, not a hundred years ago, and Lister was present at it. It was performed by that brilliant operator Liston, who, to spare the patient pain in those pre-anaesthetic days, had acquired such dexterity that it was recorded that he could amputate a limb in less than half a minute. In the picture (which Sir StClair demonstrated) recording this historical occasion they would see that the ether was being administered by Mr. Squire, of the old-established firm of chemists which flourishes in Oxford Street. Liston was being assisted by W. Cadge, who afterwards was a well-known surgeon in Norwich and throughout East Anglia. Next to him was another distinguished pupil of this school, Russell Reynolds, who became President of the Royal College of Physicians. The next but one on his right was Lister, who at the time was house-surgeon to Erichsen, represented sitting down beside him. Among other U.C.H. men in the picture were Graily Hewett, afterwards a well-known obstetrician on the staff, and Clover, who became one of the early anaesthetists and was still remembered by Clover's inhaler. The operation was an amputation through the thigh. Its duration was timed by Squire and three of his assistants, and their records varied between 28 and 25 seconds.*

Lister not only resided in the hospital as house-physician and as house-surgeon, but in the latter office he served an extra half-term. His intense conscientiousness impelled him to devote still more time to perfecting his knowledge and experience by a tour of some foreign schools before embarking on practice. Sharpey, the professor who had done so much in fostering Lister's physiological bent, advised him, before visiting Continental schools, to go to Edinburgh to work under Professor James Syme, then one of the leading surgeons of Europe. In Edinburgh Lister became Syme's house-surgeon, then his assistant, then his son-in-law, and finally succeeded him as professor of surgery in the University.

Lister, Sir StClair remarked, had done more for the progress of surgery than all the surgeons of the world since the days of Hippocrates had together been able to effect. The application of his principles, even during his lifetime, saved more lives than all the wars of Napoleon had destroyed. It was his work which had made possible most of the achievements of surgery and of medicine in this age.

Septic Surgery

Those who were not living in the time of this astounding evolution might feel some difficulty in realizing with what horrors surgery was accompanied before his day. Suppuration occurred in the majority of operation wounds; every surgical ward in the world reeked with the stench of putrefaction; and the "hospital smell" in surgical wards was accepted as inevitable. The operation death rate before the coming of Lister—and even in his own wards in early days—was from 25 to 40 per cent. In 1874 Erichsen published the results of all the amputations in University College Hospital and recorded that he considered a general mortality of 25 per cent. "a very satisfactory result." Sometimes in military hospitals the death rate would mount up to 75 to 90 per cent. In lying-in hospitals the death rate might at times reach a mortality of 25 to 35 per cent. Last year, in this country, it was not 30 per cent. but about 30 per ten thousand. When Lister worked in their wards the scope of surgery was so limited that one theatre and one day a week were sufficient for the operations of the entire staff. The operations consisted chiefly of amputations of limbs crushed by accidents, or with compound fractures, for in those days, as in all our wars up to the Boer War at the end of last century, compound fractures were so generally followed by sepsis, pyaemia, and death that amputation was the usual treatment. Operations were rarely if ever attempted on the cavities or joints of the body, and no one in those days could even imagine the miracles which were awaiting the coming of Pasteur and Lister. Erichsen, to whom Lister was house-surgeon, was even rash enough to prophesy in 1874 that "the abdomen, the chest, and the brain would be for ever shut from the intrusion of the wise and humane surgeon." Another surgeon had pronounced that "an abdominal operation should be classed amongst the methods of the executioner."

University College Hospital was perhaps the first in London to learn of Lister's evangel and to practise his methods. Marcus Beck, a brilliant man on the junior staff and one whose early death was universally deplored, was a cousin of Lister, with whom he lived and studied in Glasgow. In 1876 he was one of the first to carry out antiseptic methods thoroughly and efficiently. This was done in face of such almost unbelievable opposition that he wrote to his relative that "it is a very thankless task to preach antiseptics to a London audience." Later on University College Hospital supplied another apostle who met with more success—namely, Sir Rickman Godlee, a nephew of Lister.

Lister, Sir StClair Thomson said in conclusion, had wrought more for the relief of bodily suffering, for the security of human life, for the prevention of anxiety, for the conversion of fear into joy, for the promotion of happiness, and for the enrichment of the life of mankind than any one man who had ever trod this earth.

* This picture was kindly lent by the Curator of the Wellcome Historical Medical Museum, and can be seen at 183, Euston Road.

SOUTH AFRICAN MEDICAL CONGRESS

PROCEEDINGS AT LOURENÇO MARQUES

The thirty-second South African Medical Congress, the first in Mozambique Colony, was held in Lourenço Marques from September 8 to 14 under the presidency of Dr. Vaseo Palmeirim, Director of Medical Services of the Colony of Mozambique. The programme, as in previous South African Congresses, included plenary sessions, sectional meetings, annual meetings of groups of the Medical Association of South Africa (British Medical Association), and entertainments. Congress met in plenary session during the first half of four mornings. On Friday, September 9, there was a symposium on broneho-pulmonary non-tuberculous suppurations. The subject was introduced by Dr. N. de Almeida of the Instituto Português de Oncologia, Lisbon; and from the radiological aspect by Dr. R. J. W. Charlton of Johannesburg. The openers of the discussion were: from the medical aspect, Dr. D. P. Marais of Capetown; from the surgical aspect, Mr. A. Radford of Durban; and from the radiological aspect, Dr. S. Ferreira of Lourenço Marques. Saturday morning was devoted to a symposium on malaria, a subject of very great local interest. Papers were contributed by Drs. Alberto Soeiro and A. Rebelo of Lourenço Marques on the epidemiology and parasitology of the disease; by Professor Froilano de Melo of Nova Gôa (Portuguese India) on treatment; and by Dr. A. J. Ornstein of Johannesburg on the drug prophylaxis of malaria. The openers of the discussion were Drs. A. Pijper of Pretoria, J. A. Maefadyen of Durban, and M. Andrade of Lourenço Marques.

Anti-malaria Campaign in Tropical Africa

Dr. Alberto Soeiro, who is physician at the Central Hospital at Lourenço Marques, in his paper on some aspects of the anti-malaria campaign in tropical Africa, pointed out that it would not be far from the truth to affirm that malaria affected one-third of the population of the world. It had rendered difficult and sometimes impossible the agricultural and industrial development of some of the richest regions. About 2,000,000 lives paid an annual toll to malaria. This number did not include the lives lost indirectly by the pauperization which malaria provoked in various populations. In tropical Africa the fight presented many complicated problems, generally intimately associated with climatic and topographical conditions, or with the primitive conditions under which the inhabitants lived and with the scarcity of population.

Malaria control was always an essentially local problem, and therefore there were as many different methods of fighting it as there were infected regions. Experience proved that it was impossible to employ exclusively one method without losing sight of the economic factor, which must always be borne in mind at each step. The great difficulty was due partly to the prodigious fecundity of the anopheles and its facility of adaptation, which was aggravated, in tropical regions, by climatic conditions eminently suitable for its multiplication, and partly to the ignorance and indifference of the native populations. The work of the entomologist was as necessary to the doctor as the competency of the doctor was indispensable to the entomologist. In the task of malaria control it was necessary to bear in mind, first, that any method employed must be accompanied by constant vigilance and rigorous continuity; secondly, that no campaign could be undertaken without secure financial means which allowed the realization of a previously studied plan; and, thirdly, that the initiative must be taken by the State and municipalities, which must start works of sanitation and encourage others to do so on all lands that might constitute a danger to public health. Many problems still

needed to be studied, notably the influence of malaria on native infantile mortality, the influence of treatment on the immunity of native populations, the various strains of parasites, the local standard treatment, and the prophylaxis of malaria in Africa.

Angiopneumography

On Monday gastric and duodenal ulcers were discussed. Their treatment was dealt with in papers by Dr. V. Palmeirim of Lourenço Marques and Mr. Lindsay Sandes of Capetown; radiological aspects were discussed by Dr. S. Ferreira of Lourenço Marques and Dr. M. Weinbren of Johannesburg. Set down for the same morning was a discussion on the importance of angiopneumography for the interpretation of pulmonary radiographs. This subject was presented by Professor Lopo de Carvalho. He stated that after numerous experiments on laboratory animals he had succeeded with his collaborators, in May, 1930, in visualizing the pulmonary vessels in man. The solution of the problem might seem quite simple, since the methods of cerebral arteriography introduced by Egas Moniz and those of abdominal aortography carried out by Reinaldo dos Santos were both based upon the injection of an opaque substance into the blood stream. Such was not, however, the case. Long and wearisome experiments had to be carried out in order to render angiopneumography practical and harmless. The essential of this new method consists in injecting into the right auricle of the heart a highly concentrated (120 per cent.) solution of sodium iodide. The auricle is reached by means of a catheter opaque to x rays introduced into one of the cubital veins, its gradual advance being followed on the screen. The catheter is pushed in slowly and, simultaneously with its introduction, small quantities of physiological serum are injected with the aid of a syringe fitted to the other end of the catheter. This makes its progress easier and prevents the formation of blood clots within the tube. As soon as the auricle is reached, or the lower end of the vena cava, the x-ray apparatus is made ready for taking the photograph and the cassette with the film is placed against the patient's thorax.

This new method was as yet in its infancy, but the results obtained were so precise and clear as to allow the assumption that it would be possible in the near future to solve some of the problems of the semiotics and pathology of pulmonary diseases that were at present still obscure. He remarked that timorous people might still be afraid of the application of the angiopneumographic method. Its harmlessness, however, had been sufficiently clearly demonstrated to justify the widest possible application. The discussion on this subject was opened by Dr. S. K. Montgomery of Capetown.

At the final plenary session two subjects were considered. Professor C. F. M. Saint of Capetown introduced a discussion on the toxæmia of thyroid diseases, while that on the circulation of the myocardium was introduced by Professor Maximino Correia of the University of Coimbra.

Work in the Sections

The remaining papers were distributed among the usual five sections: medicine, surgery, gynaecology and obstetrics, public health, and special subjects. A large number of papers on a great variety of subjects were read and discussed. Many of these were, as was to be expected, on subjects of local interest. They included such subjects as African ethnology by Dr. R. Elsdon-Dew of Johannesburg; artificial feeding of infants in the Tropics by Dr. F. Martins of Lourenço Marques; malignant tumours of the liver in Mozambique natives by Dr. M. D. Prates of Lisbon; and surgical tuberculosis among non-Europeans by Dr. G. T. du Toit of Johannesburg. Malaria came in for further discussion in the section of public health, where Dr. Botha de Meillon of the South African Institute

for Medical Research contributed a valuable paper on the researches he has for several years been carrying out on local anopheles. An interesting paper in the section of medicine was that of Professor Grober of the Jena Institute for Physical Therapeutics, which dealt with the acclimatization of Europeans in South Africa. Professor Grober's departure from Germany had unfortunately been delayed by illness. In his absence his paper was read by Miss Riemerschmid, who during the previous eighteen months had been carrying out a solar survey of the Union of South Africa under the auspices of the Jena Institute. The paper discussed the data so far collected by Miss Riemerschmid.

The significance of wild animals as carriers or reservoirs of disease to the stock-raising industry of the Union was dealt with in a paper read by Dr. Gilles de Kock, Acting Director of Veterinary Services of the Union of South Africa Agricultural Department. With regard to the outbreak of foot-and-mouth disease which occurred recently in the Game Reserve at the Kruger National Park, he said, the question had been raised whether the disease was enzootic in game. He described the outbreak, which was diagnosed on July 20 in a herd of cattle by one of the rangers, and said that though infection in cattle was probably not associated with that in game the possibility had not been overlooked. Dr. de Kock also said that small herds of cattle would be maintained in the Kruger National Park to serve as a "barometer" to indicate whether domesticated animals would become infected from game. All officials concerned with the control of game had been instructed to keep a very sharp lookout for anything of a suspicious nature among game. Suspected animals would be shot and examined. Active steps had also been taken to eliminate every possible source of infection from outside. It was hoped that by this means information would be gained as to whether foot-and-mouth disease was enzootic in game in the Kruger Park. Should that be the case the Union authorities would attempt isolation of the Game Reserve in such a way that it would not endanger stock in the rest of the Union.

Malnutrition

The public conscience in the Union has recently been greatly stirred by the accumulating evidence of undernourishment among the Bantu (negro) and "poor white" populations. The subject was hotly discussed in Parliament during the budget debate in August. As two papers were set down on the programme for combined discussion by the sections of medicine and public health a lively discussion inevitably ensued. The debate demonstrated that the medical profession in South Africa was only too well aware of the extent to which the health of a large portion of the population was being undermined by the grossly inadequate amount of protective foods being consumed in the country. No fewer than seven resolutions with various amendments were tabled during the discussion. Some of these savoured too much of dictation to the Government, and were reluctantly withdrawn. Eventually a comprehensive resolution, proposed by Dr. Gilles de Kock, Deputy Director of Veterinary Services for the Union, and seconded by Sir Edward Thornton, former Secretary for Public Health of the Union, was carried unanimously. This resolution read as follows:

"That in view of the extent of malnutrition or undernourishment in South Africa and the deleterious effects on large sections of the population this Congress recommends: (1) that every facility be given by the departments concerned to expedite the investigations into the human, animal, agricultural, and economic aspects of nutrition, so that it can be placed on a proper basis; (2) that the closest contact between the research departments concerned with the problem be established; and (3) that measures be immediately considered by the departments concerned to deal with the existing

position, particularly in respect of the children in badly affected areas."

A further resolution was also passed recommending to the Union Government the advisability of buying maize at current prices for storage and its subsequent distribution at cost price plus storage to natives in the rural areas during the winter and spring seasons. Other motions urged the extension of the subsidized milk and butter schemes, and that the issue of subsidized milk be extended to the native population.

Aircraft and Yellow Fever

The risk of aeroplanes spreading yellow fever throughout the continent of Africa was emphasized by Dr. G. A. Park Ross, Deputy Chief Health Officer of the Union, in an address to the public health section. He declared that the consequences to trade of infection down the East Coast would be appalling. He had devised apparatus which would automatically "disinsect" aeroplanes: Imperial Airways had equipped one of its machines with this apparatus for experimental purposes. He urged that the cleaning of aeroplanes should be made compulsory. The classical urban type of yellow fever carried by *Aedes aegypti*, he said, was widely distributed in West Africa, and might already be found east of the Nile. It had not been demonstrated in Uganda or Kenya, or in territories to the south. In the vast Congo Free State its distribution was so far undetermined. Jungle yellow fever, an identical disease carried by a different vector, had not so far been demonstrated in Africa. Not nearly enough sampling of populations, human and monkey, by the mouse-protection test had been done, especially south of the Equator. Sampling, however, was now proceeding apace under the Rockefeller Institute at Entebbe; until a definite absence of infection in man and monkey was proved there was no alternative but to regard certain large portions of the continent as potentially infective. Were infection introduced, say, to the East Coast, it might exist for a long time without being recognized; it might establish itself as the urban or the jungle type or both—in which case it would probably not be eradicable.

Plane-carried infected passengers and mosquitos were the danger. The former were infectious in the incubation stage, and might be carriers for six days before the disease manifested itself. In six days one could travel anywhere across the continent by air. Under African conditions of air travel the infected mosquito was a far graver risk. Present arrangements to prevent conveyance of vectors were cumbersome and not trustworthy. Regulations governing traffic presumed that planes could be relied on to land only at scheduled aerodromes, that these scheduled aerodromes were kept mosquito-free, and, lastly, that local arrangements on aerodromes dealt effectively with plane-carried mosquitos. He demonstrated the apparatus and special disinfectant he had introduced, and discussed their application to planes, giving details of the arrangements for handling passengers and suspects at Durban, where, by combining examining offices and detention and hospital quarters on a floating unit instead of on shore buildings, he claimed to have solved the mosquito and detention question not only satisfactorily but more cheaply than at any other port. The discussion which followed indicated that medical men in South Africa refused to be unduly alarmed at the suggested risk of introduction of yellow fever infection into the country. It was generally conceded, however, that the position warranted careful watching by the authorities.

Entertainments

The Portuguese hosts were lavish in their provision of entertainment of all kinds to delegates and their wives. All the sports and other clubs conferred honorary membership upon the visitors. The official programme of enter-

tainments included the presidential reception at the famous Polana Hotel on Thursday evening; a garden party held on Friday afternoon in the grounds of the Governor-General's residence, which was attended by about 800 guests; a play entitled *Dr. Knock; or, the Miracle of Medicine* by Jules Romains (translated from the French) performed at the Gilviente Theatre by local amateurs, headed by Dr. Abel de Carvalho, secretary of the Congress; an open-air fête in the Polana Hotel Gardens on Saturday night; and on Sunday afternoon a native fête was witnessed, and that evening a nautical fête in the harbour. Dr. Vasco Palmeirim presided at the Congress banquet on Monday night. Mr. Lindsay Sandes, replying to the toast of the Medical Association of South Africa, congratulated the Portuguese doctors on the high standard of their papers read at the conference. On behalf of the South African Branch of the British Medical Association, he presented Dr. Abel de Carvalho, honorary organizing secretary of the Congress, with a suitably inscribed gold watch. Sir Edward Thornton said two outstanding impressions had been gained from the visit. They were the high standard of medical service in Mozambique and the warm comradeship with fellow-workers in South Africa. Dr. Abel Gouveia Pinlo proposed the toast of the guests, and Professor Dart of the Witwatersrand University replied, concluding his speech in Portuguese. The social side of Congress was concluded on Tuesday night by a very successful ball.

COMMONWEALTH FUND FELLOWSHIPS

The Commonwealth Fund of New York has established for British subjects a number of fellowships tenable at American universities, not more than five of which will be offered in 1939 to persons holding appointments over-seas under the British Government, the Government of India, or the Government of a British Dominion, Colony, Protectorate, or Mandated Territory. The actual number of service fellows to be appointed in 1939 will be determined by the Committee of Award.

Candidates must be of British descent, single or married, and must not have attained the age of 35 on September 1 of the year of award. They must submit a definite scheme of research work or advanced study to be carried out during their residence in the United States, and must produce evidence of their capacity to pursue it with advantage; but, speaking generally, no limitation is imposed on the subject of study to be undertaken. Fellowships are tenable for a minimum period of fifteen months and a maximum period of twenty-four months, which will run from the date of departure from the country in which the fellow is engaged in Government service to the date of his arrival on return. There is no fixed stipend, but it is estimated that the cost to the Commonwealth Fund of each fellowship is approximately 3,000 dollars per annum. Each fellowship includes provision for: (a) An equipment allowance of 200 dollars and the cost of the fellow's travel, but not his wife's, from the country in which he is serving to the United States and return. (b) Tuition, laboratory fees, etc. (c) 150 dollars a month, paid quarterly, for living expenses during the tenure of the fellowship, from the date of leaving the country in which the fellow is serving. An advance of one month's living allowance may be made to an appointee. (d) Allowance for travelling while in the United States on tours approved by the Commonwealth Fund. An additional allowance at the rate of 50 dollars a month, with some increased provision for summer travel in the United States, is made for a married fellow accompanied by his wife, but he is not at liberty to bring his children to the United States except by special permission of the Fund. The Committee hopes to notify successful candidates before the end of April, 1939, and applications, submitted on the prescribed form, must reach the Secretary, Commonwealth Fund Fellowships, 35, Portman Square, W.1, not later than February 1, 1939.

OPENING OF THE NEW SESSION LONDON SCHOOL OF MEDICINE FOR WOMEN

LORD HORDER'S ADDRESS

At the opening of the new session of the London (Royal Free Hospital) School of Medicine for Women an address was delivered by Lord Horder on the aptitude of women for clinical medicine. The Dean of the School, Dr. Elizabeth Bolton, presided.

Lord Horder said that there was nothing more natural than that women should take up the profession of medicine and succeed in it. Was there so much difference between doctoring and nursing? And would anybody suggest that women's success in nursing was a matter for surprise or even for congratulation? Between the man doctor and the woman doctor there was no essential difference, though he thought that a good man doctor had a little more of the feminine in him than the average, and a similar sentiment applied to the woman doctor. He believed it to be the fact also that the proportion of charlatans among women was much smaller than among men. Women were said to have more intuition than men, and there were those who thought that this should give them an advantage over their male colleagues in the direction of what was sometimes called clinical instinct. Certainly women were more thorough than the opposite sex—a part, he supposed, of their greater conscientiousness—while, on the other hand, men displayed more initiative. Again, women were more curious than men, a curiosity which had borne fruit in those women who had already made their names famous in research.

That women were more industrious and more studious, he was, with shame, compelled to admit, though he warned them against vaunting themselves overmuch with regard to this virtue. If indulged in to excess it might, like any other virtue, be their undoing. Seriously, he warned them also against too much study and reading. If they read too much they would find that they had not left themselves time to think and to do essential things. Knowledge was valuable in so far as it helped one in action. Medicine demanded of its students of either sex a whole-hearted devotion and the fullest employment of all the faculties they possessed.

Powers of Observation

The power of observation, Lord Horder went on, was one particularly to be cultivated by the doctor, man or woman. All the faculties might be brought into action in the endeavour to observe—the sight, the hearing, and the smell could all be employed to note the deviations from the average so that deductions might be drawn. Observations of the characteristics of average people, their facial colour, how they shook hands, how they carried on normal conversation, how they breathed, all helped to train the mind to use instruments with greater efficiency when it came to the consulting-room. The sound of a cough and the rhythm of breathing, even over the telephone, were full of meaning to the trained ear. Clinical instinct was not a sixth sense; it came from the fact that some people trained their powers of observation until they observed without being conscious of doing so.

A diagnosis should never be made on negative findings. If nothing wrong could be found the whole subject should be reviewed again in the light of the simple deviations from the average that had been noticed. Each might be small, but, taken together, they formed a basis for diagnosis. Books and instrumental technique could never supply that knowledge and fundamental wisdom which medicine demanded. Industry could never be a substitute for sensitivity, and therefore medicine wanted the woman in the doctor just as much as it wanted the doctor in the woman.

Finally Lord Horder indicated the wide fields open to the woman doctor. She must be tired of hearing references to her special fitness for obstetrics and school inspection. Every field was open to her. In the sociological field there was great room. He was not at all sure that the medical profession was pulling its weight in social economics. The preventive measures, which called for more and more of the doctor's energy, were social economic work of the first order.

On the motion of Dr. Jenner Hoskin, seconded by Professor Lucas Keene, a vote of thanks was accorded to Lord Horder for his address.

MOTOR CARS FOR 1939

THE EARL'S COURT EXHIBITION

[FROM OUR MOTORING CORRESPONDENT]

This year's International Motor Show, the thirty-second organized by the Society of Motor Manufacturers and Traders, which opened on Thursday, October 13, and will continue until Saturday, October 22, is for the second time taking place at Earl's Court, London, S.W. While in the aggregate the number of exhibitors is rather less than last year, it will be found that the international character of the show is well maintained. The productions of fifty-eight different car manufacturers are displayed, of which half are British, the remainder representing the principal automobile productions of Belgium, Canada, France, Germany, Italy, and the United States.

Some Modern Trends

Generally speaking, it may be said that there are no startling departures in the design and construction of cars, manufacturers having been content to continue their 1938 models with minor modifications and improvements in the chassis details, in the bodywork, or in many cases in both. A feature of the new models, however, is the attention which has been paid to the question of securing greater fuel economy—that is, more miles to the gallon of petrol—than hitherto. This is being achieved not only by improvements in engines and carburetors, but also by a reduction in the weight of cars and their chief components. Various recent tests of 10-h.p. cars conducted under official supervision have shown fuel consumption rates of 47½ m.p.g. to be possible, with 40 m.p.g. as quite an easily attainable figure. As a result of the high cost of steel and other raw materials it was expected that manufacturers would have to increase their prices. Some of them have done so, but several of the big concerns, such as Austin, Hillman, Morris, and Standard, have found it possible to offer certain of their productions at slightly lower prices than last year. Whether dearer or cheaper, it cannot be doubted that by reason of the various detail improvements and the very complete range of accessories and conveniences now included in the price 1939 cars are excellent value for money.

Mechanical Modifications and Improvements

All the cars shown, except two makes, have engines with four, six, or eight vertical cylinders, the exceptions being the Jowett, which remains faithful to a two- or four-cylinder horizontal power unit, and the German D.K.W., the only car at the exhibition with an engine working on the two- instead of the more familiar four-stroke principle. So far as cars of from 12 to 14 h.p. are concerned, the "craze" of two or three years ago in favour of six-cylinder engines would appear to have died out, the popularity of four-cylinder power units for this type of vehicle being more noticeable than ever, a notable newcomer to the class being the Vauxhall Twelve-Four, which replaces a six-cylinder car of this

power. This reversion to engines with only four cylinders is due both to improved design of the engine components and to the greater use of rubber in fixing the power unit in the chassis with the object of overcoming vibration.

It is interesting to notice, despite the continued progress of the Diesel or heavy-oil engine in the case of motor omnibuses, coaches, and commercial vehicles, that petrol, benzol, and mixtures of these spirits continue as the fuels for the power units of cars in Great Britain, although in France a few makers are now supplying one or more models with engines using heavy oil instead of petrol.

Synchromesh Change-speed Gears

On British cars gearboxes with four forward speeds are now usual. American cars and a few of English manufacture, on the other hand, have only three speeds, but the gear ratios are so chosen that satisfactory results are given in practical use. During the summer of 1937 there were many references in the motoring press to the probable introduction of "two-pedal" car control, making clutch action automatic and so rendering the familiar clutch pedal unnecessary, and the 1938 meeting of the British Association was notable for the publicity given to a gearless transmission designed to do away altogether with the usual clutch and gearbox. Although one or other of such innovations in car design may in time become general, the present show gives no signs of early departure from current practice. The Daimler and Lanchester concerns still retain the fluid flywheel system of transmission, and the Armstrong-Siddeley the self-changing gearbox, but it would appear to be generally agreed in motor engineering circles that the improvements effected in synchronized change-speed gears have very largely done away with the difficulties formerly experienced with gear-changing.

This year, too, not so much is heard of "over-drives," or something more than the usual direct top gear, for use on level open country roads. These devices, although provided on a number of American cars, are still the exception rather than the rule. The Rover company continues to provide a free-wheel device in conjunction with a four-speed synchromesh gearbox, but there appear to be no new converts among car manufacturers to the free-wheeling idea.

Independent Front-wheel Suspension

Independent front-wheel suspension in place of the usual longitudinal semi-elliptic springs is increasing in popularity, it being found on several more makes of cars than last year, notable additions being the 20-h.p. Armstrong-Siddeley, the 8-h.p., 10-h.p., and 12-h.p. Standards, and the 10-h.p. Sunbeam-Talbot. Improvement in car suspension, giving easier and more comfortable riding, is also said to be secured by what are known as torsion bars in connexion with the chassis springs. The front-wheel drive, while still found on the B.S.A. Scout and Citroën cars, does not appear to have proved popular in this country, a back axle driven by a propeller shaft and spiral bevel or worm gearing continuing the order of the day. This year there is a novelty in a Mercedes-Benz "Colonial" car embodying an all-four road wheel drive and steering.

Attention continues to be devoted to providing cars with powerful, reliable, and easily adjustable mechanical or hydraulic brakes. "Easy-to-clean" steel-spoked road wheels are now generally adopted, and another good point on many of the 1939 cars is the use of larger section tyres. The number of cars fitted with adjustable steering wheels and permanent jacks is increasing, the jacks proving useful not merely for wheel-changing when punctures—now very rare owing to the reliability of modern tyres—are encountered, but also for raising the road wheels clear of the ground during car- and chassis-cleaning operations. It is also satisfactory to find an

extension of the use of grouped chassis lubrication points, which is an advantage to those who still prefer to look after their own cars.

Body Designs

The show is again largely one of covered cars, either saloons or coupés, very few open vehicles being seen, and these mainly for the sporting motorist. For family use the saloon type of body is still the most popular, but for doctors and other professional men, as well as for touring purposes by two people, the drop-head coupé is rapidly growing in favour. The freak designs in streamlined bodywork prevalent a few years ago are now conspicuous by their absence, designers having apparently settled down to a slightly sloped front and rear, with luggage and spare wheel receptacles in the latter. Though "minor modifications and improvements" form the keynote of the show, this is not to say that changes are not slowly but surely taking place. Thus the idea of doing away with the usual chassis frame and securing the engine, gearbox, and transmission directly to the steel frame of the body, as inaugurated by the Citroën company, or the combination of chassis and body frames introduced a year ago in the 10-h.p. car of the Vauxhall company, is slowly progressing, this principle having been applied to the new 12-h.p. and 14-h.p. Vauxhalls and, for the first time, to a Morris car—the newly designed Ten.

In addition to those already mentioned, among the new cars which will be found worthy of inspection are the 16- and 20-h.p. Armstrong-Siddeleys, the 28-h.p. Austin, the B.S.A. Scout 10-h.p. saloon, the Daimler Fifteen, which now has an 18-h.p. engine, the Fiat Twelve, the Humber 27-h.p. Super Snipe, the Jensen eight-cylinder model, the 11.9-h.p. and 12.9-h.p. Lea-Francis cars—these, like the Jensens, being newcomers to the show—the 2.6-litre M.G., the new Morris Ten with integral chassis and body frame, and the new 8-h.p. Morris, the Rover six-cylinder Fourteen, the new 8-h.p., 10-h.p., and 12-h.p. Standards with independent front-wheel suspension, the 10-h.p. Sunbeam-Talbot, the four-cylinder Vauxhall Twelve, and the latest 14/60-, 16/65-, and 18/85-h.p. Wolseleys.

Better Seating and Leg Room

The practice of locating the front and rear seats between the axles to afford more comfortable riding, especially in the larger cars, is increasing, and on some vehicles the front seat is being made wide enough for two passengers in addition to the driver. Minor improvements continue to be introduced in the seats themselves, those at the front now usually having tubular frames which can be adjusted for height and tilt as well as with regard to the amount of leg room available for drivers of different stature. The new tubular seat frames have, too, the advantage of providing space below them for an attaché case or other light articles. Even on what may be termed small cars much greater passenger space is provided than was the case a few years ago, and in a number of such vehicles the rear seat flooring is now quite flat instead of having foot wells. Instrument boards continue to show improvements, the instruments being centrally grouped so as to leave space for large cubby-holes. Indeed, on a few cars a shelf extending over the full width of the instrument board is now being provided.

Some Criticisms

In most covered vehicles attention is still being paid to the problem of preventing fumes from the engine entering the interior and to making better provision for ventilation. The practice of providing for winter use interior heating apparatus of one kind or another is also extending. Notwithstanding all the attention which is being directed to the question of comfort, the designers of motor vehicles would appear to be overlooking the needs of owner-drivers and forcing them to take their cars to service stations for any adjustment, lubrication, or

cleaning that may be necessary from time to time. Motor vehicle components needing regular attention never were as accessible as they might be, but the situation is, if anything, worse to-day than it was a few years ago. Thus, front mudguards now extend so far round the road wheels that it is practically impossible to get at the lubricators of the steering pivots without lying on the floor. Another practice that does not recommend itself to many owner-drivers is unfortunately being continued—that of locating the radiator filler cap below the engine bonnet instead of externally in the top centre of the radiator as in earlier years. Radiators do not often need replenishing with water, but when they do it is a nuisance to have to raise the engine bonnet, and, if one is not careful, there is the added annoyance of spilling water over some of the engine components. Rear number plates are still often so incorporated in the bumper, with tail lamps extending beyond the bumper, that in the case of a "bump" from a following car it is the glass of the number plate or of the tail lamp which suffers the first damage. One writer has lately gone so far as to state that on some cars it is necessary to remove the off-side front road wheel and also a detachable plate on the mudguard valance before the engine valves can be got at! This may not affect those owners who live in towns and cities where service stations are many, but there are still many car users living in remote areas where the nearest service station is several miles away. There appears, too, to be an increasing tendency to locate accumulator batteries under the engine bonnet instead of below the floor boards, a location which certainly provides greater accessibility, although in the opinion of some experienced motorists the under-bonnet position is not without drawbacks to the battery itself.

In view of the many instances reported of bags containing special drugs and instruments being stolen from doctors' cars, a motorist writing to the *Autocar* mentions that no car manufacturer has as yet designed a special "Doctor's Model," and goes on to suggest that a small lock-up cubby-hole capable of taking a medical man's emergency case should be provided on the instrument board, with an accessible compartment in the rear of the car, under lock and key, for more bulky apparatus. On the other hand, another doctor considers that anything which needs locking and unlocking—even the car doors—is not the ideal solution of the problem owing to the time taken up in having to use a lock and key.

Wireless Sets for Motor Cars

Evidence of the increase—although still slow as compared with what obtains in the United States—in the use of wireless receiving sets on motor vehicles is afforded by the fact that for the first time car wireless sets are being exhibited at the show. In accordance with the conditions laid down by the exhibition organizers only sets that have been designed and constructed specifically for motor-car installation, and that are recommended by the particular makers as being suitable for installation on their models, are displayed. There is as yet no car on which a wireless set is included in the list price, but several models are being supplied with one or other form of aerial built into the bodywork in order to facilitate the installation of a set if desired by the car purchaser.

Among the Accessories

The galleries at the Earl's Court exhibition building are again devoted to an array of special fittings and accessories. In view of the latest motor lighting regulations chief interest probably lies in the lamps designed to conform with the legal requirements which now apply to old as well as to new cars. Purchasers of new vehicles will have no difficulty as regards these regulations. In the case of old cars, however, it is for the owners to make themselves acquainted with the most satisfactory and convenient ways of converting their lamps in order that they

may comply with the law. There are also many examples of lamps specially adapted for driving in fog. What are known as "pass lights," with flat-top beams, have been introduced in connexion with the headlight dazzle-preventing problem as a substitute for dipping headlamps, a single control switching off both headlights and simultaneously bringing into operation the "pass light" when passing other cars after dark.

In the tyre section there are one or two new exhibits worthy of special mention. The Goodyear company has introduced a new inner tube known as the "lifeguard," the feature of which is that the tube has formed within it a supplementary two-ply fabric tyre, the two being so connected as to be inflated through the one valve. The object of the new tube is to avoid accident, and serious damage to the main outer cover, in case of tube burst or puncture, the resulting loss of air from the ordinary tube being slowly replaced from the reserve supply in the extra tube through a vent. It is claimed that should a burst or puncture be experienced, even when travelling at high speed, cars having tyres fitted with the new "lifeguard" can be relied upon to run under perfect control from one-half to three-quarters of a mile, allowing the driver ample time to bring the vehicle safely to a stop.

Finally, it may be mentioned that the exhibition is open daily, except Sunday, from 10 a.m. until 10 p.m., and that the price of admission is 2s. 6d., except on Tuesday, October 18, and Thursday, October 20, when it is 5s. up to 5 p.m. and 2s. 6d. afterwards. The Ford company is not this year holding its usual exhibition at the Albert Hall, Kensington. It is proposed, in next week's issue, to follow the customary plan of referring to some of the new cars in more detail, especially those likely to appeal to medical men from the point of view of suitability, reliability, and both purchase and subsequent maintenance costs.

C. J. W.

RESISTANCE TO EXPERIMENTAL CANCER

SIR FREDERICK BANTING'S LECTURE

The Barnes Hall of the Royal Society of Medicine was filled on October 11 when Sir Frederick G. Banting, F.R.S., of the University of Toronto, delivered the second W. E. Dixon Memorial Lecture. His subject had been announced as "The Immunity Aspect of the Tumour Problem," but he altered this on delivery to "Resistance to Experimental Cancer."

Sir Frederick Banting began by remarking that in 1925 he visited the laboratory of Dr. Gye, and since that time his main interest in medical research had centred around the cancer problem. Many experiments had been performed in his own laboratory, and although he realized that to report experiments on cancer in London was carrying coals to Newcastle, he desired to present to his audience some of this work. The original title of his lecture mentioned "immunity," but until it was finally proved that cancer in general was due to a virus or living agent it was better to use the term "resistance," although the other term was permissible in the case of filterable fowl tumours which had been shown to be due to a virus.

It was impossible to give even a brief review of the immense literature on this subject. Before 1903 workers in isolated laboratories had made observations on tumours in animals, especially mice, and had transplanted fragments of tumour into other mice, thus carrying the tumour strain; but it was not generally accepted that these scientific curiosities had a very close relationship to the tumour problem in man. With the establishment of the Imperial Cancer Research Fund co-ordinated research on cancer was started, and to the original group of workers under those auspices and to their successors the world would always owe a deep debt of gratitude. It was they who first

established the fact that cancer was fundamentally the same in all animals and in man. They studied many strains of transplantable tumours in many different species of animals, and their observations formed the basis for much of the subsequent research.

Earlier Work

The early experimental work on mammalian tumours demonstrated clearly that tumours in animals were identical with tumours in man in respect of mode of origin, age incidence, clinical course, mode of growth, and infiltration of surrounding tissue. Transplantation could only be carried out within the species; there was a strict specificity. Tumours could only be propagated by the transplantation of living cells. Until 1909 these constituted the most important of the facts known. During the next decade, however, the work of Rous and his associates and that of Japanese investigators changed the course of the inquiry. An outstanding point was that a variety of chemical agents would induce tumour, and once the tumour was induced the chemical no longer operated in the perpetuation of the growth. From the aspect of resistance, therefore, chemically induced tumours did not differ from mammalian tumours.

In 1910 Rous and others found a number of sarcomas which could be propagated in fowls by means of a cell-free filtrate. At first most pathologists considered these tumours to be due to inflammation, and not to be true sarcomas, but on further investigation they had become accepted as genuine cancer. Rous sarcoma No. 1 was one of the most universally used laboratory tumours. With this tumour Gye had done most of the work on his specific factor theory. In every way the Rous sarcoma was identifiable with mammalian tumours.

Since 1926 a study of the Rous sarcoma had been undertaken in the lecturer's laboratories at Toronto. The birds used were fully grown chickens from 6 to 12 months old. The age of the bird was an important factor, because in young birds Rous sarcoma developed more rapidly and killed more readily than in older ones. Gye used young chicks and found, out of 6,000, only one in which the tumour regressed. In the work in the lecturer's own laboratories transplants were made into the muscle of both breasts with a trocar 2 mm. in diameter. When tissues were required for transplantation the chicken with the most rapidly growing tumour was killed; the bird with the more slow-growing was allowed to live. During the six years from 1928 to 1934, 1,768 chickens were transplanted. Of these, 621 were killed to obtain tumour tissue, and of the remaining 1,147 birds, 1,140 died of tumour. Seven birds—1 in 164—became resistant to Rous sarcoma. The resistant bird by his definition was one in which a well-established tumour regressed; on additional transplantation a second small tumour might develop, but this also regressed; tumour did not develop on subsequent transplantation, and the bird did not die of tumour.

Experiments on the Rous Strain

During the past ten years in his laboratories 6,000 fowls had been used for experimental work on the Rous sarcoma; 118 birds, or 1 in 50, had shown some degree of resistance. Of the 118 birds, forty-four had received more than five direct transplants and remained negative, some of them being kept in the laboratory for as long as five years, during which as many as forty transplants were made. The thirty-eight which had died showed no sign of tumour on necropsy, and the other six were still alive and well. In twenty birds a tumour of large size regressed, but on subsequent transplantation the birds again developed tumour and died. One bird, which had developed five large tumours, died as a result of the fifth, the first four having regressed. Instances had been observed in which a large tumour in one breast had almost disappeared, but direct transplant or injection of

tumour extract into the opposite breast caused a rapid growth of the original tumour.

From the earliest work on transplantation it had been observed that the size of the transplant had an important bearing on the result, and it was thought that probably a tumour could be produced in a resistant bird by administration of a large dose of active tumour cell. A bird was given 6 c.cm. of finely divided tumour cell—a dose estimated to produce sufficient tumour-containing substance to kill 6,000 birds—and did develop a tumour, but two weeks later the tumour was absorbed, and the breast into which the injection had been made was quite normal. One of the first signs of regression was often the appearance of the bird. The comb became red and there was an increase in weight even while the tumour remained large.

Very early in the investigation it was found that the plasma of Rous-resistant birds neutralized the cell-free active filtrates of a Rous tumour. More than forty experiments on these lines had been carried out. In the earlier ones 2 c.cm. of resistant plasma was used to neutralize 1 c.cm. of potent extract; in later work only a fraction of 1 c.cm. of plasma was necessary, probably owing to the hyperimmunity developed by resistant birds as a result of repeated tumour-cell inoculation. From the fact that large amounts of highly immune plasma had no effect on the growth of the tumour it would appear that the virus, being within the cancer cell, was not affected by the antibodies in the blood. When Rous cells were injected into the resistant bird the cells died and were absorbed. Did they die from lack of blood supply, or were they killed by the antibodies of the blood? The point whether or not the tumour cell membrane could afford an absolute protection to the virus against the immune serum was an important one and required further investigation. Experiments were also made in which the tumour extracts were mixed with an immune bird plasma and injected at the same time. It was found that one or two out of three birds so injected always developed the tumour, suggesting that the immune plasma required time for the neutralization of a virus. Further experiments showed that it was necessary to give approximately 30 c.cm. of resistant plasma in order to protect a bird against the injection of 1 c.cm. of a potent tumour extract. The plasma when injected into the body was diluted by the blood and other body fluids, and unless large quantities of the serum were given there was not enough concentration at the site of inoculation to bring about protection of the local cells. All tissues of a resistant bird appeared to be resistant both to cell-free filtrates and to Rous tumour cells.

Cross-immunological Reactions

Since 1933 there had also been available for study Fuginami strains of filterable fowl tumours. These tumours could be propagated in both chickens and ducks. They showed a much greater tendency to regression than the Rous. For these experiments 180 birds had been used. Of this number 158 died of tumour or were killed for transplants, while 22 showed some degree of resistance. This was 1 in 8, as compared with 1 in 51 in the case of Rous sarcoma. Twelve birds which were resistant to Fuginami were inoculated with Rous extract or cells, and ten of them developed Rous tumours and died, while the other two became resistant to Rous as well as to Fuginami.

Although the Fuginami tumour had not been studied as extensively as the Rous it would appear that there was a similar variation in the degree of immunity in the two tumour strains. The regression of one tumour did not always mean that there would not be the development of another tumour on subsequent transplantation. Two of the Rous-resistant birds were given an extract of dried Fuginami tumour. One of them had been under observation for three years previously and had remained negative

to many Rous transplantations. Both these birds developed large tumours following the Fuginami inoculation and died from secondaries in the lung. Blood was obtained from the heart of one of these birds at necropsy and the plasma was found completely to neutralize Rous sarcoma extract. This indicated that these birds remained resistant to Rous tumour although dying of Fuginami. It was also found that the plasma of a Fuginami-resistant bird could neutralize Fuginami cell-free extract, but did not resist Rous extract.

Production of Dibenzanthracene Tumours

Sir Frederick Banting proceeded to describe a further experiment in which twelve Rous-resistant birds and twelve normal birds were each given three injections of 5 mg. of dibenzanthracene. Four of the twelve resistant birds were given Rous transplants at intervals throughout the experiment and they remained negative to Rous. Six of these resistant birds developed dibenzanthracene tumours and six remained negative. Of the normal birds eight developed the tumours, three remained negative, and one died of other causes. Evidently a high degree of resistance to Rous did not protect the bird against the development of dibenzanthracene tumour.

In the periodic examination of birds with growing tumours there was sometimes encountered an exudation of fluid in the skin overlying the tumour. This fluid on being drawn off did not give rise to tumour when injected into other birds, but had a neutralizing effect equivalent to that of resistant serum when added to tumour extract.

Many attempts had been made to immunize a fowl to Rous sarcoma. The birds had been given repeated injections of neutralized or partially neutralized serum of the tumour extract mixtures. Owing to the many failures to produce with constancy even minor degrees of resistance to Rous sarcoma, it was thought that the production of resistance or immunity might be connected with the tumour cell itself. Experiments were therefore prepared with the object of killing the tumour cell by physiological means so that the hypothetical antigenic properties might remain. It was decided to use ammonia for this purpose as it was a by-product of cell metabolism. But the cells thus treated, even when 20 per cent. ammonia was used, gave rise to tumours when injected into normal birds.

Various efforts to produce resistance to Rous tumour were described, including the repeated administration of neutralized mixtures of virus and serum, and immunization by the injection of tumour cells killed with glyceric aldehyde. In this last procedure the cells were suspended in a 4 per cent. solution of glyceric aldehyde and shaken at intervals of three hours. Of the birds injected, three developed tumours and died in the usual time; two others developed tumours which regressed, but on re-transplantation the tumours developed again and the birds died; the remaining bird did not develop a tumour until it received a transplant, when a tumour developed, and the bird died in twenty-five days. The finding was that the injection of cells treated with glyceric aldehyde did not promote the formation of antibodies against tumour, though when the cells had been exposed to dilute solutions of glyceric aldehyde in some cases the tumours were more slow-growing and the bird recovered.

Concurrently with the work on the chicken filterable tumours, certain experiments and observations had been made on three strains of mouse tumour, but with no very satisfactory results.

General Conclusions

Sir Frederick Banting said in conclusion that all this experimental work required a large number of animals, including controls, and a great deal of time, and there was such great variation in the individual animal or bird that the results were often difficult to interpret. The outstanding feature of the cancer problem was the specificity

of the disease. Cancer was identical in the fowl, the mouse, and man, yet the disease could not, with few exceptions, be transmitted outside the species. Resistance to cancer was even more specific. The work to date did not appear to contribute much towards specific treatment. The terms "immunity" and "resistance" were used in association, although, as he had pointed out at the beginning, they referred to different conditions. "Resistance" indicated refractiveness to grafted cells; "immunity," the condition under which the animal was able to combat, perhaps destroy, the intracellular growth.

The balance of evidence suggested that what he had called resistance was a laboratory phenomenon unrelated to cancer of spontaneous nature. It might be simply an indication of reaction between host and tumour cells. If this were the complete explanation of the phenomenon of resistance it could scarcely be imagined that the forces which destroyed a transplanted tumour could ever operate in natural cancer, in which the malignant cells had necessarily the same genetic constitution as the host. But after some of these experiments there lurked in his mind the notion that the forces which effectively rid an animal of a spontaneous tumour might be a combination of intracellular and anti-viral immune bodies. The spontaneous cure of natural cancer was very rare, but there had been experimental tumours which could be propagated with cell-free filtrates and were therefore the equivalent of spontaneous tumours, and these under certain circumstances regressed. The question was whether the regression was brought about by the development of immune bodies which destroyed the virus, or whether it was a more complex process, an interplay of various factors determining either an unlimited growth of the tumour or regression.

The opinion derived from this work was that antigenic differences between host and malignant tissues might be sufficiently great to stimulate antibodies adequate to ensure the disappearance of even spontaneous cancers. It was along these lines that the greatest hope of cancer therapy lay.

Medical Notes in Parliament

Tuberculosis in Newfoundland.—MR. MALCOLM MACDONALD, answering Mr. W. Gallacher on October 5, said a survey recently carried out suggested that the incidence of tuberculosis in Newfoundland was about 6,600 cases per 100,000 of the population. Steps had been taken recently to enlarge the tuberculosis sanatorium and to inaugurate special measures to control and prevent the spread of this disease.

Staffordshire County Hospitals.—MR. MANOER asked on October 6 what the arrangements were for hospital treatment for persons resident in Wednesfield and Willenhall organized by the Staffordshire County Council. MR. BERNAYS replied that the county council was proceeding with the reorganization of its hospital arrangements, and the present situation did not, to its knowledge, give rise to any difficulties. An assistant medical officer resided at Wordsley Hospital, the medical officer lived in the immediate vicinity, and the services of specialists were available if necessary.

Those medical practitioners whose approval for the purpose of signing recommendations under Sections 1 (3) and 5 (3) of the Mental Treatment Act, 1930, expires on December 31 next are being invited by the Board of Control to make application for the renewal of the approval and are being furnished with forms of application for this purpose. Any other practitioner who may desire to seek approval under the Mental Treatment Act can obtain a form of application on writing to the Board of Control, Hobart House, Grosvenor Place, London, S.W.1.

Local News

SCOTLAND

New Edinburgh Professor

The chair of chemistry in relation to medicine in the University of Edinburgh, rendered vacant by the transfer of Professor Barger to Glasgow, has been filled by the appointment of Professor G. F. Marrian, D.Sc. Professor Marrian is at present associate professor of biochemistry in the University of Toronto. After studying at University College, London, and at the Medical Research Laboratories, Hampstead, he received his present appointment in 1931. He is well known for his research on the isolation of oestrin, and he is one of the leading authorities on the investigation of sex hormones, which he has carried out at Toronto.

Honyman-Gillespie Lectures

A series of eight lectures in medicine will be delivered during the autumn term in the Royal Infirmary of Edinburgh on subjects selected in relation to the weekly teaching in an intensive course on internal medicine to be held during the same period. The lectures will be given in the West Medical Theatre at 5 o'clock, and all medical practitioners are invited to attend. The lectures are as follows: "The Rational Use of Digitalis," by Dr. A. Rae Gilchrist; "Neurology—Some Modern Problems," by Dr. W. Ritchie Russell; "Psychotherapy," by Dr. T. A. Ross; "Emphysema," by Professor R. V. Christie; "Hepatitis," by Professor J. W. McNeer; "Protein in the Treatment of Nephritis," by Dr. J. D. S. Cameron; "The Significance of Glycosuria," by Professor D. M. Dunlop; and "The Mechanism of Megaloblastic Blood Formation," by Professor L. S. P. Davidson.

Memorial to Dunbar Doctor

A bronze plaque with portrait medallion to the memory of the late Dr. Duncan R. Macdonald was unveiled on October 2 in the Dunbar and District Cottage Hospital. Professor P. O. Turnbull presided at the ceremony, and paid a tribute to Dr. Macdonald's services to the community of Dunbar and especially his work in the service of this hospital. Several hundred pounds had been collected for the memorial from Dr. Macdonald's friends and patients, and the sum collected sufficed to endow a bed in the hospital as well as to furnish the memorial plaque.

ENGLAND AND WALES

A.R.P. in London: Hospital and Ambulance Services

A special meeting of the London County Council was summoned on October 7 to discuss a report presented by the Air Raid Precautions Subcommittee, the chairman of which is Mr. Herbert Morrison, M.P., the leader of the Council. The report which Mr. Morrison submitted dealt mainly with three subjects: emergency fire brigade organization, the evacuation of school children, and the casualty service. With regard to the last of these, the new arrangement whereby the Ministry of Health assumes responsibility for the organization of all hospitals (clearing stations or base hospitals) for the reception of air raid casualties, although not yet embodied in formal regulations, was during the recent emergency put into operation. Two of the Council's medical staff were seconded to the Ministry in connexion with the organization of the casualty scheme, which embraces London and the home counties. Among

the measures taken were the purchase of 10,000 supplementary beds and 20,000 blankets, and the upgrading of nearly all the L.C.C. fever hospitals to the status of full surgical hospitals on an emergency basis by the purchase of additional equipment. Provision was made for emergency stocks of drugs, dressings, and serums to be maintained at all hospitals which would be used under the casualty scheme. Material was also obtained for the darkening of all hospital windows, which are normally entirely without blinds. Sufficient respirators were issued for both patients and staff. The Ministry of Health having assumed responsibility for the organization of ambulance transport in connexion with the London casualty scheme, the officer in charge of the London ambulance service was, at the Ministry's request, seconded to the Ministry. For the augmentation of the service some 2,000 vehicles were required to be adapted as emergency ambulances, and 5,000 women drivers were needed. To augment the number of vehicles available in time of war, equipment has been urgently manufactured to enable the fleet of sixty-nine vehicles used for the conveyance of children to and from special schools to be adapted within a few hours as ambulances. Arrangements were made with the London Passenger Transport Board for a large number of motor coaches to be similarly adapted. A supply of respirators for ambulance drivers and attendants was obtained from the Home Office. An organization was set up for the decontamination and repair of any damage which might be occasioned to the main drainage system in the event of war. For this purpose trained squads of men were formed from the L.C.C. main drainage staff.

In our *Supplement* this week will be found at p. 248 an account of the preparations made by the L.C.C. Hospital Service to meet the emergency had it actually occurred.

Correspondence

Civil Medical Organization in War

SIR,—Last week you published a leader on the medical arrangements needed for dealing with intensive air raids upon London. In that article it was stated that a medical committee had been appointed by the Home Office immediately after the earlier crisis of May 21, that it had worked strenuously under the chairmanship of Sir Charles Wilson, and had completed before the end of July an interim report on the methods that could be adopted for dealing with air raid casualties throughout London. Comment was then made on the fact that when September brought its graver crisis, civilian hospitals were still without Government instructions as to their precise place in the scheme of medical work.

The authorities at University College Hospital received on September 14 the information that the hospital would be expected to act as a casualty clearing station. No other instructions had been given, and the only official information to guide action was that of the A.R.P. handbooks. Thanks to the Army experience of some members of the staff who had served in France during the last war, and still more to the keenness of everyone else, the hospital stood ready for its new work by midday on Thursday, September 29. Half the in-patients had been evacuated. A complete schedule of new duties had been worked out for students, nurses, and staff with lists by name of the various teams on duty or for relief, and with precise instructions as to the place where each team would work. The operating theatres in the unprotected top floor of the hospital were replaced by extemporized provisions at a lower and safer level. A blood transfusion service was

completely organized with new apparatus all assembled, the material having for the most part been given by the science laboratories of University College, and it could have provided for a hundred transfusions a day; 250 volunteers from students were typed to act as donors, and the names of nearly 500 other volunteers in the neighbourhood were registered. The hospital was ready to work as a casualty station, but no central authority had asked for any report on the progress or completion of arrangements.

One general defect is now evident as the preparations made locally at one hospital in that busy week are being reviewed. The method of recording clinical notes at length in case sheets, as used in most of the voluntary hospitals, would have broken down completely under the strain of admitting 500 or more casualties a day; nor would it have provided the clinical records that must accompany each casualty when he is moved rapidly from one post to another in a hospital, and later moved to a base hospital elsewhere. As a temporary device, quantities of luggage labels were bought, and they were to be stamped for such entries as name and diagnosis, dose of A.T. serum or morphine, etc.

If payment is to be made to voluntary hospitals for the number of civilian air raid casualties admitted, and particularly if compensation is to be given later to the individual victims of air raids, it will be essential to have all the main data about each casualty noted down in a uniform style on some cards issued by Government and belonging to Government.

During the war it was soon found that the old system of case sheets retained in each military hospital was inadequate to give the clinical information needed during the rapid transport of casualties, especially from France to the United Kingdom; but two years were allowed to pass before a satisfactory system based on small transport and index cards was evolved. Perhaps the method now intended for use by the R.A.M.C. in time of war could readily be adapted for civilian war casualties, and the Home Office Committee may have advised on this point. If so, it would be a small expense for the necessary cards to be printed at once and issued to the various hospitals. They would have an important effect as a token of the co-ordinated work that the hospitals must now definitely prepare themselves to undertake. All that University College Hospital received from the Ministry of Health was a stencilled example, copies to be made somehow and completed in triplicate, of a discharge certificate used for the Ministry of Pensions, beginning, so to speak, with the end of the story.—I am, etc.,

T. R. ELLIOTT.

University College Hospital,
W.C.1, Oct. 10.

SIR,—Your leading article on air raid casualties (October 8, p. 749) reflects the anxieties which many of us have felt in regard to the care of the sick and injured of London in the event of war. This anxiety particularly applies to the teaching hospitals, which, being independent bodies with large staffs of differing categories and numbers of medical students, must have felt the need for a more comprehensive plan for the utilization of their services than that of evacuation and conversion to so-called casualty clearing stations. A war could hardly lessen the call on their services by the sick, to whom must be added air raid casualties, and mere evacuation does nothing to provide for continued treatment. Further, the training of future doctors would be even more necessary in war than in peace, and could not be provided by casualty clearing stations.

What would seem to be needed is the establishment of large base hospitals, out of the immediate danger zone, either in existing buildings or in huts associated with each teaching hospital. To these could be evacuated existing patients if war became imminent; to them could go patients, either sick or wounded, who presented themselves to the London parent hospital and were found in need of other than immediate treatment. If their sites were correlated with the plans for the evacuation of the non-essential civil population the problems of the medical care of such refugees would be partly solved. The staff of the teaching hospital could serve both institutions, since the personnel needed for a casualty clearing station, even including the provision of mobile surgical teams for use elsewhere in London, would be well within their capacity to provide. The medical students in their clinical period could be divided between the two institutions, and would be of service at the same time as they were continuing their studies.

Such a scheme would entail the employment of the staffs on a whole-time, or almost whole-time, basis, and would necessitate their taking-over and payment directly or indirectly by the State, and the provision of safeguards such as apply to Service officers. Many other allied problems, such as the provision of accommodation for private patients in the presumed event of London nursing homes being untenable, require separate consideration. War has been happily averted for the present, but the provision now of adequate plans for dealing with its many-sided problems, should it occur, is no less necessary however sincerely we may hope it can be avoided in the future.—I am, etc.,

London, W.1, Oct. 8. E. G. SLESINGER, M.S., F.R.C.S.

SIR,—Perhaps we shall never know the magnitude of the widespread failures of the present A.R.P. scheme during the recent period of emergency. It would appear that the policy of the past two years has been mainly to reassure the population that there is no real danger to be feared from the air, if . . . This feeling has been so thoroughly disseminated during a comfortable peace that the man in the street has responded, "Then why worry?" I cannot avoid the feeling that the shortage of volunteers has been due, to some extent, to this cause.

In the *Supplement* of December 26, 1936 (p. 339), you published an article of mine on air raid precautions in which I outlined a scheme of organization, many of the features of which have since been adopted—and many have not. We are only concerned with the medical aspect, however, and before any efficient scheme can be organized there are certain fundamental principles which must be recognized, but seem to play very little part in the existing arrangements.

First, there must be a definitely attested medical personnel of known strength. Secondly, there can be no efficient organization without disciplinary control, trained direction, uniform training, and adequate medical equipment. Thirdly, the A.R.P. medical organization should take the form of a corporate body on national and not municipal lines, directed by senior administrative medical officers practised in the tactical employment of medical personnel during raids; in other words, some form of A.R.P. Medical Corps. The experience of the past few weeks suggests that the whole A.R.P. arrangements also would be better on a national basis.

In my paper quoted above I mentioned the probability of a shortage of doctors and pointed out the need for training the first-aid personnel to a degree of efficiency that would qualify them to render first aid and collect

casualties without medical supervision, so that doctors might be employed in posts where their skilled assistance may be used to the fullest advantage—for example, casualty clearing stations. This would clearly entail a training programme much wider and more thorough than that of the ordinary ambulance class, and it would have to be undertaken by the doctor.

Personnel should be attested under suitably modified conditions of service on the lines of a part-time Territorial Army, a minimum standard of efficiency would be required, with a compulsory annual efficiency test. Although in my paper I did not consider a uniform necessary, if it would encourage recruits by all means let them have one. It would serve to distinguish them, by night as well as by day, as trained men.

If the full story of A.R.P. could be told there would be some amazing revelations of inefficiency. There are still communities without gas-masks. In some cases *laissez faire* and crass stupidity have been incredible. Imagine, for instance, local councils, for reasons best known to themselves, appointing existing officials to the additional duties of A.R.P. officer. In some cases he has been the chief of the fire brigade. It would be difficult to imagine two more incompatible duties than these. In a raid the fire brigade would be so fully occupied with widespread simultaneous outbreaks from incendiary bombs that, being primarily a fireman, his hands would be too full to worry about A.R.P.

It will be interesting to watch developments.—I am, etc.,

H. M. STANLEY TURNER,
Wing Commander, R.A.F.

Brookwood, Oct. 8.

SIR,—The scheme prepared by the Ministry of Health for converting, on the outbreak of war, special hospitals in the Central London area into general hospitals omits any recognition of the fact that nearly every member of the visiting medical staff of a hospital is attached to more than one hospital. Is it left to the surgeon's own conscience to decide which of his hospitals he shall stand by?

The question may become an acute one in a crisis. If war were declared and a Military Service Act passed, the younger men would be called up and, for one reason or another, not excluding possible casualties, many hospitals might find themselves almost denuded of their usual staff. Doubtless in time additional surgeons would be allocated by the Central Emergency Committee of the B.M.A., but such an arrangement would necessarily be less satisfactory than the retention as far as possible of the usual staff.

The problem is a difficult one, but it does seem to call for a clear-cut ruling. Perhaps the best solution would be a general recommendation to the effect that in each hospital a small committee, consisting, perhaps, of the chairman of the hospital, the secretary, and the senior surgeon, be empowered to decide the dispositions of the staff. If this were done now the hospitals concerned could settle by mutual agreement a panel of surgeons on whose services they could rely in case of emergency.—I am, etc.,

London, W.1, Oct. 10.

A. RUGG-GUNN.

SIR,—I agree with every word of your leading article on this subject (*Journal*, October 8, p. 749). I have heard tales of lack of organization from others, but let me state my own experience. Some months ago I offered my services in my home district for casualty work. On Thursday during the week of crisis I found on getting

home, a notice directing me to attend a certain school during an air raid. I went at once to this school: there were no preparations except rubbish bins and a couple of buckets. If war had occurred we might well have had a raid on Saturday or Sunday. Possibly dressings, splints, etc., might have arrived later, but it is obvious that it is no use collecting a certain number of doctors unless they have apparatus to use and unless a team is planned and responsible officers appointed to organize the work. I hope that the British Medical Association will use its influence with the authorities to secure that supplies and organization are ready before the next crisis arises. If the Ministry of Health delegates work to local authorities some medical man should be made responsible for each district and each unit.—I am, etc.,

W. GUYON RICHARDS, M.B.,
Late Major, I.M.S.

London, W.1, Oct. 7.

Decline of Breast-feeding

SIR.—Dr. J. C. Spence's paper on the decline of breast-feeding (*Journal*, October 8, p. 729) is so convincing that I entertain the hope that it will do something to "stop the rot." He has set forth the psychological factors involved, but I think there is more to be said on this aspect of the question.

In the more educated sections of the community we are reaching the second generation of bottle babies; in other words, many of the mothers who renounce serious breast-feeding know that they were not themselves breast-fed. Consequently there is liable to be a latent protest: "Why should I take the trouble that mother didn't take for me?" Then there is the relatively new factor of the cigarette habit, and, whether admitted or not, it certainly influences some young mothers in favour of the bottle.

The psychology of the nurse is even more important than Dr. Spence indicates. Most maternity nurses are childless. Most of them have a strong maternal urge. (If they have not this urge they are liable to be second-rate at their work.) The resultant of these two components is an inevitable envy of the mother. In many cases, perhaps in most, it is completely repressed, but that does not prevent it from being operative. The expression of this unconscious envy is, first, to abrogate maternal functions, of which the most important is nutrition; and, secondly, to disparage the mother's capacity. Bad maternity nurses give the mother a sense of inferiority, not merely about lactation, but about every aspect of child management. "Heaven help baby when I have gone!" is a cheery jest which cuts deep. Consciously it may be only a jest; unconsciously it is meant to hurt. Thus the maternity nurse (whether she knows it or not) is prejudiced in favour of bottle-feeding in spite of the fact that it generally involves more trouble for her.

It is largely on the nurse's evidence that the doctor makes his decision. But what of his unconscious motive? Unfortunately most of us are sufficiently like other members of our race as to suffer from self-importance. Of course this regrettable item in our make-up is generally, if not always, hidden from our own eyes. This latent self-importance is the source of much obscurantism, fussiness, and solemnity throughout our profession. It makes us very averse to a policy of non-intervention. The most mischievous form it takes is the solemn warning to the husband of the primipara that a second child must not be risked. A lesser form of interference with Nature is the advice to "put baby on the bottle."

But these unconscious motives which influence the adult culminate in results for the child that are even more

serious than Dr. Spence indicates. Medical psychologists are discovering daily the permanent damage that can be inflicted in connexion with infant feeding. No doubt ill-conducted breast-feeding can cause psychic traumata of great severity. So also can bottle-feeding. It, however, lacks in addition the great opportunity which breast-feeding affords. That opportunity is no less than the conditioning of the nascent social sense. Thereby the infant begins to differentiate the non-ego from the ego under conditions of instinctual satisfaction, physical well-being, and, above all, perfect security. This is the beginning of all sound social adjustment. Though these conditions can to a certain extent be imitated by bottle-feeding they can never be fully reproduced.

I hope that these considerations, in addition to Dr. Spence's cogent arguments, may influence some of our colleagues to refrain from hasty decisions in favour of "Ersatz" feeding of infants, however fashionable it may be.—I am, etc.,

London, W., Oct. 10.

H. CRICHTON MILLER.

SIR,—I was greatly pleased to read the excellent article by Dr. J. C. Spence, and I fully agree with his wish to encourage the natural method of feeding. As a matter of fact it is one of the most important contributions to infant welfare. I would, however, like to draw attention to the question as to how many women are anatomically capable of breast-feeding. Certainly the incidence varies.

At the beginning of my pediatric career the question was much discussed. I tried to find a basis by anatomical investigations, and these were carried out in Dresden and Düsseldorf. Sections were made through the whole breast of women who had died shortly after childbirth. This was done by means of a special large microtome which enabled one to obtain a survey of the distribution of the secretory tissue. Results were uniform in both cities. The amount of glandular tissue varies within wide limits from practically nil (only fibrous tissue being present) to a condition of practically 100 per cent. secretory tissue. On the other hand, in the animals investigated for comparison this variation was not met with.

I mention these findings in order to demonstrate that there are anatomical difficulties in the way of many women feeding their children. Yet I do not quote these results in order to discourage doctors from insisting on breast-feeding. On the contrary, I would urge that it is necessary to encourage the young mother and to give her every help possible in view of the difficulties which arise in many cases.—I am, etc.,

London, N.W.7, Oct. 8.

STEFAN ENGEL.

Prognosis of Anxiety States

SIR,—The article by Dr. Arthur Harris on the prognosis of anxiety states in the *Journal* of September 24 (p. 649) has one curious omission—the absence of any consideration of the treatment employed in the cases he describes. The results obtained by a follow-up of 123 cases, selected from the records of the Maudsley Hospital, are analysed. Thirty-eight are found to have recovered and sixty to be still suffering from anxiety states. His only reference to treatment, however, is a remark that more "energy" was expended before a case progressed from the worst grade of severity to the lightest grade than from the lightest grade to complete health, and that cases which responded rapidly gave the best results, those requiring prolonged treatment being disappointing.

Should we not expect the question of treatment to be a factor vitally influencing the results? If so, is it not necessary to know whether psychotherapy or some other form of treatment was employed, or whether some of the cases had one kind of treatment and some another? If they were treated by psychotherapy, was it merely reassurance and medicine that were given or was a form of analysis and interpretation carried out?

Unless information on these points is forthcoming can we look upon the results described by Dr. Harris as of value in enabling an opinion on the subject of prognosis to be formed? Is it possible, however, that he means to imply that treatment is not significant in estimating the prognosis in anxiety states?—I am, etc.,

London, W.I, Oct. 8.

FREDERICK DILLON.

Vasomotor Rhinorrhoea

SIR,—In your issue of October 1 (p. 703) Dr. A. S. Heseason makes a valuable contribution to the study of the fascinating problem of vasomotor rhinorrhoea and conditions secondary to the allergic nasal mucosa. The importance of his paper, in my opinion, lies in the fact that he has linked up recent advances in endocrinology with the experimental work of Myers on the nerve paths involved in the "naso-pulmonary reflex." I have myself encountered only four cases in which rhinorrhoea, asthma, and menstruation were definitely associated, so that I am unable at present to estimate the incidence of this condition; it would be interesting to hear of the experience of other workers in this field.

With regard to food sensitivity, my experience is that skin testing for this is of little value, since so many subjects are allergic to breakdown products of digestion, which skin-testing may not show; skin or mucosal tests for other allergens can be relied upon if properly carried out. For the investigation of food sensitivity the climatic diets given by A. H. Rowe in his book *Clinical Allergy* are to be preferred.

The diagnosis of nasogenic asthma is generally easy if the cocaine spray can be employed during an attack, but, as always, an accurate "history" with particular regard to the duration of symptoms and age of onset is essential. Dr. Heseason rightly sounds a note of warning lest in cases of asthma and bronchitis the allergic condition be overlooked and treatment directed solely to the secondary bacterial infection. The same applies to cases of so-called "nasal catarrh."—I am, etc.,

London, W.I, Oct. 4.

CLIVE SHIELDS.

Function of Epithelial Cells

SIR,—The epithelial cells in the body have two well-known functions: (1) to cover and protect surfaces exposed to injury; (2) to secrete substances necessary for normal growth and metabolism. They have in addition other activities, which I think require more consideration and investigation—namely, the reactions which they cause on contact with other tissues, and also their reactions to abnormal contact with body fluids.

The syncytial epithelium of the ovum where it comes in contact with the uterine mucosa causes destruction of the epithelial and proliferation of the connective tissue elements, and when it comes into contact with the capillary endothelial lining fuses and comes into direct continuity with it.

In the process of healing, the epithelial cells, as they flow over a granulating surface, graft themselves to it by formation of a basement membrane. I hold that the

formation of a basement membrane is caused by the action of a secretion of the epithelial cells on the cells of the granulation tissue. My reasons for this view are that in different places the basement membrane is modified to suit the particular requirements of the situation, and in healing after injury—if the injury is not too extensive—there is an effort to re-form the same type by resolution of the scar tissue. For instance, an extensive corneal opacity can clear up in a healthy child.

The basement membrane is also in my opinion a very important factor in the normal nutrition, health, and growth of epithelial cells. Its rupture by injury and consequent escape of circulatory fluid allow direct contact of that fluid with the epithelium, and this abnormal contact causes active proliferation of its cells necessary for repair. The abnormal proliferation ceases when continuity of the basement membrane is again established.

I think from this that there is reason to believe that substances in the body fluids which tend to cause abnormal generative activity in the epithelial cells are kept apart from them or altered by the basement membrane.—I am, etc.,

Magherafelt, Co. Derry, Sept. 26.

P. HEGARTY.

Traumatic Amputation of Finger

SIR,—In regard to Dr. W. D. Park's letter in the *Journal* of September 24 (p. 680), discussing treatment of the guillotine type of traumatic amputation of the fingers, I agree that re-amputation at a higher level to obtain skin flaps is usually contraindicated. Of late I have treated cases by the immediate application of a thick Thiersch graft with pressure dressing. This has given satisfactory results. The return to work is quicker than with any dressings (usually flavine cream dressing) I have seen used, although I have not had any experience with tannic acid as described. The resultant scar contains less fibrous tissue and the graft usually takes well, in spite of the bare bone.—I am, etc.,

London, E., Oct. 8.

C. LAURENCE HEANLEY,
Surgical First Assistant, London
Hospital.

A Dressing for Wounds

SIR,—Regarding the sterilizing (approximately) of accidental wounds I should like to recommend a solution of iodine in glycerin or in glycerin and boric acid. (The latter is considerably denser.)

Used at a strength of $1\frac{1}{2}$ drachms of the strong tincture in a pint, it is applied on a gauze packing that can be left in the wound for anything from twelve to twenty-four hours. This follows the preliminary treating of the wound with a more diffusible antiseptic, and the glycerin, whatever antiseptic it carries, provokes a very useful exudation, and secondary suturing or strapping may often be carried out. It is not, however, a good dressing to go on with, as glycerin, unless quite dilute, tends to retard healing, causing, for example, haemolysis, as has been observed experimentally (by Dr. Macleod of Leeds).

In treatment of wounds already septic hypochlorous acid (or eusol) would be much more popular if it could be obtained in a fresh state. This is how it can be done: calx chlorinata to the amount of 45 grains is rubbed smooth and put into 8 ounces of a 15 per cent. solution of sodium chloride. This may be kept for an indefinite period. When needed all one has to do is to add boric acid crystals, 45 grains or more, and one has eusol of full standard strength (or a little more) in a 15 per cent. solution of sodium chloride. But as a matter of fact one-third standard is quite strong enough for continued use so far as the eusol content is concerned, and 5 per cent. quite enough for hypertonic saline. So what one

does is to add, say, four ounces of the solution-suspension to twice the quantity of warm water, in which half, 45 grains of boric acid has already been dissolved. Shake up, stand for a few minutes, and decant. The boric acid can safely be guessed as to quantity, for excess of it does no harm. The new solution should have the characteristic fresh smell, and is admirable for irrigating septic wounds or septic or doubtful uteri.

For a flat septic surface or ulcer the solution-suspension is added to double the quantity of warm water, mixed well, and enough poured on to a warmed sterilized plate to soak thoroughly, neither more nor less, a piece of boric lint that will suitably cover the wound. Oiled silk must be put on over it, and if examined several hours later the hypochlorous acid gas can still be smelt. And all this time and much longer the hypertonic saline is maintaining its activity. It is of prime importance, of course, that the liquid should not at any stage be exposed to heat much above that of the body. I have used these methods for a good many years.

The boric lint method is admirable for septic burns, but after the first two applications it can generally be used considerably weaker.

Hypertonic saline solution is a very valuable dressing for ordinary burns, whether tanned or not, and I therefore suggest that hypochlorous acid in hypertonic saline solution is likely to prove a satisfactory dressing for the skin lesions of "mustard" gas.

—I am, etc.,

W. REGINALD WILSON, M.B., B.Ch.

Doncaster, Sept. 26.

Social Pathology

SIR.—I agree with Dr. A. J. Brock (October 8, p. 762) that the medical profession can supplement the lessons of past history by emphasizing the pathological analogies of social defects. Those who return to society no useful service for all the care and expense of their upbringing are like tumours which collectively may become malignant. Social organizations are analogous to the neurones of the central nervous system. Their leaders are "contactors" like the synapses, and the amount of authority given to these leaders (like the blood supply of the synapses) governs their activity and the resulting conduct of society (see article *Journal*, February 5, p. 265). Just as a septic focus near the carotid artery may cause pathological changes of the cerebral capillaries and thus mental disorder, so may evil influences upon those in authority eventually determine an anti-social state.—I am, etc.,

Birmingham, Oct. 10.

F. A. PICKWORTH.

The Services

DEATHS IN THE SERVICES

Lieutenant-Colonel PHANINDRA NATH BASU, I.M.S., died at Vienna on July 25, aged 48. He was born on October 31, 1889, and was educated at the Calcutta Medical College, where he graduated M.B. in 1913. He joined the Indian Medical Service as temporary lieutenant on July 17, 1917, and on November 1, 1920, received a permanent commission, being ranked as captain from July 17, 1920. He took the D.P.H.Eng. in 1923, and in 1924 the D.T.M. of the London Colleges and the M.R.C.P.Ed. He attained the rank of lieutenant-colonel on January 16, 1937. He served during the latter part of the war of 1914-18. He had been a member of the British Medical Association since 1921. He was professor of pathology at the Medical College, Madras, and had held the post of deputy assistant director of pathology for the Bombay District.

Obituary

SIR HENRY GRAY, K.B.E., C.B., C.M.G.,
LL.D., F.R.C.S.Ed.

Though fifteen years have passed since Sir Henry Gray left Aberdeen for Montreal, the news of his sudden death on October 6 caused almost as much grief and regret as if he had never left the place. Not surprising this to those who knew the man and his worth, for he was ever a live force, a lovable personality; a great surgeon, and an outstanding teacher of the principles and practice of his art. Add to these his devotion to the special training of men bent on surgery and his success in this direction as evidenced by the number of his distinguished pupils on our hospital staffs and others, and it will be understood that the recalling of his name and worth has been a constantly recurring event up to this time and I feel will long continue.

Henry Mellree Williamson Gray was born in 1870, his father, Mr. A. R. Gray, being a prominent business man in Aberdeen. Educated at Merehiston Castle School, Edinburgh, of which he was captain, he was from 1888 to 1891 in business with his father. In the latter year he entered Marischal College to study medicine, where he had a distinguished career,

graduating with honours in a strong year, among his contemporaries being the brilliant Arthur Lister, nephew of Lord Lister. A year spent as house-surgeon to Sir Alex. Ogston followed graduation, and here Gray found his sphere and grasped his opportunities, taking a greater interest than was usual in those days in the work of the "dressers" in the wards. In 1896, he proceeded to Germany, spending a year and a half in Bonn, Leipzig, and Berlin, studying mainly surgery and gynaecology. He left Aberdeen surgery gradually shedding some of the trappings of the antiseptic system and striving after a safe but simpler technique. He found German surgery far advanced in the development of the aseptic system, and when he returned to Aberdeen he had mastered this technique and brought much new equipment with him. He was the first here to start as a surgeon without a preliminary period in general practice. By some prominent members of the profession this was resented and for some years he had no easy row to hoe. But Gray never lacked courage and tenacity of purpose, and he pursued the even tenor of his way. After a short period as anaesthetist, and a few years as assistant surgeon at the Royal Infirmary, he got wards in 1904. A very strenuous time followed till the outbreak of war. A man of original mind, while he did his own thinking, he read widely and used his assistants to amplify his information from this source; he made frequent visits to the Continent, and from one of these brought back omnopon, with which he widened the field of local anaesthetic operation.

He was always striving after a more perfect technique, better and safer anaesthesia, and reduction of shock before, during, and after operation. One should not forget to



mention his interest in the "lost sheep" or the "forlorn hope"—the patient who had got the dreaded verdict elsewhere "too late—inoperable." To such of these as he thought had a chance and were prepared to make that choice his technique, resource, courage, patience, and physique often gave success. He considered the individual first, and the criticism of his daring that might and did follow failures in such cases affected him little, if at all. His attitude to such might be summed up in the motto of Marischal College—"They say. What say they? Let them say." He was beloved by his patients; he gained their confidence without effort, by obvious strength of body and character, his geniality and pawky humour and his forthright method, coupled with a sympathy which gave courage and cheer. He was human, however—"there are spots even on the sun"—his idealism in the surgical theatre was at times too high for the attainment of the luckless assistant who fell short of expectation, and sharp reproof rang out in no uncertain way. It rankled at times, but geniality was resumed with the casting of the operating garment and the closing of the theatre door behind him.

Gray was a patriot in no measured way. In 1899 he served as a civil surgeon in the South African War and was invalided with typhoid fever. In 1900 he was gazetted surgeon captain to the Aberdeen Volunteer Artillery, and later was a major (R.A.M.C.T.) *à la suite* in the 1st Scottish General Hospital. In 1914 he volunteered for service abroad and did not return to his practice till June, 1919. His first appointment in France was chief surgeon to the British Red Cross Hospital at Wimereux, with his fellow-student Arthur Lister in charge of the medical side. In November, 1914, he was appointed a consulting surgeon B.E.F. and was for a time in the Rouen area, and later was consulting surgeon to the 3rd Army. His keenness as a teacher was manifest in his willingness to operate and assist at operations for instructional purposes, and he did pioneer work in the treatment of wounds by excision and also in the treatment of head injuries. His technique in the latter case earned the warm approval of Harvey Cushing in a communication from France to the *B.M.J.* or *Lancet*. Having served in the forward area with every army on the Western Front, one was struck with the pains that Gray took to realize the conditions under which field ambulance officers and regimental medical officers worked. During the battle of Arras, on a "hard" day he was found near Monchy-le-Preux with gas-mask at the alert on a round of visits to dressing stations to see how they were going.

A gift he valued highly was a massive piece of silver plate inscribed with the signatures of some sixty surgeons who had served under him in France, in appreciation of his service for and with them. There is more than a touch of irony in the fact that among the signatures are a few Canadians, including Mr. Archibald, whom McGill University favoured in place of Gray, who was the choice of the Governors of the Royal Victoria Hospital, Montreal. With a complete knowledge of all the moves made by the Governors of the Royal Victoria Hospital to induce Gray to go to Montreal and the guarantees given before he accepted, combined with some reliable information from Canadian sources, it is difficult to restrain the Celtic side of one's personality in expressing one's views. Shortly, however, let us acknowledge that Gray had a "raw deal" in Montreal.

Gray was a great sportsman and played cricket in every sense of the word. He could make the ball do tricks on the ground and in the air long before spin and swerve

became common terms. He was keen with the gun and fishing rod, but to me he was at his best on the snow-clad hills around Braemar and Balmoral, in a five-days hind-stalking trip in the last week of December and in the long evenings spent in that famous hostel, the Fife Arms, Braemar. His hospitality was unbounded, and many residents, young graduates, and others will recall with pleasure Sunday evenings when 34, Albyn Place was an open house.

He paid a short visit to Aberdeen in 1927; at two days' notice some fifty old colleagues held a dinner in his honour. He was as of old—no bitterness, no rancour, no upbraiding—a great surgeon—a great gentleman.

Ave et Vale.

T. F.

[The photograph reproduced is by Russell, London.]

WILLIAM FLETCHER, M.D., F.R.C.P.

We regret to announce the death on September 18 at the age of 64 of Dr. William Fletcher, until recently Director of the Institute for Medical Research at Kuala Lumpur. Dr. Fletcher was educated at Caius College, Cambridge, and St. Mary's Hospital, where he gained a University scholarship in 1893. He qualified M.B., B.Ch. in 1896, proceeded to the M.D. in 1910, and in 1926 took the M.R.C.P. He was elected a Fellow of the Royal College of Physicians in 1933. Dr. Fletcher spent a few years in general practice at Coventry, and left this in 1903 to join the Government Medical Service in Malaya, where he acted as first medical officer to the General Hospital, Kuala Lumpur. In 1908 he was appointed pathologist to the Institute for Medical Research, where he worked, among others, with the late Sir Thomas Stanton, whom he finally succeeded as director. Dr. Fletcher was awarded the Craggs Prize in 1909 for his essay written in conjunction with Dr. Doris Mackinnon on beriberi. He was joint-author of a Medical Research Committee report on chronicity in dysentery carriers, and was well known for the work he had done on melioidosis. His publications on tsutsugamushi disease and on tropical typhus appeared in the *Transactions of the Royal Society of Tropical Medicine and Hygiene* in 1928 and 1929.

During the war Dr. Fletcher served as pathologist at the University War Hospital, Southampton, and except for this intermission he lived in Malaya for twenty years. When he left Malaya he became an active member of the Royal Society of Tropical Medicine, and also served as the secretary of the Colonial Medical Research Committee. He is survived by his widow and a son and a daughter.

Dr. A. Felix of the Lister Institute writes:

William Fletcher's work on typhus fever has gained for him an international reputation. In 1924, working at Kuala Lumpur in collaboration with J. E. Lesslar, he first recognized as typhus one of the continued fevers of the Malay States and called the disease "tropical typhus." In the following year Fletcher made the important discovery that there were two serological groups of tropical typhus, which could be distinguished by the agglutination reactions which the serum from the patients gave with two different strains of *Proteus X*. The two groups were later shown to have a different distribution and were referred to as shop typhus (urban group) and scrub typhus (rural group). Fletcher's observations at first appeared to be very puzzling. His work, however, has not only been fully confirmed and amplified so far as the tropical typhus of the Far East and the Japanese river fever (tsutsugamushi) are concerned: it also has had a most stimulating effect on the study of typhus-like

fevers that occur in different parts of the world. A number of diseases previously described as "unclassified fevers" that occur in various tropical and subtropical countries have been studied on similar lines and recognized as members of the "typhus group of fevers." Fletcher's work on the two serological types of tropical typhus will, therefore, mark a turning point in the history of typhus research. Fletcher was a man of quite exceptional charm. He will be remembered not only by those who were privileged by his personal friendship but also by many British and foreign bacteriologists to whom he extended his ever-ready help or advice.

E. COLLINGWOOD ANDREWS, M.D.

We regret to announce the death on October 7 of Dr. Edward Collingwood Andrews of Hampstead. Dr. Andrews was born in 1862 in London, being a son of the late Dr. James Andrews, who practised at first in the Camden Road and later in Hampstead. Collingwood Andrews was educated at University College School, and from there went up to St. John's College, Cambridge, where he matriculated in 1880 and obtained a scholarship in natural science; he took the B.Sc. degree at London University in 1882 and his B.A. at Cambridge in 1884. The M.R.C.S. he obtained in 1885, the M.B., B.Ch. Cantab in 1886 and the M.D. Cantab in 1892. After holding a resident obstetric appointment at Guy's Hospital he joined his father in practice at Hampstead.

At an early period in his career Andrews began to take interest both in the public life and in the professional work of the district. As surgeon to the Hampstead General Hospital in its early days when it was staffed by general practitioners he took his full share of the work, and he then enjoyed the full confidence of his colleagues in his judgment and in his skill as an operating surgeon. When the National Insurance Bill was being discussed he was in strong opposition to it; but when it became law circumstances were such that he, like many others, was compelled to accept it. Later in life he was called upon by the Ministry of Health to serve upon Courts of Referees in appeals under the National Health Insurance Acts, a very high opinion of his capacity as an adjudicator being held by the authorities. He was a well-known figure in the public life of the Borough of Hampstead: he served in the 19th Middlesex Rifle Volunteers; he was one of the original members of the borough council when it was first formed in 1900, and his years of service upon it amounted in all to twenty-five. During this time Andrews was elected an alderman on two separate occasions and he was appointed mayor in November, 1903, and again in 1926 and 1927. His services to the borough were considered to be of such outstanding merit that the council elected him a Freeman in 1935.

Collingwood Andrews was a courteous and a kindly man; he was popular with his colleagues and his patients; he was a man who weighed evidence and formed his own opinion. When these attributes are found together with knowledge and a judicial mind we have that combination which goes to make the best type of general practitioner and a citizen of no small worth to the community in which he lives. His opinion always carried weight whether it was on the council of his old school or on the borough council. So his life, full of service to his fellow-men, is ended, and his death will be mourned by numbers of friends, patients, and colleagues. Andrews was twice married and is survived by his widow and two sons; his elder son succeeds him in the practice founded by the grandfather.

J. E. W. MACFALL, M.D.

Professor of Forensic Medicine, University of Liverpool

Professor J. E. Whitley MacFall, whose death at the age of 65 on September 30 we record with regret, was an outstanding member of the considerable group of Liverpool students who have attained eminence in their own medical school. He qualified M.B., Ch.B. in the old Victoria University, becoming M.D. Liverpool shortly after the inauguration of the new University. He also became a member of the Inner Temple, and early took a deep interest in medical jurisprudence. After assisting the late Professor R. J. M. Buchanan for a number of years as lecturer and demonstrator, he succeeded him on his death in the chair of forensic medicine and toxicology in the University of Liverpool. MacFall also undertook the editorship of Professor Buchanan's well-known textbook, and prepared and enlarged the ninth edition, issued after the latter's death. He was a man of industrious and conscientious habits, never sparing himself in his careful consideration for the welfare of his patients, always displaying the most accurate attention to detail in the study of medico-legal problems. His conspicuous success in the solution of such problems was due no doubt to the fact that he continued in private practice even when the medico-legal work must have demanded the major part of his time and thought; this ensured the maintenance of a broad outlook, based as it was on clinical experience as well as on laboratory investigations. He served in France in the great war in command of the 3/1st West Lancashire Field Ambulance, 1914-18, and sustained a gunshot wound, from which he made a complete recovery. MacFall's wide reputation led to his extensive employment in the investigation of crime; he became a well-known expert witness in the law courts of his native city as well as further afield. He also acted as examiner of medical students in several of the universities of Great Britain. At the Annual Meeting of the British Medical Association in Edinburgh in 1927 he was honorary secretary of the Section of Forensic Medicine.

Professor MacFall was not an easy man to know intimately, but he had a circle of close friends who appreciated his sterling qualities and will sadly miss his enthusiastic and forceful personality. A tall man of athletic build, he was a familiar figure on horseback on the Mersey sands to the north of Liverpool, the first item of his Sunday routine—a ride, a game of tennis, a swim, and a game of chess—a routine which he practised beyond the age of 60. He was married twice, and he leaves a widow, and one son and two daughters by his first marriage.

THE LATE DR. HESTER DILL SMITH

Lieutenant-Colonel A. E. J. Lister, I.M.S. (ret.), late Professor of Ophthalmology, King George's Medical College, Lucknow, writes:

I would like, on behalf of myself and many other officers of the I.M.S., to pay a tribute to the memory of the late Mrs. Hester Dill Smith, M.D., of whose death a sympathetic memoir appears in the *Journal* of October 1. I and many others owe her a debt of gratitude for her kindness, encouragement, and hospitality which we can never forget.

This is not the place to attempt in any way to assess the value of the work of her husband, Lieutenant-Colonel H. Smith, C.I.E., I.M.S. (ret.). When the final history of the intracapsular extraction of cataract is written and the fires of controversy have died out, posterity will assign to him his rightful place, and it will be no insignificant one. Few, however, beyond Smith himself and a few intimate friends know how much he owed to the sympathy and practical help of his wife. It was over thirty years ago that I first met Mrs. Smith at Jullundur. To me, as

to scores of others who arrived in Jullundur profoundly sceptical as to the value of Smith's operation, her attitude was, put briefly, "Come and see it, examine the results, and judge for yourselves." This also meant to scores of visitors, as to myself, "Come and stay in my house, as my guest, for as long as you like."

It involved no small amount of trouble and expense, and this at a time when Smith had a family to educate and no great excess of worldly wealth. She, however, profoundly believed in his work, and wanted others to see it, first hand, and judge for themselves. No one who was privileged to be her guest can ever forget her charming smile of welcome, her interesting talk and shrewd observations, and her personal interest in his own particular work. She was very highly endowed intellectually, and had made good in her own sphere of work before she married. Though for the sake of her family she gave up her own professional career, no one who knew her can doubt that, had she not done so, she would have made a name for herself. She had a genius for friendship, and kept in touch with some of her husband's pupils until the end of her life. Her passing has left a gap in the lives of those who knew her well which will never be filled, and their profound sympathy goes out to her husband and her two sons.

Universities and Colleges

UNIVERSITY OF LONDON

The University of London Library, formerly at South Kensington, has been removed to its new building at Bloomsbury. In future all communications should be addressed to the Goldsmiths' Librarian, University of London Library, Bloomsbury, W.C.1.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The following candidates have been approved at the examination indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN PUBLIC HEALTH.—S. N. Chelliah, A. L. St. A. McClosky, A. B. Xuma.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examination indicated:

DIPLOMA IN PUBLIC HEALTH.—S. Ball, A. Cathcart, D. H. Williams.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

The Bradshaw Lecture on "The Chemotherapy of Bacterial Infections" will be delivered by Dr. Lionel Whitby at the College, Pall Mall East, S.W., on Thursday, November 3, at 5 p.m., and the Fitzpatrick Lectures by Dr. Harold Scott on "Conquest of Diseases in the Tropics" on Tuesday and Thursday, November 8 and 10, at 5 p.m. Any member of the medical profession will be admitted to the lectures on presentation of card.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The autumn course of museum demonstrations in the theatre of the College commences on Monday, October 17. On that date and on October 24 Mr. L. W. Proger will demonstrate new pathological specimens in the museum. Dr. A. J. E. Cave will discuss the anatomy of the mammary gland on October 21; the anatomy of the female reproductive organs on October 28; and the anatomy of the male reproductive organs on November 4. On October 31 Mr. R. Davies-Colley will demonstrate tumours of the kidneys. All the demonstrations commence at 5 p.m., and are open to advanced students and medical practitioners.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on October 3, with Dr. John Henderson, the President, in the chair, the following were admitted Fellows of Faculty: James Henderson Levack, M.B., Bhutnath Raylahiri, M.B., Eliza Moira Kennedy Stevenson, M.D.

Medical News

The Medical Research Council has appointed Sir Henry Bashford, M.D. (Chief Medical Officer of the General Post Office), and Sir Kenneth Lee, LL.D. (chairman of Tootal Broadhurst Lee Co., Ltd.), to fill vacancies in the membership of its Industrial Health Research Board.

The Eugenics Society announces lectures by Dr. J. A. Fraser Roberts on "Intelligence and Family Size," Professor C. Spearman on "Intelligence Tests," and Mr. R. S. Walshaw on "External Migration," to be given at Burlington House, Piccadilly, W.1, on Tuesdays, October 18, November 15, and December 20, respectively, at 5.15 p.m.

On Tuesday, October 18, at 1.25 p.m., at the Church of St. Stephen, Walbrook, close to the Mansion House, Mr. W. McAdam Eccles will give an address on St. Luke. The offertory will be devoted to the Royal Medical Benevolent Fund.

Lord Horder will open the Finsbury Health Centre, Pine Street, E.C., on Friday, October 21, at 4.30 p.m.

"The Physiology of the Vocal Mechanism" will be the subject of the annual address to be given by Mr. Douglas Guthrie at the Central London Throat, Nose and Ear Hospital, Gray's Inn Road, W.C.1, on Friday, October 21, at 4 p.m.

A sessional meeting of the Royal Sanitary Institute will be held in the Royal Pavilion, Brighton, on Friday, October 21, at 5 p.m., when discussions will take place on "School Exclusion in Infectious Disease," to be opened by Dr. Duncan Forbes, and on "The Repair of Working-class Dwelling Houses," to be opened by Mr. A. Howard Holt.

The annual general meeting of the Society of Physiotherapists will be held at the Langham Hotel, W., on Saturday, October 22, at 2.30 p.m. At 3.45 p.m. there will be an "At Home" at which Dr. E. P. Cumberbatch will speak on "Short-wave Treatment."

A lecture on "The Anaesthetist and his Apparatus" by Dr. Victor Goldman, arranged by the Institute of British Technicians (6, Holborn Viaduct, E.C.1), will be given at the Welbeck Hotel, Welbeck Street, W., to-day (Friday, October 14), at 8.15 p.m. Tickets will be issued free to members of the medical profession on application to the secretary of the institute.

A dinner in celebration of the twenty-first anniversary of the Medical Women's Federation will be held at the Criterion Restaurant, Piccadilly Circus, W., on Saturday, October 29, at 7.15 for 7.30 p.m. It will be followed by the presentation by members of the Manchester and District Association of a short play by Dr. Mary Sheridan. The dinner will be attended by medical women only, and non-members will be welcome. Tickets, price 10s. 6d., exclusive of wines, should be obtained without delay from the office of the Medical Women's Federation, 9, Clifford Street, Bond Street, W.1.

Dr. P. del Rio-Hortega will give two lectures on "The Histology of the Nervous System" at the Nuffield Institute for Medical Research, Woodstock Road, Oxford, on Wednesdays, November 2 and 9, at 8.45 p.m.

The South-West London Medical Society will hold the following meetings during the next five months: October 19, Dr. D. Evan Bedford, "Functional or Organic?—Difficulties in the Diagnosis of Heart Disease." November 9, Mr. Laurence O'Shaughnessy, "Indications for Cardiac Surgery." December 14, Mr. Gavin Livingstone, "An American Interlude." January 11, Dr. E. ff. Creed, "Laboratory Diagnosis as a Guide to Treatment." February 8, Mr. Leonard Phillips, "Pelvic Disproportion." The meetings are to be held at the Bolingbroke Hospital, Wandsworth Common, S.W., on Wednesdays at 9 p.m.

An exhibition by the Medical Art Society is now open at the Rembrandt Gallery, 5, Vigo Street, London, W.1, and will close on October 29.

The following programme for 1938-9 has been arranged by the Hunterian Society: October 17, 7.15 p.m., at Simpson's Restaurant, Cheapside, E.C., presidential address by Mr. Andrew McAllister, "The Influence of the Hunterian Era on Modern Obstetrics." November 7, 9 p.m., at Apothecaries' Hall, Water Lane, discussion: "That Psychological Treatment of the Criminal is Preferable to Punishment of the Crime," to be opened by Mr. St. John Hutchinson, K.C., Dr. H. Yellowlees, Mr. Albert Lieck, and Sir Holman Gregory, K.C. December 19, 7.15 p.m., at Simpson's Restaurant, E.C., discussion: "Sneezing," to be opened by Dr. George Riddoch, Mr. C. Hamblen-Thomas, and Dr. George Bray. January 16, 9 p.m., at Mansion House, E.C., Hunterian Lecture by Professor Emil de Grosz of Budapest, "The Problem of Glaucoma." February 9, 7.30 p.m., annual dinner at May Fair Hotel. February 27, 9 p.m., at Mansion House, Hunterian Oration by Mr. Cedric Lane-Roberts, "A Plea for the Woman in Gynaecology and Obstetrics." March 20, 7.15 p.m., at Simpson's Restaurant, E.C., discussion: "Misleading Leading Symptoms," to be opened by Lord Horder and Mr. W. H. Ogilvie. April 17, 7.15 p.m., annual general meeting, followed by lecture by Dr. C. Ainsworth Mitchell, "Identifications in Criminology."

The Minister of Health has appointed Dr. Albert Edward Quine, a Medical Officer of the Ministry, to undertake the duties of Inspector of Anatomy in England and Wales.

The Board of Control, with the approval of the Minister of Health, has appointed Dr. R. G. Anderson to be a Commissioner to fill the vacancy caused by the retirement of Surgeon Rear-Admiral J. Falconer Hall, C.M.G., R.N. (ret.).

Dr. Rufus Cole, director of the Hospital of the Rockefeller Institute since 1909, received the George M. Kober Medal for distinguished service to medicine from the Association of American Physicians at its annual meeting.

EPIDEMIOLOGICAL NOTES*

Acute Poliomyelitis

The incidence of acute poliomyelitis in England and Wales continues to decline, 56 cases being notified during the week under review, compared with 60 in the previous week; in London the figure remains at 3, but in Scotland a drop from 10 to 5 was recorded. The counties mainly affected were: Staffordshire 5, 4 each in Carmarthen, Essex, and Sussex West, and 3 each in Suffolk West, Yorkshire East Riding, and Yorkshire North Riding. More than one case was reported from the following centres: Horsham 4, London 3 (Battersea, Holborn, and Wandsworth), 2 each in Birmingham, Carmarthen, Cannock, Cosford (Suffolk), and York. In Essex and Suffolk fresh cases continue to be notified at intervals: in addition to those mentioned, single cases were notified in Braintree, Saffron Walden, and Sudbury (Suffolk). The outbreak in Carmarthen continues, the areas affected being Carmarthen 2, Llanelly 1, Carmarthen rural 1. Although no fresh cases were reported in Llandilo rural district for the week, there have been 5 cases altogether, 4 of them confined to a small area in Salem, with 1 death. The Horsham cases occurred at an interval of nearly four weeks from the last case notified.

A decline in the prevalence of acute poliomyelitis has been reported from the Continental countries in which the disease has been epidemic. During the week ended September 17 in Germany the number notified declined from 419 to 386; the chief centres were: district of Cologne 80 (97), district of Düsseldorf 19 (27), district of Wiesbaden 27 (29), district of Frankfurt 15 (9), Württemberg 55 (72), Baden 16 (13), Saar 13 (17), Saxony 33 (33), and Bavaria 50 (33). During the same week in Austria there were 18 (39) cases. In the week following in Holland notifications fell from 54 to 30, of which 6 were in the Province of South Holland. France has been relatively free from the disease: during the whole of August only 81 cases were notified, distributed over thirty-

two departments, chiefly in: the Department of the Rhône 12, 6 each in the Departments of the Seine, Bas-Rhin, and Côte d'Or, 5 in the Ain Department, and 4 each in the Departments of the Isère and Haut-Rhin.

Primary and Influenzal Pneumonia

The increase in the incidence of pneumonia (primary and influenzal) in England and Wales referred to last week has not been maintained, the number of cases notified having fallen to practically the same level as in the previous week. Of the 16 deaths in the 126 Great Towns there were 3 in Liverpool and 2 in Southport.

Diphtheria and Scarlet-Fever

There was a slight increase in the notifications of diphtheria in England and Wales during the week—1,209, compared with 1,198 in the previous week—but in London a decrease was reported (from 152 to 129). The chief centres affected were: Plymouth 12 (9), South Shields 18 (13), Manchester 27 (19), Leicester 24 (14), Cannock 11 (1), Birmingham 35 (24), Carmarthen 5 (1), Cardiff 14 (7). In Scotland a small drop was recorded: Glasgow 70 (65), Edinburgh 21 (17), West Lothian County 11 (4), Lanark 10 (12), Renfrew 8 (11). Of the 30 deaths in the 126 Great Towns of England and Wales 3 each occurred in London, Leicester, and Liverpool, and 2 each in Birmingham and South Shields. There has been no abatement of the outbreak in South Shields, where there have been 365 cases to date this year with 54 deaths: notifications for the last four weeks were 15, 16, 13, and 18 respectively, and for the same periods 0, 2, 3, and 2 deaths respectively were recorded. A campaign by the public health authorities for immunizing the population at risk against the disease has met with a good response, but from the nature of things immediate results cannot be expected. Four deaths from diphtheria were recorded in Glasgow and 1 each in Edinburgh and Paisley.

Further increases in the incidence of scarlet fever were recorded in England and Wales and in Scotland, but in London there was a drop from 160 to 155 in the week under review. The chief increases were reported from: Stockport 10 (6), Poole 8 (5), South Shields 16 (7), Stockton-on-Tees 9 (6), West Ham 22 (15), Barnet 8 (0), Gillingham 8 (1), Bootle (Lancs) 17 (6), Liverpool 46 (43), Manchester 34 (23), Nottingham 31 (26), Croydon 7 (4), Sheffield 35 (18). During the week only one death (at Twickenham) was recorded in the 126 Great Towns. There were no deaths from scarlet fever in Scotland or Ireland.

Measles and Whooping-cough

Three deaths from measles (1 each in Kingston-upon-Hull, Sunderland, and Stoke-on-Trent) were recorded in the 126 Great Towns of England and Wales, compared with 2 in the previous week. In Scotland the notifications fell from 18 to 13 in the week under review, the chief centres being Glasgow 6 (4), Kirkcaldy 2 (1), and Lanark 2 (2). Of the 10 deaths from whooping-cough in the 126 Great Towns, 1 each occurred in London, Hastings, Bootle, Huddersfield, Kingston-upon-Hull, Liverpool, Birmingham, Nottingham, Norwich, and Swansea. In Scotland there was an appreciable drop in the notifications of whooping-cough—94, compared with 125 in the previous week. Three deaths were recorded (2 in Glasgow and 1 in Aberdeen).

Cholera: Plague

During the week under review 113 cases of cholera and 38 deaths were recorded at Shanghai, while in Eastern Kwangtung during the week ended September 17 there were 526 cases and 116 deaths. During the week ended October 1, 3,463 cases of cholera and 1,526 deaths were recorded in the Central Provinces of India and 237 (211) cases and 122 (93) deaths in the United Provinces.

In India during the week ended October 1 there were further increases in the incidence of plague: Central Provinces 166 (116) cases and 7 (6) deaths; Madras 35 (18) cases and 15 (15) deaths; Bombay 21 (14) cases and 20 (14) deaths.

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 1, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 18 | 2 | 7 | — | 1 | 14 | 3 | 4 | — | — | | |
| Deaths | | 1 | 1 | | | | | | | | | |
| Diphtheria | 1,209 | 129 | 195 | 55 | 25 | 1,348 | 179 | 183 | 44 | 24 | 1,152 | 195 |
| Deaths | 30 | 3 | 6 | 2 | | 24 | 5 | 5 | | | | |
| Dysentery | 27 | 6 | 19 | — | 12 | 40 | 10 | 33 | — | — | | |
| Deaths | | | | | | | | | | | | |
| Encephalitis lethargica, acute | 2 | — | — | 1 | — | 9 | — | — | — | — | | |
| Deaths | | | | | | | 2 | | | | | |
| Enteric (typhoid and paratyphoid) fever | 41 | 4 | 8 | 8 | 1 | 32 | 3 | 7 | 9 | 2 | 67 | |
| Deaths | 1 | — | — | — | — | 1 | — | — | — | 2 | | |
| Erysipelas | | | 55 | 12 | 3 | | | 60 | 8 | 4 | | |
| Deaths | | | | | | | | | | | | |
| Infective enteritis or diarrhoea under 2 years | | | | | | | | | | | | |
| Deaths | 40 | 9 | 8 | 8 | 4 | 56 | 11 | 11 | 9 | 7 | | |
| Measles | | | 13 | — | 2 | | | 39 | — | 2 | | |
| Deaths | 3 | — | — | — | — | 8 | 1 | — | 1 | — | | |
| Ophthalmia neonatorum | 78 | 5 | 31 | — | — | 102 | 13 | 37 | — | — | | |
| Pneumonia, influenzal; | 448 | 33 | 5 | — | 13 | 675 | 51 | 9 | 1 | 2 | 557 | 51 |
| Deaths (from Influenza) | 16 | — | 2 | 1 | — | 25 | 2 | — | 1 | — | | |
| Pneumonia, primary | | | 160 | 9 | | | | 192 | 6 | | | |
| Deaths | | 15 | | 9 | 6 | | 16 | | 11 | 6 | | |
| Polio-encephalitis, acute | — | — | — | — | — | 7 | 2 | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Poliomyelitis, acute | 56 | 3 | 5 | 1 | — | 30 | 3 | 1 | — | — | | |
| Deaths | | 1 | | | | | 1 | | | | | |
| Puerperal fever | 3* | 3 | 21 | 6 | 1 | 32 | 3 | 15 | — | — | | |
| Deaths | | 2† | | | | | 2† | | | | | |
| Puerperal pyrexia | 166 | 14 | 28 | — | 2 | 171 | 20 | 29 | — | 2 | | |
| Deaths | | | | | | | | | | | | |
| Relapsing fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Scarlet fever | 1,776 | 155 | 380 | 58 | 77 | 2,503 | 198 | 493 | 69 | 86 | 2,233 | 315 |
| Deaths | 1 | — | — | — | — | 5 | — | — | 1 | — | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Whooping-cough | | | 94 | 7 | | | | 40 | — | 12 | | |
| Deaths | 10 | 1 | 3 | 2 | 1 | 8 | — | — | 1 | 2 | | |
| Deaths (0-1 year) | 290 | 38 | 45 | 38 | 10 | 290 | 39 | 55 | 36 | 19 | | |
| Infant mortality rate (per 1,000 live births) | 48 | 31 | | | | 48 | 32 | | | | | |
| Deaths (excluding stillbirths) | 3,919 | 713 | 539 | 177 | 104 | 4,006 | 765 | 543 | 183 | 128 | | |
| Annual death rate (per 1,000 persons living) | 9.6 | 9.1 | 11.0 | 12.0 | 9.2 | 9.9 | 9.6 | 11.1 | 12.5 | 11.3 | | |
| Live births | 6,521 | 1,250 | 807 | 407 | 201 | 6,320 | 1,199 | 801 | 386 | 219 | | |
| Annual rate per 1,000 persons living | 16.0 | 15.9 | 16.4 | 27.6 | 17.8 | 15.6 | 15.1 | 16.4 | 26.3 | 19.4 | | |
| Stillbirths | 275 | 36 | | | | 259 | 34 | | | | | |
| Rate per 1,000 total births (including stillborn) | 40 | 28 | | | | 39 | 28 | | | | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

† Deaths from puerperal sepsis.

‡ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Infrequent Menstruation

"W. A. C." writes: A girl aged 17 complains that her periods since their commencement three years ago have appeared only once every three months. She complains also of offensive leucorrhoea at about the times when her periods might have been expected if they were more normal. She has a marked growth of hair on the upper lip. She worries, and is anxious for treatment. What can be done for her?

Treatment of Buccal Ulcers

Surgeon Lieutenant-Commander J. C. GENT writes with reference to Dr. R. E. Isaac's letter (*Journal*, October 1, p. 727): I suggest treatment along the following lines: (1) dry the ulcers with cotton-wool; (2) apply 8 per cent. zinc chloride for one minute; and (3) paint with Talbot's solution (zinc iodide, 110 grains; distilled water, 82 minims; iodine crystals, 183 grains; glycerin to 1 oz.). This procedure is advised in Hutchison's *Index of Treatment*. I had occasion to try it last year in the case of my own father, then a man of 75, who had suffered from buccal ulcers for about five years. It appeared to give him more relief than any other treatment which had been tried, although the condition never recovered completely.

Dr. R. HERSON writes in answer to Dr. R. E. Isaac's inquiry: I would advise that the buccal ulcers be painted with 1 per cent. aqueous gentian-violet twice a day.

Treatment of Pruritus Ani

Dr. W. A. MARRIS (Birmingham) writes: "J. M." will find he can give his patient prompt relief by dusting the anal folds with calomel undiluted by any other powder. Direct the patient to smooth a pinch of the powder into the folds round the anus on going to bed. Two drachms is sufficient for relief, but relapses will occur after months. I mentioned this treatment to a skin specialist, and the next time we met he thanked me for the tip.

r. J. JONES (Kinnel Bay, Rhyl), as one who has suffered from this distressing malady, and who cannot even now claim to be absolutely free from it, writes: I attribute my greatly improved condition to the following lines of treatment: (1) a course of x-ray therapy at the hands of a capable radiologist; (2) the use of anusol suppositories, which contain bismuth oxygallate, zinc oxide, balsam of peru, etc. (William R. Warner and Co. Ltd.); and more recently (3) to the use of "nohaesa" suppositories and ointment, which may be obtained from Homburg Pharma Ltd., Africa House, Kingsway, London, W.C.2, and contain

camphor-chloral-menthol, together with camomile extract and calcium chloride. They are sedative in action and impart a grateful sensation of coolness to the affected parts.

"R.A.M.C.T." writes: At the end of the war, travelling homewards in a miserable little steamer, I contracted an acute condition of pruritus ani. After perhaps six weeks of exudative eczema and great discomfort I adopted the plan of sitting in a hip-bath of warm sodium bicarbonate solution every two waking hours for twenty minutes at a time. I was completely and permanently cured within three days. A friend with the same trouble followed my advice with the same happy result.

LETTERS, NOTES, ETC.

Medical Golf

The Medical Golfing Society held its autumn meeting on the Royal Cinque Ports Golf Links on October 1 and 2. The attendance was smaller than usual owing to the political situation, but a most enjoyable week-end was spent, with the following results. Bogey singles: Mr. L. G. Brown, 3 up (12). Foursomes: Sir Harold Gillies and Mr. John Everidge, after a tie with Dr. W. Dale and Dr. S. Pope at 1 down. Canny Ryall Cup: (1) Dr. S. Pope 86-12=74; (2) Mr. F. McG. Loughnane 89-14=75; (3) Dr. J. J. N. Daniels 93-15=78.

Disclaimers

Dr. DENNIS EMBLETON writes: A sensational article recently appeared in a London daily newspaper in which my name was mentioned. It referred to a paper by me on the dietetic treatment of diabetes which was published in the *Proceedings of the Royal Society of Medicine*. The newspaper article condemned the use of insulin, and was couched in such terms that it has evidently led many diabetics to believe that insulin is no longer necessary. During the last two or three weeks I have been bombarded with letters from diabetics, as have others engaged in this work. The remarks in the letters range from the pathetic request that the "new treatment" should be given, to downright abuse at having been subjected to the "torture of the syringe" for so many years. As can be seen on reference to the original paper, no such claim was made by me. My paper was a plea for the more extensive use of diet in the treatment of diabetics over the age of 40. The complete withholding of insulin in all cases was never suggested; such a procedure would be obviously dangerous, particularly in diabetics of the young age group.

Sir HAROLD WERNHER, Chairman of the Voluntary Hospitals Emergency Bed Service, writes from 10, Old Jewry, E.C.2: In the broadcast which took place in the London Regional News at 10 o'clock on Friday last concerning this Service the B.B.C. wished to give a realistic impression of how the work is carried out. In order to do this they broadcast the Emergency Bed Service end of an actual conversation with a doctor. Unfortunately, and quite unintentionally, the name of the doctor was also broadcast. I need hardly say that it was never intended that this should occur. On behalf of the doctor in question I should like to make it clear that he was in no way aware that his name would be broadcast, and would certainly not have given his permission for it had he known.

Corrigendum

Dr. WILLIAM BROWN, Director of the Oxford University Institute of Experimental Psychology, writes: On page 770 of the *Journal* of October 8 there appears a paragraph about psychology at Oxford which is quite incorrect. It was in 1936 that the Institute of Experimental Psychology was founded at Oxford with the help of Rockefeller grants and, in particular, with the help of a generous gift of £10,000 from my friend Mrs. Hugh Watts. The event is described in my article on "Psychology at Oxford," published in the *British Medical Journal* of May 30, 1936—although at that time Mrs. Hugh Watts preferred to be anonymous. At a private dinner which my wife and I gave in Christ Church Hall on July 31 of this year, during the meeting of the tenth International Medical Congress for Psychotherapy, to about seventy people, including delegates of the Congress, in honour of the president, Professor C. G. Jung, Mrs. Hugh Watts was the other principal guest. I explained in a short speech at the end of the dinner the circumstances in which her generous gift was made to the University when the Institute of Experimental Psychology was founded in 1936.

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

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Bacteriophage Treatment. H. Lippelt.—p. 1102.
Lipids as an Early Sign of Brain Tumours (concluded). O. Pedersen.—p. 1103.
*Treatment of Subcutaneous Emphysema with Oxygen Respiration. A. J. Anthony and G. Perschmann.—p. 1105.
Influence of Ovarian Tumours on Sex Characteristics. H. O. Kleine.—p. 1107.
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Attempted Suicide and Murder with Rat Poison (Thallium Preparation). W. Grubel.—p. 1111.
Sporadic Leithargic Encephalitis Simulating Eclamptic Uraemia. G. Sperling.—p. 1113.
Aetiology of Dental Caries. W. F. Winkler.—p. 1113.
Distribution of Trombocytosis in Germany. H. Bauer.—p. 1115.

Subcutaneous Emphysema.—Experiments on rabbits showed that subcutaneous air was reabsorbed five to six times as quickly with oxygen respiration as with air respiration. Oxygen respiration is therefore recommended in cases of surgical emphysema.

Indian Medical Gazette

Calcutta vol. 73 July, 1938

- Anaemia in Tropical Macrocytic Anaemia. L. E. Napier, C. R. Das Gupta, R. N. Chaudhuri, G. N. Sen, N. R. Chaudhuri, P. C. Sen Gupta, and D. N. Majumdar.—p. 385.
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Present Position of Anti-malarial Drug Therapy in India. R. N. Chopra.—p. 418.
Early Ophthalmologists in Calcutta. E. O'G. Kirwan.—p. 423.

Solu-septasine in Simian Malaria.—The destructive effect of solu-septasine on the *Plasmodium knowlesi* in rhesus monkeys appears to be exceedingly powerful. One injection was sufficient to check a very severe infection, and after a second the parasites disappeared altogether from the peripheral circulation. The sulphonamide compounds appear to be effective specific drugs in malaria.

Journal of the American Medical Association

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Klinische Wochenschrift

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*Nito Pregnancy Test. St. Martzy and K. Pap.—p. 1084.
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Local Effect of Follicular Hormone on Uterine Mucosa. P. Grumbrecht and A. Loewer.—p. 1085.

Nito Pregnancy Test.—The reaction is not specific and the results are often misleading. It was found positive in febrile cases in both men and women.

Lancet

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Some Aspects of Leptospirosis Problem in Australia. W. Savers.—p. 1089.

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Medizinische Klinik

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*New Method of Treatment of Lobar Pneumonia. A. Nemecek.—p. 999.
Natural Cures of Affections of Skin. G. Dorow.—p. 1000.
Itching Dermatoses and "Ocinium." P. Eggers.—p. 1003.
Symptomatology of Grawitz's Tumour. E. Michel.—p. 1004.
Recent Advances in Diseases of Children. F. Goebel.—p. 1007.

New Method of Treatment of Lobar Pneumonia.—The method consists in the intramuscular injection of 10 to 20 c.cm. of blood obtained from a donor of a different blood-group. The method was successful in all the twenty-five cases treated.

Medizinische Welt

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- Blood Platelets. A. Hittmair.—p. 1092.
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Münchener Medizinische Wochenschrift

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Do Anthocyanins Occur in Bacteria? D. Erikson, A. E. Oxford, and R. Robinson.—p. 211.
Oestrogenic Activity of Esters of Diethyl Stilboestrol. E. C. Dodds, L. Gotberg, W. Lawson, and R. Robinson.—p. 211.
Prague Sero-reactions for Cancer. F. Bergh, O. M. Henriques, and C. G. Wolffbrandt.—p. 212.
Two Active Proteins from Rattlesnake Venom. K. H. Slotta and H. Fraenkel-Conrat.—p. 213.

New England Journal of Medicine

Boston vol. 219 July 28, 1938

- A Few of the Rules. R. Fitz.—p. 109.
Intravenous Paraldehyde Narcosis for Pneumo-encephalography. L. J. Robinson.—p. 114.
Observations on Relation of Poison Ivy and Poison Oak. J. B. Biederman.—p. 117.
Ambulatory Method of treating Fractured Patella. H. F. Day.—p. 119.
De Quervain's Disease. F. J. Cotton, G. M. Morrison, and C. H. Bradford.—p. 120.

Nordisk Medicinsk Tidsskrift

Stockholm vol. 16 July 30, 1938

- Postgraduate Courses in the North. S. Ingvær.—p. 1207.
Reaction of Normal Persons to Beta-phenylisopropylamine Sulphate (Mecodrin). E. Jacobsen, P. Balnsen, and A. Wollstein.—p. 1209.
*Phenylisopropylamine (Benzedrine Mecodrin): Survey of its Pharmacological and Clinical Indications. S. Berggren and L. Söderberg.—p. 1216.
Effect of Vagus Stimulation in Achlorhydria Refractory to Histamine. B. Ihre.—p. 1218.

Phenylisopropylamine.—This study comes from the Pharmacological Department of the Karolinska Institute in Stockholm, and it shows that the action of this drug resembles that of adrenaline. Given by the mouth in a dose of 20 mg. it raised the basal metabolism by about 10 per cent.

Stockholm vol. 16 August 6, 1938

- *Diabetes and Pregnancy. G. Sundelin.—p. 1239.
Epithelioma Palpebrae. M. Thrane.—p. 1248.
Coxsack Paratyphosa. N. Faxén.—p. 1253.

Diabetes.—This study concerns fifteen diabetic women who underwent twenty-two pregnancies in the period 1910 to 1936 at the University Maternity Hospital in Lund, Sweden.

Norsk Magasin for Laegevidenskapen

Oslo vol. 99 August, 1938

- Investigations of Excretion of Prolan and Folliculin in Urine after Induced Abortion. S. Kjelland-Mordre.—p. 809.
Serum Diagnosis of Infectious Mononucleosis II. Heltand-Hansen.—p. 827.
Electrocardiographic Changes after Desiccated Thyroid Gland Therapy. H. Rasmussen.—p. 839.
Frequency of Tuberculosis of Skin at Skin Department of Rikshospital in Years 1927 to 1937. H. Rygh.—p. 847.
Acute Metastatic Inflammation of Knee-joint due to *B. alcaligenes*. J. Boe and O. Hartmann.—p. 853.

Data concerning Incidence and Causes of Certain Diseases of the Digestive Tract. M. S. Kober.—p. 859.

*Sulphanilamide in Malaria. K. Motzfeldt.—p. 872.

Sulphanilamide.—A report of two cases in which the malaria induced to cure syphilis of the central nervous system was successfully treated with sulphanilamide.

Policlinico

Rome vol. 45 August 1, 1938 (Sez. Prat.)

- Clinical Considerations in a Case of Beriberi. M. A. Coppola.—p. 1433.
Pain in Neurological Conditions. I. A. Brunelli.—p. 1439.

Rome vol. 45 August 8, 1938 (Sez. Prat.)

- Asepsis and Antisepsis in Plastic Surgery by Use of Alcoholic Extracts of Vegetable Essences. A. Manna.—p. 1469.
Pain in Neurological Conditions, II. A. Brunelli.—p. 1477.
Pseudomyxoma of Appendix. L. Costa.—p. 1482.

Presse Médicale

Paris vol. 46 July 27, 1938

- *Lumbo-sacral Sympathectomy in Diabetic Arteritis of Lower Limbs. H. Chabautier, P. Gaume, and C. Lobo-Onell.—p. 1161.
Cerebrinspinal Circulation, with Special Reference to Effects of Centrifugal Force on this System and on General Circulation in Airmen. F. Pedrazzini.—p. 1164.

Sympathectomy for Diabetic Arteritis.—The authors describe the results of lumbo-sacral sympathectomy in seven cases of diabetic arteritis, some with advanced symptoms of gangrene. All were immediately and greatly improved by the operation, but unfortunately two died from other causes, one owing to an overdose of insulin and the other of collapse thirty-six hours after the operation. The five survivors remain greatly improved; pain which disappeared at the time of operation, has not recurred and the circulation is very much improved.

Paris vol. 46 July 30, 1938

- *Adaptation of *B. tuberculosis* to Environment Poor in Nitrogen and Hydrocarbons. Practical Consequences of this Adaptation in Man and Animals. A. Vaudremer.—p. 1177.
Syndrome of Hyperfolliculism: Its Limitations and its Anatomical and Clinical Bases. J. Vaugeois.—p. 1180.

Adaptability of *B. tuberculosis*.—As a result of forty-three years' work the author claims to have proved the existence of a "cyclic polymorphism" in *B. tuberculosis*—that is, under certain conditions it may assume the form of: (1) "cyanophile" germinative dust; (2) cyanophile granules; (3) cyanophile bacilli (non-acid-fast); and (4) typical acid-fast bacilli. He also claims to have shown that *B. tuberculosis* possesses a diffusible toxin which is killed by heating from 60° to 70° C.; that tuberculin is a thermostable and sensitizing toxalbumin produced by acid-fast bacilli; and that tuberculin treatment is essentially a form of shock therapy. The author has perfected a method of vaccine treatment derived from pure cultures of granular bacilli with which he has obtained considerable success in both non-pulmonary tuberculosis and in surgical tuberculosis with associated pulmonary lesions.

Schweizerische Medizinische Wochenschrift

Basle vol. 68 July 30, 1938

- Symptomatology of Posterior Cerebral Fossa Tumours. H. Krayenbühl.—p. 901.
Recent Results in Treatment and Prophylaxis of Malaria. M. Mayer.—p. 905.
Treatment of Accidental Wounds. F. Land.—p. 910.
Clinical Observations in Measles. P. Robert.—p. 914.

Science

New York vol. 88 July 29, 1938

- Yellow Fever Virus in Jungle Mosquitoes. R. C. Shannon, L. Whitman, and M. Franca.—p. 110.
Treatment of Spontaneous Tumours in Dogs by Injection of Heptyl Alcohol. L. C. Strong and L. F. Whitney.—p. 111.

New York vol. 88 August 5, 1938

- Treatment of Black-tongue with Cozymase. F. S. Daft, H. F. Fraser, W. H. Schell, and Margaret Pittman—p. 128.
 Nature of Mucopolysaccharide of Synovial Fluid. K. Meyer, E. M. Smyth, and M. H. Dawson—p. 129.
 Experimental Intercystitis: Production of Terminated Male Rats by Anterior Treatment with Oestrogens. R. R. Greene, M. W. Sutell, and A. C. Ivy—p. 130.
 Xanthine Oxidase: Allozyme Protein. E. G. Ball—p. 131

Ugeskrift for Læger

Copenhagen vol. 100 July 26, 1938

- *Lesions in Central Nervous System in Vitamin A Deficiency in Larval Domestic Animals. H. Møllegaard—p. 819.
 Nephritic Symptom-complex and Site of Creation of Serum Proteins: Observations on Case of Hypoproteinemia of Central Origin. T. Espersen—p. 847.
 Menstruation by Castrated Woman after Administration of Synthetic Hormones. E. Gulberg—p. 854.
 Diameter Determinations with Beck's Halometer, with Special Reference to Routine Diagnosis of Megalocytic Anaemia. E. Kirk—p. 856.
 Case of Phenacetin Poisoning during Pregnancy. A. Schödt—p. 859.
 Case of Sulphanilamide Rash. A. Kivimäy—p. 861.
 Treatment of Incarcerated Umbilical Hernia with Tobacco Smoke per Rectum: Chapter from History of Surgery. S. Jensen—p. 862.

Acta Medica Scandinavica

Stockholm vol. 95 1938 Fasc. 5

- *Observations on Hypopituitarism (Eng.). H. Zendeck—p. 437.
 Fractional Analysis of Alveolar Air after Inspiration of Hydrogen as Method for Determination of Distribution of Inspired Air in Lungs (Eng.). E. Roelsen—p. 452.
 Occurrence of Different Types of Pneumococci in Cases of Acute Pneumonia in Stockholm (Eng.). S. Gard, G. Löfdin, and G. Jacobsson—p. 483.
 Aetiology of Hepatitis Epidemica. II (Eng.). T. Th. Andersen and S. Tulinius—p. 497.
 Valvular Stenosis of Main Bronchus (Eng.). B. Soederlinz—p. 510.
 Oscillographic Examination of Arteries in Scleroderma (Ger.). K. Mézátos—p. 522.
 Hyperglycaemia of Transitory Type and Glycosuria following Infarct of Myocardium (Fr.). S. Eckerström—p. 528.

Hypopituitarism.—X-ray investigation revealed a large sella turcica in five out of eight cases with a pituitary syndrome, the sella turcica being small in the remaining three cases. The syndrome in the first group is probably due to a chromophobe adenoma. The early stages and disguised forms of the complaint are described. Chronic headache with a high cerebrospinal fluid pressure and bitemporal hemianopia are characteristic, and are best treated by methods which aim at reducing the cerebrospinal fluid pressure.

American Journal of Obstetrics and Gynecology

St. Louis vol. 36 August, 1938

- Experimental Production of Ovulation in Human Subject. E. Davis and A. K. Koff—p. 183.
 Study of Water, Sodium, and Energy Exchange during Latter Part of Pregnancy. R. H. Freyberger, R. D. Reckie, and C. Folsome—p. 200.
 One-stage Operation for Resection of Rectosigmoid and Rectum for Carcinoma. J. P. Pratt—p. 202.
 Further Observations on Role of Streptococcus in So-called Trichomonas vaginalis Vaginitis. G. F. Hibbert and F. H. Falls—p. 219.
 *Consideration of Artificial Fever Therapy and Sulphanilamide Therapy in Treatment of Gonorrhoeal Infections in Women. L. M. Randall, F. H. Krusen, and E. G. Bannick—p. 230.
 Artificial Fever Therapy in Pelvic Inflammatory Disease. M. A. Darling, J. M. Berris, and Max Newman—p. 238.
 Effect of Quinine upon Auditory Nerve. R. A. West—p. 241.
 Sterilization of Obstetric Patients in Vanderbilt University Hospital. G. S. McClellan and L. E. Burch—p. 249.
 Study of 288 Primiparae over Age of 35 Compared with 300 Primiparae under Age of 25. C. E. Galloway and T. D. Paul—p. 255.
 Pelvic Measurements of 4,144 Iowa Women. W. F. Mengert—p. 260.
 Management of Placenta Praevia. D. Findley—p. 267.
 Analysis of Human Ovitestis. J. R. Reinberger and C. S. Simkins—p. 275.
 Intrauterine Pregnancy. P. K. Champion and N. J. Testore—p. 281.
 Observations on Intra-uterine Pressure during First Stage of Labour. I. P. Salerno—p. 294.

Vitamin A Deficiency.—The most prominent clinical evidence of vitamin A deficiency in swine could be referred to the central nervous system, whereas xerophthalmia was comparatively rare. The nerve lesions were very severe and of a degenerative character.

Wiener Klinische Wochenschrift

Vienna vol. 51 July 29 1938

- Metabolic Disturbances after Surgical Intervention and their Treatment. F. v. Schürer—p. 797.
 Diseases of Lipid Metabolism. K. Hubner—p. 799.
 Cyclical Vomiting with Acetonemia. J. Seel—p. 803.
 Examination following Dislocation of Shoulder. F. Holzer—p. 809.
 Diagnosis and Localization of Pathological Processes in Spine. K. Kahn—p. 809.

Wiener Medizinische Wochenschrift

Vienna vol. 84 July 30, 1938

- Results of Serial Examinations of Students of University of Vienna. A. Floner and A. Sattler—p. 833.
 Bronchography. E. Westely—p. 836.
 Structure of Central Nervous System and Nasal Rudiment in Cyclope Goat. W. Stupka—p. 837.
 Methods of representing Various Planes of Body and their Practical Value in X-Ray Diagnosis. P. Ott—p. 841.

SPECIAL JOURNALS

- Cystic Endometrial Changes in Ovary Cycles. L. Wilson and R. Kurttok—p. 302.
 Full-term Abdominal Pregnancy with Recovery of Both Mother and Baby. W. D. Crecca and R. A. Cacciarelli—p. 312.

Artificial Fever and Sulphanilamide Therapy.—A very large number of cases of gonococcal infection of the female genital tract were treated either with sulphanilamide preparations or by means of artificial fever therapy. The majority reacted well to the former treatment alone, but when this failed to clear up the condition completely a combination of the two methods was often successful.

American Journal of Public Health

New York vol. 28 August, 1938

- Mercury Poisoning from Public Health Viewpoint. P. A. Neal—p. 907.
 Case of Public Health v. Public Welfare. H. Folks—p. 916.
 Health Department in Field of Medicine—from Standpoint of Private Practitioner. C. H. Goodrich—p. 923.
 *Chloramine Treatment of Sea Water. L. V. Carpenter, L. R. Setter, and M. Wenberg—p. 929.
 Measles in Detroit, 1935: I. Factors influencing Secondary Attack Rate among Susceptibles at Risk. F. H. Top—p. 935.
 Nutritional Education in Home: Dutchess County (N.Y.) Project. B. E. Roberts—p. 944.
 Indiana's Dental Health Programme. H. B. Mettel and M. H. Westfall—p. 949.
 Plumbing in Low-cost Housing. J. I. Connolly—p. 954.
 Housing and Health. R. H. Britten—p. 957.

Chloramine Treatment of Sea Water.—The subject is discussed in relation to treatment of sea water for swimming-baths. Raw sea water alone kills 80 per cent of fresh sewage organisms in thirty minutes. With chlorination or ammonia chlorination over 99 per cent are killed in fifteen minutes. Pre-ammoniation to the extent of a quarter to one-half of the dose of chlorine dissipates two-thirds of the chlorine in ten minutes. The function of the residual chlorine as a disinfectant is discussed. With low chlorine doses, relatively higher mean residuals may be maintained in polluted sea water with the aid of ammonium compounds.

Annales d'Anatomie Pathologique

Paris vol. 15 June, 1938

- Experimental Study of Toxicity of Acridine Yellow. H. Warentz and J. Driessens—p. 573.
 Lesions of Nerves in Acute and Chronic Appendicitis. A. Llorenti—p. 605.
 Endometrioma of Intestine. J. P. Lamar, M. Larret, and P. Isidor—p. 623.
 Sheaths of Diaphragmatic Portion of Oesophagus. A. Delmas and J. Reux—p. 635.

- Cartilaginous Focus in Media of Carotid Artery in Young Horse. R. Arnaud and P. de Boissezon.—p. 641.
 Malignant Dyscembryoma of Kidney in Adult. E. Papin, F. Bisser, and Corcelle.—p. 645.
 Unilateral Cubito-styloid Articulation. J. Cordebar.—p. 651.

Annales de l'Institut Pasteur

Paris vol. 60 June, 1938

- Contribution to Study of Humoral Immunity in Plants. J. Magrau.—p. 565.
 Loss of Immunizing Power of Diphtheria Toxoid in Presence of Antitoxin. A. Besredka.—p. 601.
 Study of *B. megatherium* Bacteriophage. P. C. Flu.—p. 610.
 Serum Proteins and Instability of Serum in Distilled Water. V. Chorine.—p. 633.
 Influence of Koch's Bacillus on Bang's Bacillus *in vitro*. W. Sarnurics.—p. 651.
 *Antirabic Vaccination at Pasteur Institute in 1937. L. Crivellier and C. Viala.—p. 661.

Antirabic Vaccination.—The number of persons receiving antirabic treatment in France during 1937 was 454. There were no deaths and only one case of paralysis, which recovered. Particulars are given of the circumstances of the presumed infection demanding treatment (species of animal, situation and depth of bites, etc.), and of the geographical distribution of cases; a large proportion occurred in the neighbourhood of Paris. The cord suspension used on January 1, 1938, represented the 1,590th passage of the strain which has been used at the Pasteur Institute since its foundation.

Archives des Maladies de l'Appareil Digestif, et des Maladies de la Nutrition

Paris vol. 28 June, 1938

- Ligature of Gastro-duodenal Artery in Stomach Operations for Treatment of Severe Haemorrhage from Duodenal Ulcer. R. Peycelon and A. Trillat.—p. 553.
 *Hereditary Hyperbilirubinaemia, Cholaemia in Families, and Haemolytic Icterus. R. M. Tecon.—p. 557.
 Pure Fibroma of Stomach. C. B. Udaondo, E. Finocchio, and D. Mosto.—p. 590.
 Pharmacodynamic Research in Morphology of Cellular Secretions: I. Morphological Manifestations of Substances which modify Secretions. G. Wallbach.—p. 608.

Hereditary Hyperbilirubinaemia.—This disease arises in families in accordance with the laws of heredity and must be separated from the hereditary haemolytic icterus. The differential diagnosis is easy in typical cases and difficult in others. It is, however, necessary because of the differences in prognosis and therapy.

Archives of Pathology

Chicago vol. 25 June, 1938

- Inflammation of Serous Surfaces:
 *Hydrogen-ion Concentration in Relation to Cell Type. B. Steinberg and A. Dietz.—p. 777.
 Transfer of Living Leucocytes and Effect on Acute Infectious States. B. Steinberg.—p. 785.
 Factors modifying Types of Cell Response. B. Steinberg and R. A. Martin.—p. 792.
 Loss of Acidophilic Granules from Pituitary of Guinea-pig under Experimental Conditions of Increased Metabolism. I. T. Zeckwer.—p. 802.
 Bronchiogenic Distribution of Fluid and Particulate Matter: Its Site of Predilection and Mechanism of Transfer. H. S. Reichle.—p. 811.
 Congenital Aneurysm of Membranous Septum. M. Lev and O. Saphir.—p. 819.
 Lymphadenoid Goitre. C. A. Hellwig.—p. 838.
 Choroid Papilloma: Case Report. A. Saccone and A. Rosenthal.—p. 850.
 Modification of Terry's Method of Rapid Sectioning for Soft Tissues. W. E. B. Hall.—p. 854.
 "Aniline Tumours" of Bladder. W. C. Hueper.—p. 856

Cytology and pH of Exudates.—It has been asserted by Menkin that a relationship exists between the hydrogen-ion concentration and the cytology of inflammatory exudates, alkalinity evoking a polynuclear response and acidity the advent of macrophages. These pH determinations were made colorimetrically, a method subject in this connexion to various errors. Steinberg and Dietz have studied the pH of peritoneal fluids by means of an electric potentiometer, glass electrodes

being introduced into the peritoneal cavity itself, peritonitis having been produced by the previous injection of bacteria. There was no apparent relationship between the pH of the exudate and its cytological characters, nor did it vary in any constant fashion with the nature or duration of the infection. The limits within which the pH varied were actually wider in normal peritoneal fluid than in the inflammatory exudates.

Archives of Pediatrics

New York vol. 55 July, 1938

- Retropharyngeal Abscess with Fistulization into External Auditory Canal: Two Cases. L. Merklin.—p. 395.
 Immunological Aspects and Treatment of Meningitis. E. Appelbaum.—p. 409.
 *Schüller-Christian's Disease: Case Report. E. J. Wynkoop and L. Hadley.—p. 417.
 Newer Concepts in Diagnosis and Treatment of Juvenile Rheumatism. J. B. Wulfe and V. A. Digilio.—p. 424.
 Beta-haemolytic Streptococcus Meningitis: Two Cases with Recovery. A. I. Martin and S. L. Ellenberg.—p. 428.
 Nephrosis Treated by Osman Method: Case Report. H. Lowenberg and H. J. Freedman.—p. 435.
 Futility and Danger of Intrathecal Mercurochrome in Meningitis. M. A. Perls and A. Levinson.—p. 441.
 Monstrosity following Birth of Nine Normal Children: Case Report. A. I. Weisman.—p. 448.

Schüller-Christian's Disease.—An example of this condition is recorded, together with x-ray findings. The main characteristics are the defects of the skull, diabetes insipidus, and exophthalmos. The most hopeful treatment is through diet and x-ray therapy, from which much benefit often results. The condition is probably caused by a disturbance of lipid metabolism.

Deutsches Archiv für Klinische Medizin

Berlin vol. 182 July 15, 1938

- Alterations in Bone Marrow and Blood Formation in Diseases of Liver, Bile Ducts, and Gall Bladder. W. Tischendorf.—p. 261.
 Investigations of Physiology of Stomach Motility: II, Pressure in Interior of Healthy Stomach. K. Goette and K. Grosser.—p. 288.
 Investigations of Iodine Metabolism of Population of Southern Badema. H. Jäger.—p. 300.
 Urogenital System and Diseases of Joints. A. v. Deysinich.—p. 311.
 *Signs of Gastritis in Pernicious Anaemia: Gastroscopic Investigations. K. Lühr and M. Gültow.—p. 327.
 Tonsils as Entrance and Seat of Disease in Lymphogranulomatosis. K. Bingold.—p. 338.
 "Exercise Experiment" in Electrocardiographic Diagnosis of Angina Pectoris. II. A. Falcão.—p. 346.
 Investigations and Observations in Cases of Cachexia Hypophysica (Simmonds) and their Treatment, especially by Implantation of Pituitary Gland. W. C. Meyer.—p. 351.

Pernicious Anaemia (Gastroscopic Investigations).—Gastroscopic observations in cases of pernicious anaemia revealed changes suggesting that gastritis plays an important part in the onset and course of this condition.

Journal de Chirurgie et Annales de la Société Belge de Chirurgie

Brussels vol. 37 June, 1938

- Fracture of Shaft of Radius associated with Dislocation of Lower End of Forearm (Madelung's Disease). H. Pohl and W. Smets.—p. 166.
 Peritoneal Haemorrhage of Ovarian Origin. C. Flamand.—p. 173.
 *Case of Lymphosarcoma of Duodenum: Study of Duodenal Tumours. Dr. Bossaert.—p. 182.
 Stenosis of Axillary Artery: Thoracic Complication. Drs. Jonckheere and Voetquenne.—p. 190.
 Effect of Peripheral Injuries on Pulse Rate. A. Hustin.—p. 193.
 Treatment of Fractures of Vertebral Bodies. R. Schotte.—p. 197.
 Carcinoma of Ampulla of Vater. Regurgitation of Duodenal Contents into Biliary Passages. R. Remy.—p. 205.

Duodenal Lymphosarcoma.—A detailed description is given of a case of lymphosarcoma of the duodenum in a man of 66 years, with x-ray illustrations. The treatment of other types of duodenal tumours which may be of benign origin is also discussed.

Journal of Experimental Medicine

Baltimore vol. 67 June 1, 1938

- Bile and Blood Plasma Cholesterol as Influenced by Blood Destruction in Normal and Bile Fistula Dogs. A. Wrist and W. B. Hawkins—p. 527.
- White Cell Morphology in Rabbits with Induced Peritoneal Exudates. E. Funder and J. Macleod—p. 839.
- Studies on Uncomplicated Coryza of Domestic Fowl: IX. Co-operative Action of *Haemophilus gallinarum* and Cocci-bacillus-like Bodies in Coryza of Rapid Onset and Long Duration. J. B. Nelson—p. 547.
- Agglutination of Plasmodium Knowlesi by Immune Serum. M. D. Eaton—p. 857.
- Complement-fixation Reaction in Monkey Malaria. L. T. Corsehall and M. D. Eaton—p. 871.
- *Fate of Vaccinia Virus on Cultivation *in vitro* with Kupffer Cells (Reticulo-endothelial Cells). J. W. Beard and P. Rous—p. 883.
- *Bleeding Tendency and Prothrombin Deficiency in Biliary Fistula Dogs: Effect of Feeding Bile and Vitamin K. H. P. Smith, E. D. Warner, K. M. Binkhorst, and W. H. Seeger—p. 911.
- Meningo-encephalitis in Chicks produced by Intracerebral Injection of Fowl-pox Virus. G. J. Buddingh—p. 921.
- Study of Behaviour of Fowl-pox Virus modified by Intracerebral Passage. G. J. Buddingh—p. 933.
- Method for determining Differential Sedimentation of Proteins in High-speed Concentration Centrifuge. T. P. Hughes, E. G. Paketz, and F. L. Horsfall, jun—p. 941.
- *Demonstration of Lesions and Virus in Lungs of Mice receiving Large Intraperitoneal Inoculations of Epidemic Influenza Virus—E. R. Rickard and T. Francis, jun—p. 953.

Kupffer Cells and Vaccinia Virus.—Kupffer cells which have phagocytized iron oxide can be removed from liver perfusion fluid with an electro-magnet, washed free of other cells, and maintained for many days in culture. When vaccinia virus is mixed with these cells its *in vitro* activity is greatly reduced. When, on the other hand, virus is added to a culture of the cells *in vitro* it multiplies. No antiviral substance is produced by the living cells *in vitro*, and experiments are cited in which cultures of reticulo-endothelial cells failed to produce antibodies of other kinds. Hence tissue culture methods do not support the belief that the reticulo-endothelial system is responsible for antibody production, but this may be the fault of the method, by which the cells are deprived of resources available to them in the body.

Absorption of Vitamin K.—It is already recognized that a bleeding tendency associated with a low plasma prothrombin may be due to a deficiency of vitamin K (the anti-haemorrhagic vitamin). The bleeding tendency in dogs with a biliary fistula, which is also accompanied by a fall in prothrombin, is shown in this paper to be due to a deficient absorption of vitamin K; this can be corrected by the feeding of bile.

Intraperitoneal Influenza Virus.—A dose of influenza virus from 50,000 to 1,000,000 times greater than one which is fatal when given by the intranasal route to mice never causes death when injected into the peritoneal cavity. Lesions of moderate extent are produced in the lungs, and complete immunity to intranasal infection develops at an early stage.

Journal of Immunology

Baltimore vol. 34 June, 1938

- *Supplementary Report on Importance of Clostridium welchii as Aetiological Factor in Toxaemia of Spreading Peritonitis following Acute Perforative Appendicitis. H. A. Mengle, N. F. Paxson, and J. O. Bower—p. 429.
- Serological Tests with Pyrazolone Compounds. R. A. Harter—p. 433.
- Blood Groups of Rwala Bedouin. W. C. Boyd and L. G. Boyd—p. 441.
- Survival of Influenza Virus under Various Conditions. H. W. Scherp, E. W. Florsdorf, and D. R. Shaw—p. 447.
- Soluble Oedema-producing Substance from Pneumococcus. W. D. Sutcliffe and T. E. Friedemann—p. 455.
- Improved Procedure and Apparatus for Preservation of Sera, Micro-organisms, and other Substances: Cryochem Process. E. W. Florsdorf and S. Mudd—p. 469.

Cl. welchii Toxaemia in Peritonitis.—Of twenty dogs immunized with repeated injections of *Cl. welchii* toxoid, and then given general peritonitis by an operation which deprived the appendix of its blood supply, followed by a large dose of castor oil, thirteen survived. Animals not so immunized but otherwise identically treated had previously shown a mortality of 91 per cent. It is also stated that *Cl. welchii*

antitoxin reduces this mortality, that the exudate in human peritonitis complicating appendicitis often contains *Cl. welchii*, and that antitoxin can be found in the blood of such cases after recovery; the authority given for these three statements consists of three papers still in the press. The views and works of earlier participants in the controversy over the supposed activity of *Cl. welchii* in peritonitis are not discussed.

Journal of Laboratory and Clinical Medicine

St. Louis vol. 23 June, 1938

- Takata-Ara Reaction I. Clinical Significance. J. Chasnoff and S. Solomon—p. 85.
- Takata-Ara Reaction II. Mechanism, with Special Reference to Influence of Ammonia Blood Level. J. Chasnoff and S. Solomon—p. 194.
- Active Immunization against Tetanus by Alum-precipitated Refined Tetanus Toxoid. H. Gold—p. 503.
- Electrocardiographic Changes following Intravenous Administration of Magnesium Sulphate. J. R. Miller and T. R. Van Dellen—p. 914.
- Incidence of Positive Immunological Reactions for Undulant Fever. I. Gersh and E. R. Murgaz—p. 918.
- Clinical Utilization of Blood Studies. R. A. Kilduffe—p. 922.
- Studies on Anaphylaxis with Insulin. C. Bernstein, J. B. Kirsner, and W. J. Turner—p. 935.
- Relationship of Insulin Hypoglycaemia to Method of Administration and Type of Insulin.—J. B. Kirsner and C. Bernstein—p. 944.
- Comparison of Anti-Peritoneal Anaemia Potency of Depeptinized and Undepeptinized Gastric Mucosa. S. Morrison—p. 949.
- Ida Test for Syphilis. C. R. Rein and C. E. Hazas—p. 954.
- Rapid Method for Staining Blood Smears. L. H. Goldberg—p. 959.
- Practical Study for Spirochaetes of Syphilis and Vincent's Angina. H. D. Bailey—p. 960.
- Comparison of Methods for Preservation of Haemolytic Activity of Guinea-pig Complement. J. E. Faber, jun., and L. A. Back—p. 961.
- Universal Laboratory Shaker. J. M. Feder—p. 974.
- Low-temperature Evaporator. D. S. Stevens—p. 978.
- Combination Microhaemometer. K. Kato—p. 980.
- Use of Daphnia in Study of Cathartic Action. W. Tinsley—p. 985.

Journal of Nutrition

Philadelphia vol. 16 July 10, 1938

- Stability of Carotene in Plant Tissues. M. W. Taylor and W. C. Russell—p. 1.
- *Digestibility and Nutritional Value of Cereal Proteins in Human Subject. J. R. Murlin and H. A. Matull—p. 15.
- *Egg-replacement Value of Several Proteins in Human Nutrition. E. E. Sumner, H. B. Pierce, and J. R. Murlin—p. 37.
- *Concerning Toxicity of Vitamin A. E. B. Vedder and C. Rosenberg—p. 57.
- Environmental Temperature and "Rat Acedymia." P. Gyotzy—p. 69.
- Availability of Calcium in Spinach, in Skim-milk Powder, and in Calcium Oxalate. B. W. Fairbanks and H. H. Mitchell—p. 79.
- Radiographic Demonstration of Protection by Vitamin D against Metaphyseal Decalcification in Adult Rats on High Calcium-Low Phosphorus Diet. B. O'Brien and K. Morgantedge—p. 91.

Nutritive Value of Cereal Proteins.—The nutritive values of three cereal breakfast foods—a wheat endosperm product, a "whole-wheat" product, and pre-cooked rolled oats—were studied in human subjects by a milk-replacement method. The milk-replacement values of the proteins of the rolled oats and of the "whole wheat" were the same as their biological values; that of the wheat endosperm was higher than its biological value. Digestibility of the endosperm product was higher than that of the other two foods.

Egg-replacement Value of Proteins.—From an investigation by the protein-replacement method it was concluded that egg protein is superior to milk protein in maintaining the nitrogen balance in human adults. Powdered milk, fresh milk, and wheat endosperm with a small amount of cream added replaced egg nitrogen about equally well. Yeast used as a source of protein caused an increased negative nitrogen balance and an increase in total faecal solids without an increase in urinary nitrogen. The proteins of egg and of milk were equally well assimilated by human subjects. Similar results were obtained with rats.

Toxicity of Vitamin A.—The authors find that vitamin A is toxic for rats only in doses in excess of 100,000 international units per day. The greater part of such large doses is destroyed in the body of the rat. Vitamin B₁₂ did not counteract the toxicity of vitamin A; vitamin D did so only

partially; and ascorbic acid in doses of 5 mg. per day counteracted it almost completely. Fish oils contain, besides vitamin A, a toxic principle not yet identified.

Philadelphia vol. 16 August, 1938.

Effect of Autoclaving on Nutritive Value of Edestin H. A. Waisman and C. A. Elvehjem.—p. 103.

Effect of Amino-acid Supplements and of Variations in Temperature and Duration of Heating upon Biological Value of Heated Casein. E. O. Greaves, A. F. Morgan and M. K. Loveen.—p. 115.

Biological Value of Milk and Egg Protein in Young and Mature Rats E. E. Sumner.—p. 129.

*Biological Value of Milk and Egg Protein in Human Subjects. E. E. Sumner and J. R. Murlin.—p. 141.

*Effect of Various Fractions of Liver on Experimental Canine Black-tongue. H. I. Harvey, D. T. Smith, E. L. Persons, and M. V. Burns.—p. 153.

Comparison of Sodium Fluoride in Drinking-water with Similar Levels of Cryolite in Diet on Fluorine Content of Body. S. Marcovitch and W. W. Stanley.—p. 173.

*Differentiation of Rat Dermatitis Factor and Chick Dermatitis Factor from Nicotinic Acid W. J. Dann and Y. Subbarow.—p. 183.

Production of Microcytic Hypochromic Anaemia in Puppies on Synthetic Diet Deficient in Rat Anti-dermatitis Factor (Vitamin B₂). P. J. Fouts, O. M. Helmer, S. Lepkovsky, and T. H. Jukes.—p. 197.

Egg and Milk Proteins.—The biological value of egg protein was determined in adult human subjects and compared with that of milk proteins in the same subjects. The proteins of egg and of milk were equally well utilized, and egg protein was only slightly superior to milk in replacing nitrogen when the protein supplied 3 to 4 per cent. of the caloric requirements. The results were compared with those obtained with rats.

Canine Black-tongue.—By producing repeated attacks of black-tongue in dogs it was possible to compare the therapeutic effects of various products derived from liver. Simple aqueous extracts cured the condition; extracts prepared for parenteral use in the treatment of pernicious anaemia and the residues obtained at the same time were only partially successful even in huge doses, but when used together either extract or residue could replace the other. The results suggest that two substances partially separated by fractionation are present in liver, and are both necessary for the elaboration of some compound capable of curing experimental black-tongue in dogs and pellagra in man.

Nicotinic Acid and Vitamin B₆.—Nicotinic acid cured black-tongue in dogs, but failed to cure the dermatitis in rats and chicks produced by vitamin-B-deficient diets. It is concluded therefore that the rat dermatitis factor (vitamin B₆) and the chick dermatitis factor ("filtration factor") are distinct from nicotinic acid. Hence the vitamin B₂ complex contains four recognized entities: riboflavin (growth factor), nicotinic acid (curing black-tongue and pellagra), vitamin B₆ (rat dermatitis factor), and the "filtration factor" (chick dermatitis factor).

Journal of Pathology and Bacteriology

Edinburgh vol. 46 May, 1938

*Pathogenesis of Pulmonary Schistosomiasis in Egypt, with Special Reference to Ayerza's Disease. A. F. B. Shaw and A. A. Ghareeb.—p. 401.
Micromanipulation and Microdissection of *Molluscum contagiosum* Inclusion Body. C. E. Van Rooyen.—p. 425

Acute Haemorrhagic Encephalitis associated with Acute Rheumatism. R. H. Dobbs and G. S. W. de Saram.—p. 437.

Lymphadenoid Gout: Study of Thirty-eight Cases. D. M. Vaux.—p. 441.
*Transmission of Rous Filterable Agent to Chemically Induced Tumours. E. Mellanby.—p. 447

Histology of Infectious Fibroma in Rabbits. C. G. Ahlström.—p. 461.

Massive Replacement of Pancreas by Adipose Tissue. T. B. Davie.—p. 473.

*Infection Experiments with Virus-like Bodies from Rheumatism. G. H. Eagles, P. R. Evans, J. D. Keith, and A. G. T. Fisher.—p. 481.

Changes Antecedent to Tumour Formation during Treatment of Mouse Skin with Carcinogenic Hydrocarbons. J. W. Orr.—p. 495.

Identification of Living Unstained Leucocytes by Dark-ground Illumination. L. E. H. Whirby and M. Hynes.—p. 517.

Splenic Reaction in Experimental Cirrhosis and in Precirrhotic Intoxication. T. B. Menon.—p. 521

*Vaccination of Guinea-pigs with Living B.C.G., with Observations on Tuberculous Superinfection in Rabbits H. Schwabacher and G. S. Wilson.—p. 535

Preparation of Gold Soils for Lange Test. S. W. Pennycook, C. E. Woolcock, and R. J. Cowan.—p. 549.

Liver and Atropine Disposal G. S. W. de Saram.—p. 559.

Type-specific Bacteriophages for *Corynebacterium diphtheriae*. E. V. Knoch, R. T. Simmons, and G. Anderson.—p. 565.

Intraocular Rabbit Test for Assay of Antipneumococcus Serum. J. Isen, Jun.—p. 571.

Hereditary Factor in Induced Skin Tumours in Mice: Establishment of Strain Specially Sensitive to Carcinogenic Agents applied to Skin. G. M. Bonser.—p. 581.

Special Form of Erythrocyte possessing Increased Resistance to Hypotonic Saline. A. M. Barrett.—p. 603.

Influence of Ascorbic Acid on Growth and Toxin Production of *Cl. tetani* and on Detoxication of Tetanus Toxin. I. J. Kligler, K. Guzzenheim, and F. M. Warburg.—p. 619.

Incidence of Leptospiral Infection in Rats in Liverpool. W. N. M. Mason.—p. 631.

Effect of Various Meat Extracts on Pigment Production by *B. prodigiosus*. N. E. Goldsworthy and J. L. Still.—p. 631.

Pulmonary Schistosomiasis.—Pulmonary lesions due to emboli formed by ova are found in one-third of all necropsies on cases of schistosomiasis in Egypt; the ova of *S. haematobium* are those more commonly seen, but those of *S. mansoni* cause more severe lesions. The authors state that repeated embolization produces obliterative changes in the arterioles and the features of Ayerza's disease, with ultimate right heart failure; this condition was observed in 2 per cent. of all cases of schistosomiasis.

Virus in Chemically Induced Tumours.—When a fowl bears both a chemically induced and a Rous tumour the virus may be present in the former without modifying its nature or behaviour. This and related observations suggest that in the few instances when chemically induced tumours have been found transmissible by filtrates the presence of virus has been incidental. In the author's view "chemically induced tumours and virus tumours are essentially different in their nature and largely independent of and unaffected by each other."

Transmission of Rheumatic Fever.—Suspensions of virus-like bodies from exudates in cases of rheumatic fever, either alone or in combination with streptococci or streptococcus toxin, were injected into monkeys by various routes. No lesions characteristic of the human disease were produced.

Vaccination with B.C.G.—According to the authors the previous injection of B.C.G. increases the resistance of guinea-pigs to inoculation with a very small dose of virulent tubercle bacilli.

Journal d'Urologie

Paris vol. 46 July, 1938

*Some Points in Technique of Transurethral Resection of the Prostate. J. Libert.—p. 5.

Renal Affections and Surgery of Kidney in Cases of Deformity of Ventricle Column. G. Jaslenski.—p. 15.

Neosphenamine (Arsenical Trivalent) in Treatment of Gonococcal Epididymitis. J. Conradt.—p. 29.

*On Hormone Therapy in Hypertrophy of Prostate. A. Cassuto.—p. 34.

Calculus of Prostatic Urethra. P. Decoux and L. Lafrance.—p. 47.

Transurethral Prostatic Resection.—Since the ordinary telescope with its small field does not tell one much about the amount of lateral resection, Alcock employs in addition a right-angled and a retrograde telescope. The former is valuable because of its large field and magnification; the latter, as giving a view of the adenoma such as one would get by suprapubic cystotomy. The verumontanum must be visualized throughout the operation; likewise care must be taken of the ureteric orifices. The retrograde view is especially valuable at the end of the operation in judging of the satisfactory abolition of the projection of the adenoma, or in identifying a remaining fragment as a thickening in the thin edge of the crater area of resection. The resection is judged at an end, not only when the bladder cavity and the top of the verumontanum are visible in one field, but also when, on rotating the retrograde telescope, it is possible to ascertain the perfect and equal thinness of the crest which should have replaced the intravesical prominence of the adenoma, and when the flanks of the crater are smooth and slope regularly towards the urethra, uninterrupted by the projection of any residual nodule.

Hormone Therapy in Prostatic Hypertrophy.—The general impression is that, in certain cases of prostatic enlargement, hormone therapy has been followed, after one or two months, by a diminution of symptoms, but only very rarely by a diminution of the size of the prostate. In the author's cases the symptom most benefited was pollakiuria in twenty-six out of thirty-five cases. Gross retention of urine was unaffected. Only in eight mild cases, with residual urine fluctuating between 50 and 200 c.cm., was there a diminution or disappearance of retention. The method is a palliative one, but not to be neglected.

Monatsschrift für Kinderheilkunde

Berlin vol. 74 August 23, 1938

- Anti-rachitic Activity of Vitamin D₂. P. Steinbrück.—p. 155.
Beyrer-Boeck's Disease. W. Busak.—p. 200.
Blood Transfusion in Dystrophic Infants. A. Lancu and C. Orriou.—p. 209.
Pathogenesis and Treatment of Nephrosis in Childhood. F. Linneweh.—p. 216.
Value of Asymmetrical Gluteal Fold in Early Diagnosis of Congenital Dislocation of Hip. Licht.—p. 243.
Necrotizing Colitis Pseudomembranacea in Newborn. C. Gahleemann.—p. 248.
The Vitamins. A. Frank.—p. 251.
Whooping-cough. H. Mommen.—p. 414.
Physics, Chemistry, and Physical Chemistry. F. Linneweh.—p. 421.
Psychology, Psychopathology, and Psychotherapy. O. Budde.—p. 437.

Public Health Reports of the U.S.A.

Washington vol. 53 June 24, 1938

- *Studies on Epidemiology of Poliomyelitis. C. C. Dauer.—p. 1003.
Studies on Dental Caries: IV. Tooth Mortality in Elementary School Children. J. W. Knutson and H. Klein.—p. 1021.
Study of Pseudotuberculosis Rodentium Recovered from Rat. V. H. Haas.—p. 1033.
Deaths during Week ended June 4, 1938: (a) Deaths in a Group of Large Cities in the United States; (b) Death Claims Reported by Insurance Companies.—p. 1038.
Weekly Statistical Return of Infectious Diseases, United States, Foreign and Insular.—p. 1039

Epidemiology of Poliomyelitis.—In his review of outbreaks of poliomyelitis in the United States from 1916 to 1937 inclusive the author confesses that "little has been added to our knowledge in the past twenty years." The outbreaks occurred at intervals of three to five years, were widespread, and affected fairly large areas. Neither lines of traffic nor geographical obstacles (mountain ranges, large rivers) seemed to affect the spread. The severity of the disease and the intensity of incidence varied greatly even in adjacent districts, and these factors were apparently not related to density of population. The contribution presents factual material only, and no attempt is made to explain any of the facts presented.

Washington vol. 53 July 1, 1938

- Provisional Mortality Rates for First Quarter of 1938.—p. 1065.
Provisional Birth, Death, and Infant Mortality Rates for 1937.—p. 1072.
Death Rates for Certain Important Causes of Death, by States, 1936.—p. 1078.
*Metal-fume Fever and its Prevention. R. R. Sayers.—p. 1080.
Studies on Trichinosis: VI. Epidemiological Aspects of Trichinosis in United States as Indicated by Examination of 1,000 Diaphragms for Trichinae. M. C. Hall.—p. 1086.
Deaths during Week ended June 18, 1938: (a) In Group of Large Cities in United States; (b) Death Claims reported by Insurance Companies.—p. 1105.
Weekly Infectious Disease Reports: United States, Foreign and Insular.—p. 1106.

Metal-fume Fever.—Fumes from molten metals, commonly zinc and brass, produce a definite syndrome: dryness of throat, oppression of chest, cough, and rise of temperature followed by sweating. The onset occurs a few hours after leaving work; these symptoms passing off in twelve to twenty-four hours. A temporary immunity is established (for a few days), but cold and chilling of the body increase the liability to attack. There is no specific treatment, and prevention is limited to control of the fumes.

Washington vol. 53 July 8, 1938

- Prevalence of Communicable Diseases in United States, May 22 to June 10, 1938.—p. 1119.
Mortality during Periods of Excessive Temperature. M. Gover.—p. 1122.
*Poliomyelitis. Prevalence since 1915, and Present Situation. B. C. Hampton.—p. 1143.
Directory of Whole-time County Health Officers, 1938.—p. 1147.
Deaths during Week ended June 18, 1938: (a) In Group of Large Cities in United States; (b) Death Claims reported by Insurance Companies.—p. 1166.
Weekly Infectious Disease Reports. United States, Foreign and Insular.—p. 1167.

Poliomyelitis.—This is a review of the epidemiology of the disease in the U.S.A. from 1915 onwards, the chief characteristic of which is its irregular behaviour. Protective measures are limited to ordinary hygienic precautions. No specific treatment is given, but early and careful handling of affected muscle groups is emphasized.

Washington vol. 53 July 15, 1938

- *Relative Amount of Ill-health in Rural and Urban Communities. H. F. Dorn.—p. 1181.
Prevalence of Undulant Fever (Brucellosis) in United States.—p. 1195.
*Studies on Fate of Selenium in the Organism. M. I. Smith, B. B. Westfall, and E. F. Stohman.—p. 1199.
Two New Species of *Merinids* Jordan (Siphonaptera). G. M. Kohls.—p. 1216.
Deaths during Week ended June 25, 1938: (a) In Group of Large Cities in United States; (b) Death Claims reported by Insurance Companies.—p. 1220.
Infectious Disease Returns: United States, Foreign and Insular.—p. 1221.

Relative Ill-health in Rural and Urban Communities.—A survey of fatal and non-fatal illness over a period of years in various-sized urban and rural communities shows that health in the former has improved to a greater extent than in the latter, but rural areas still have the advantage. Superior health services in urban areas account for diminished death rates from communicable and infantile diseases. The urban expectation of life in 1930 is still somewhat lower than the corresponding rural expectation in 1900. Mental illness shows the same trend as physical illness. If rural areas had the medical facilities of the urban, the differences would be still greater.

Selenium in the Organism.—Selenium, which may occur as a protein compound in oats and wheat correlated with sulphur, is retained to a considerable extent in the tissues—more so than artificially administered inorganic selenium—and may cause poisoning. Methods of detection and estimation are described. The paper is a continuation of a former contribution (*Public Health Reports*, 1937, vol. 52, p. 1171).

Quarterly Journal of Medicine

Edinburgh vol. 7 July, 1938

- *Output of Heart in Congestive Failure. J. McMichael.—p. 331.
Clinical Value of Estimation of Laevulose Tolerance by Means of Analyses of Blood-laevulose. F. K. Herbert and G. Davison.—p. 355.
*Pulmonary Tuberculosis Complicating Diabetes Mellitus. H. P. Hirstworth.—p. 373.
*Role of Copper in Iron-deficiency Anaemia in Infancy. J. H. Hutchison.—p. 397.
Dyspnoea. Review. R. V. Christie.—p. 421.
Cardiac Aneurysm. I. Parkinson, D. E. Bedford, and W. A. R. Thomson.—p. 455.
Genetics of Transposition of Viscera. E. A. Cockayne.—p. 479.

Heart Output in Congestive Failure.—The normal postural increase in heart output with slowing of the pulse which occurs following the change from an erect to a supine posture diminishes as heart failure progresses. The general heart output behaves similarly save at the stage when venous congestion appears; then there is a temporary increase. It is suggested that in cardiac failure the heart shows a diminished ability to respond to venous pressure increments, and that venous congestion is possibly a compensating mechanism.

Tuberculosis and Diabetes.—Pulmonary tuberculosis was present in 6.5 per cent. of new diabetics, but in only 0.7 per cent. of treated diabetics. Diagnosis of the early lesion is only possible by radiographs. In all cases the treatment of the

diabetes is of primary importance, and the prognosis is excellent if the lesion is discovered at an early stage.

Copper and Anaemia.—In six cases of iron-deficiency anaemia of infancy ferrous sulphate was given until the haemoglobin level showed no further rise; the addition of copper then produced a further increase. In three cases the iron was given in small doses so as to produce iron storage without increase of haemoglobin. Again administration of copper produced a rise. It is suggested that copper acts as a catalyst, enabling iron to be converted into such a form that it can be transported from the storage depots to the bone marrow and there turned into haemoglobin.

Radiology

St. Paul, U.S.A. vol. 31 August, 1938

- Haemoptysis and Position of Roentgen Examination in Its Diagnosis: Hickey Lecture of 1938. G. W. Holmes.—p. 131.
- Congenital Absence of Superficial Volar Arch: Arteriographic Study. P. L. Davis.—p. 137.
- Six and a Half Years' Experience in Carcinoma Therapy with Extra Hard Roentgen Rays (Fourth Report). E. von Schubert.—p. 142.
- Importance of Indications from Sternal Puncture in Roentgen Therapy. O. Meller, F. Gottlieb, and R. Brauner.—p. 149.
- Estimation of Dosage from Flat Radium Applicators. M. C. Reinhard and H. L. Goltz.—p. 151.
- Roentgen Therapy in Inflammatory Diseases. H. Wintz.—p. 156.
- Cranial Radiographic Technique in Living Rat. E. G. Burr and H. Mortimer.—p. 162.
- Mimery of Turricapalic Skull in Children treated on Bradford Frame. E. P. Pendergrass and P. J. Hodes.—p. 170.
- Case of True Aneurysm of Right Renal Artery. L. Solis-Cohen and M. Stembach.—p. 173.
- Cineradiography by Indirect Method. R. Reynolds.—p. 177.
- Direct Visualization of Axillary and Subclavian Veins. J. R. Veal.—p. 183.
- Pelviccephalometry. R. P. Ball.—p. 188.
- Nomogram for Roentgenographic Mensuration. H. J. Holmquest.—p. 198.
- Stray Radiation Survey of Twenty High-voltage Roentgen Installations. C. B. Braestrup.—p. 206.
- Roentgen Diagnosis of Fracture of Skull: Review of 1,135 Cases so Diagnosed. R. A. Rendich and B. Ehrenpreis.—p. 214.
- *Roentgen Treatment of Plantar Warts. W. C. Popp and J. W. Olds.—p. 218.
- Prolapsing Redundant Gastric Mucosa. J. V. Bohrer and B. Coplen.—p. 220.
- Osteitis Tuberculousa Multiplex Cystica. W. F. Thornton.—p. 222.
- Unique Foreign Body. L. E. Warster and H. L. Schoff.—p. 225.
- Beroar. C. G. Lyons and G. L. Cody.—p. 225.
- Unusual Fracture-dislocation. W. H. Mindox.—p. 229.

X-Ray Treatment of Plantar Warts.—The best results were obtained from single large doses (1,200 r), using a radiation of 100 kV, 0.5 mm. aluminium filtration, at a distance of 40 cm.

Revue de Chirurgie

Paris vol. 57 May, 1938

- Metabolic Changes following Abdominal Operation. M. H. Annes-Dias.—p. 321.
- *Pathological Significance of Calcium in Urine. R. Leriche and A. Jung.—p. 346.
- Mechanism of Osteogenesis. R. Leriche and A. Jung.—p. 378.
- Treatment of Subdeltoid Calcification by Infiltration with Novocain. R. Leriche and A. Jung.—p. 383.
- Pancreatic Fistula treated by Implantation of Fistulous Tract into Intestine. M. A. Jung.—p. 386.

Significance of Urinary Calcium.—This is a study of the variation of the calcium content of the urine in various diseases of the skeleton such as fibrocystic osteitis, osteomalacia, xanthomatosis, post-traumatic osteoporosis, chronic arthritis, etc.

Strahlentherapie

Berlin vol. 62 August 26, 1938

- Biological Action of X Rays: Twentieth Silvanus Thompson Memorial Lecture. I. A. Crowther.—p. 569.
- Radium Treatment of Uterine Carcinoma: Investigation into Distribution of Dose and Special Therapeutic Problems. W. Wässerburger and H. Smerek.—p. 584.
- Significance of Primary and Secondary Radiation in Radium Therapy. W. Munder.—p. 601.
- Dependence of Ionization Current on Volume in Small Ionization Chambers. M. Henschke.—p. 614.
- Wave-like Character of Effects of X-Radiation. L. and V. Neu.—p. 629.
- *X-Ray Treatment of Epilepsy. W. v. Wieser.—p. 649.

- *X-Ray Treatment of Epilepsy. M. Sealtizer.—p. 667.
- X-Ray "Cautery." G. J. van der Plaatz.—p. 680.
- Primary Results of Contact Therapy of Carcinoma of Skin and Lip. Z. Hzahovszky.—p. 691.
- Radiotherapeutic and Anatomopathological Contribution to Problem of Contact Therapy. A. Frank.—p. 696.
- Personal Experience with Contact Therapy. G. G. Palmieri.—p. 701.
- Results of Radiotherapy of Carcinoma of Hypopharynx. E. Bandhauer.—p. 705.
- Importance of Blood Picture in X-Ray Therapy of Diseases of Blood. E. Patzold.—p. 710.
- Biological Reaction from Radio-active Micro-emitters. V. F. Korshak.—p. 714.
- Exact Dosimetry in Short-wave Therapy. P. Wenk.—p. 725.
- Siemens Pointed-anode X-Ray Tube for Cavity Therapy. Zimmer.—p. 731.
- Problem of Dosage of Ultra-short-wave Therapy from Point of View of "Spark-physics" (Funkphysik). V. Fritsch.—p. 733.

X-Ray Treatment of Epilepsy.—Both papers discuss the theoretical basis of x-ray therapy of epilepsy. Statistics based on the results of the cases treated by the authors and also by other workers prove the usefulness of this therapy in symptomatic epilepsy, and occasionally also in idiopathic epilepsy.

Transactions of the Royal Society of Tropical Medicine and Hygiene

London vol. 32 August 25, 1938

- *Nutritional Macrocytic Anaemia in Macedonia. N. Hamilton Fairley, R. I. Bromfield, H. Foy, and A. Kondi.—p. 132.
- Morphological Study on Virus of Lymphogranuloma Inguinale. G. M. Findlay, R. D. Mackenzie, and F. O. MacCallum.—p. 183.
- Outbreak of Epidemic Jaundice at Hamet, Lebanese Republic. H. A. Yenikomshian and E. W. Dennis.—p. 189.
- *Stability of Bayer 205 Resistance in *Trypanosoma gambiense*. L. van Hoof, C. Henard, and E. Peel.—p. 197.
- Studies in Trypanosomiasis: II. Observations on Red Cell Adhesion Test. H. C. Brown and J. C. Broom.—p. 209.
- *Amoebic Invasion of Skin and Subcutaneous Tissues. P. Manson-Bahr.—p. 223.
- Infection with *Plasmodium ovale* Stephens in Southern Rhodesia. D. M. Blair.—p. 229.
- Incidence of Malaria among African Children. B. A. S. Russell.—p. 237.
- Treatment of Filarial Elephantiasis of Leg by Bandaging. J. Knott.—p. 241.
- *Bilharzial Asthma: Bronchial Asthma in *Schistosoma* Infection. F. Mansueti.—p. 253.
- Preliminary Notes on Dermal Leishmaniasis in Anglo-Egyptian Sudan. R. Kirk and C. B. Drew.—p. 265.
- Primary Cutaneous Sore in Case of Kala-azar. R. Kirk.—p. 271.
- Notes on Two Cases of Naturally Occurring Toxoplasmosis of Dogs in Baghdad. C. MacHattie.—p. 273.
- Holland and Bengal: Reclamation and Malaria in the Two Countries. C. Strickland.—p. 277.
- Mortality from Cerebrospinal Fever in Hong Kong. K. H. Utley.—p. 287.
- Suicide by Ingestion of Derris Root in New Ireland. E. A. Holland.—p. 291.
- Some Vegetable Poisons of New Guinea. E. A. Holland.—p. 295.

Nutritional Macrocytic Anaemia.—According to the authors this is of two types—non-haemolytic, due to uncomplicated dietary deficiency, and haemolytic, where in addition there is increased phagocytosis of abnormal red cells by a reticulo-endothelial system hypertrophied as a result of some infection—for example, in Macedonian chronic malaria. Bone-marrow smears show: panmyelopathy characterized by erythropoiesis with megaloblastic degeneration; pathological precursors of the white cells; and abnormal megakaryocytes, which produce in the peripheral blood a megalocytic anaemia, leucopenia with a shift to the left, and thrombocytopenia. Purpura may be associated with thrombocytopenia, and is not due to vitamin C deficiency.

Bayer 205 Resistance in Trypanosomes.—The authors find that resistance of *T. gambiense* to Bayer 205 is an unstable character which decreases progressively on mechanical passage and disappears completely on cyclical transmission by *G. palpalis*.

Amoebic Invasion of Skin.—This is a description of a case of amoebic ulceration of the skin around a colostomy wound which rapidly responded to specific treatment.

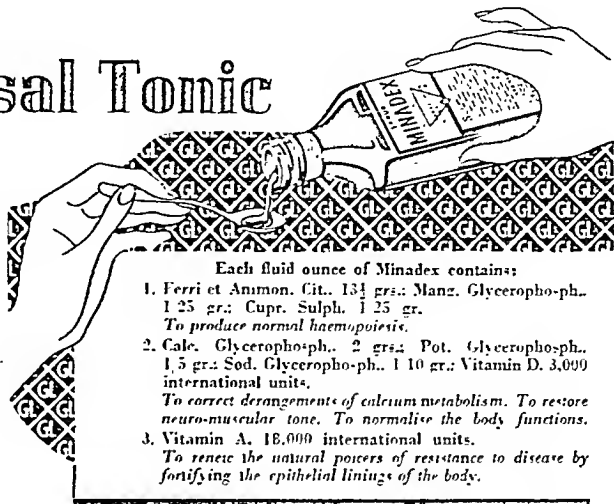
Bilharzial Asthma.—The author reports three cases of febrile asthma with urticaria, associated with schistosome infection. The asthma had no relation to local lung lesions of schistosomiasis, but was a specific allergic response to the infection.

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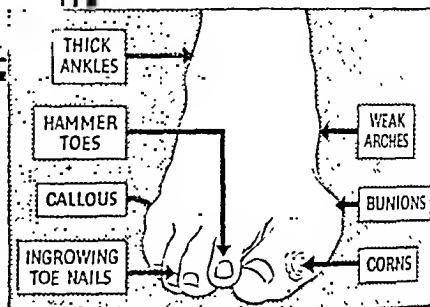
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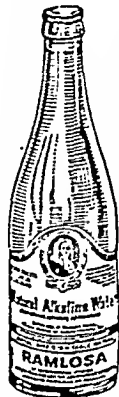
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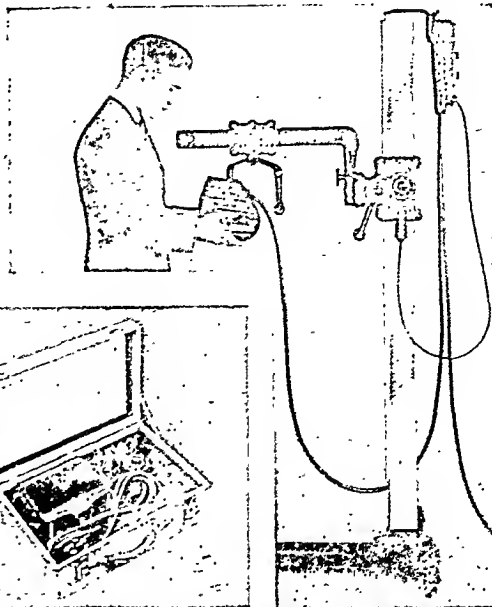
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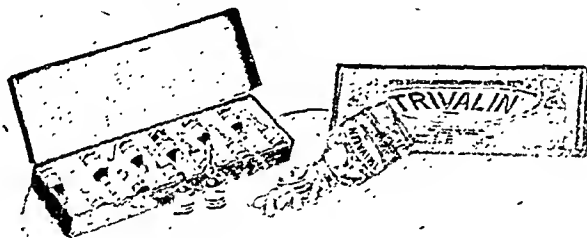
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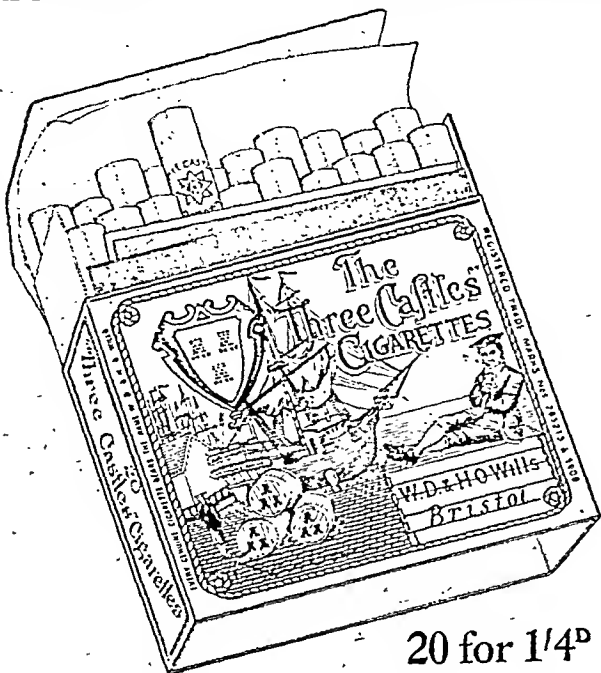
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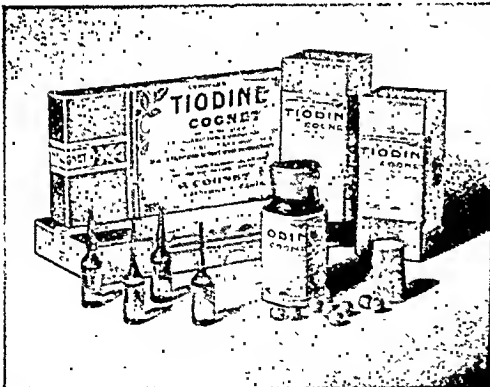
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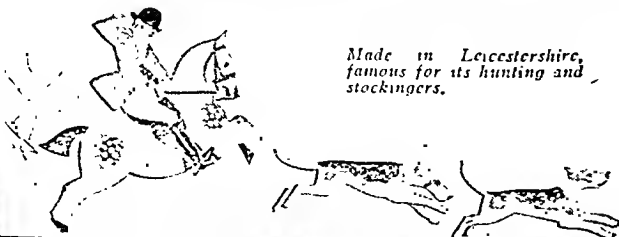
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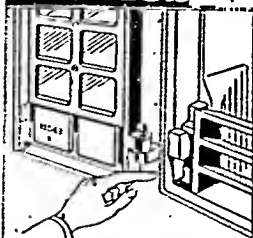
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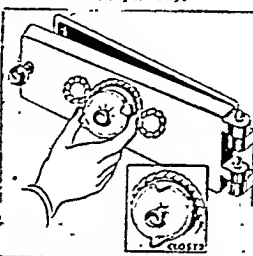
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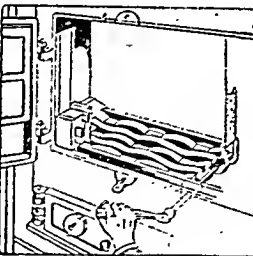
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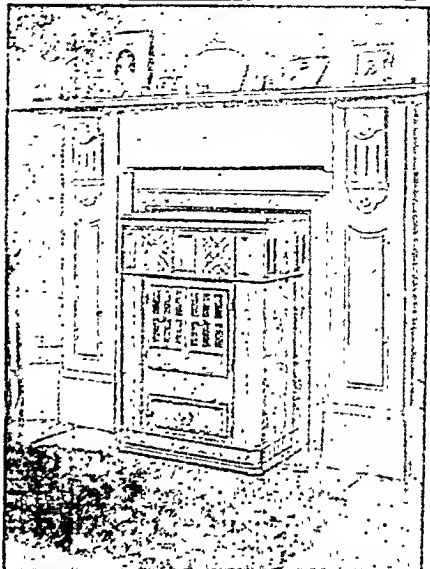
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| Mr. W. K. Irwin. | The causes of frequency of micturition, with special reference to diagnosis and treatment. | October 26th (Wednesday). |
| Mr. Kenneth Walker. | Per-urethral Operations on the Prostate and Bladder, by Cinema. | November 2nd (Wednesday) |
| Dr. H. H. Webber. | Anaesthetics in Urology. | November 9th (Wednesday). |
| Mr. H. P. Wimbury-White. | Diagnosis and Treatment of Commonplace Causes of Disturbances of Micturition and Backache of Genito-Urinary Origin. (With lantern slides.) | November 16th (Wednesday) |
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| | Nov. 29. | Hysteria. | Dr. Edward Glover. |
| | Dec. 6. | Anxiety States. | Dr. Melitta Schmeideberg. |
| | Dec. 13. | Obsessional Neurosis. | Dr. Kate Friedlander. |
| 1939. | Jan. 10. | Somatic Neurosis. | Dr. W. H. Gillespie. |
| | Jan. 17. | Somatic Neurosis. | Dr. W. H. Gillespie. |
| | Jan. 24. | Psychoses. | Dr. Denis Carroll. |
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RALPH B. CANNINGS, Secretary.

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| October 24th | Medicine |
| October 25th | Pathology |
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| | Surgery |

Further particulars can be obtained from the Principal.

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CONTENTS: The method and the cost of entering the Medical Profession. Particulars of all Medical Examinations, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Examinations. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

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COUNCIL EXHIBITIONERS.

An EXAMINATION will take place in due course for the admission of two or three boys as COUNCIL EXHIBITIONERS. The fee payable is £75 a year, instead of the usual fee of £135. Candidates must be the sons of such duly qualified medical men as shall, in the opinion of the Council, be among the less fortunate members of their profession. They must be over twelve and under fourteen years of age on 1st January, 1939. Application forms are obtainable on request, and must reach me at the office of the College, 49, Bedford Square, London, W.C.1, duly completed, by the morning of 17th October, 1938.

W. L. GIFFARO (Major),
Secretary.

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BRITISH POSTGRADUATE MEDICAL SCHOOL

(UNIVERSITY OF LONDON)

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

Course of Lectures on

PRESENT-DAY OBSTETRICS

THURSDAY AFTERNOONS AT 3.30 p.m.

| | | |
|-----------|--|--|
| 1938 | | |
| Oct. 13th | Antenatal Care. | Dr. W. H. F. Oxley, M.R.C.S., L.R.C.P., F.C.O.G. |
| " 20th | Radiology in Obstetrics | Dr. R. E. Roberts, M.D., D.M.R.E. |
| * " 28th | Variations in the Female Pelvis and their Obstetric Significance | Dr. H. C. Moloy, M.D. (of New York). |
| Nov. 3rd | Toxaemias of Pregnancy | Professor F. J. Browne, M.D., D.Sc., F.R.C.S., F.C.O.G. |
| " 10th | Toxaemias of Pregnancy (contd.) | Professor F. J. Browne, M.D., D.Sc., F.R.C.S., F.C.O.G. |
| " 24th | Haemorrhage of Late Pregnancy | Mr. Leslie Williams, M.D., M.S., F.R.C.S., F.C.O.G. |
| Dec. 1st | Haemorrhage of Late Pregnancy (contd.) | Mr. Leslie Williams, M.D., M.S., F.R.C.S., F.C.O.G. |
| " 8th | Some Aspects of Obstetric Pathology | Dr. H. L. Sheehan, M.Sc., M.D. |
| " 15th | Breech Cases | Professor J. Chassar Moir, M.D., F.R.C.S., F.C.O.G. |
| 1939 | | |
| Jan. 5th | Pyelitis of Pregnancy | Professor Dugald Baird, M.D., F.C.O.G. |
| " 12th | Disproportion and Difficult Labour | Professor J. Munro Kerr, M.D., LL.D., F.R.F.P.S., F.C.O.G. |
| " 19th | Disproportion and Difficult Labour (contd.) | Professor J. Munro Kerr, M.D., LL.D., F.R.F.P.S., F.C.O.G. |
| " 26th | Obstetric Emergencies | Mr. J. M. Wyatt, F.R.C.S. |
| Feb. 2nd | Puerperal Sepsis | Dr. Robert Cruikshank, M.D., D.P.H. |
| " 9th | Caesarean Section | Mr. Eardley Holland, M.D., F.R.C.P., F.R.C.S., F.C.O.G. |
| " 16th | Analgesia and Anaesthesia in Obstetrics | Dr. J. R. Minnitt, M.D. |
| * Friday. | | |

These lectures are for regular students of the School, but a limited number of tickets are available, without fee, for medical practitioners. Applications for tickets should be addressed to the Dean, British Postgraduate Medical School, Ducane Road, W.12.

THE EXAMINING BOARD IN ENGLAND

BY THE

ROYAL COLLEGE OF PHYSICIANS OF LONDON

AND THE

ROYAL COLLEGE OF SURGEONS OF ENGLAND

DIPLOMA IN ANAESTHETICS

(D.A., R.C.P. & S.Eng.)

The following clause in the regulations for the Diploma in Anaesthetics has now been withdrawn:—

"Until May 1st, 1938, it shall be open to the Royal Colleges, on the recommendation of the Committee of Management of the Examining Board, to grant the Diploma, without examination, to an Anaesthetist to a general hospital associated with a recognised medical school in the British Empire who has held this appointment for not less than ten years."

The Committee of Management has now been authorised by the Royal Colleges to consider applications up to, December 31st, 1938, for the award of the Diploma without examination from Anaesthetists who, while not strictly eligible under the previous

conditions, approach them so nearly as to give them, in the opinion of the Committee, the necessary experience and standing in the profession to justify their names being submitted to the Royal Colleges for the award of the Diploma.

Enquiries should be addressed to the Secretary of the Board, 8-11, Queen Square, London, W.C.1.

ROYAL EYE HOSPITAL

Medical School, St. George's Circus, S.E.1

RESEARCH SCHOLARSHIP.

Applications are invited for the Royal Eye Hospital Research Scholarship, tenable at the Hospital. Preference will be given to candidates who propose to undertake research on a special subject.

The value of the Scholarship is £100 per annum. Applications are to be received by November 1st, 1938.

Further particulars can be obtained from the Dean.

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Correspondence College, 19, Wimpole

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GRAHAM SCHOLARSHIP IN PATHOLOGY

Applications are invited for the GRAHAM SCHOLARSHIP in PATHOLOGY, value £100 per year for two years, tenable at University College Hospital Medical School.

Applications must be received not later than the first post on Friday, October 21st, 1938, by the Principal, the Senate House, University of London, W.C.1, from whom further particulars may be obtained.

NORTH-EAST LONDON POST-GRADUATE COLLEGE

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from BROWNING ALEXANDER, M.D., Dean.

BRITISH POSTGRADUATE MEDICAL SCHOOL

(UNIVERSITY OF LONDON)

A LECTURE will be given by

DR. K. BLOME*Commissioner for Postgraduate Medical Education in Germany, President of the Bureau of the International Academy for Postgraduate Medical Education.*

on

THE ORGANISATION OF POST-GRADUATE MEDICAL EDUCATION IN GERMANY

on

Friday, November 4th, 1938, at 4.30 p.m.

These lectures are for regular students of the School, but a limited number of tickets are available, without fee, for medical practitioners. Applications for tickets should be addressed to:—THE DEAN, BRITISH POSTGRADUATE MEDICAL SCHOOL, DUCANE ROAD, W. 12.

DEPARTMENT OF SURGERY

A COURSE OF LECTURES will be given by
MR. G. C. KNIGHT, F.R.C.S.

on

SURGERY OF THE SYMPATHETIC SYSTEM

on

October 28th, November 4th and 11th, 1938.
at 2.30 p.m.

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- "Guide to the M.D. (London)."
- "Guide to the D.P.M. Examinations."
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Any of the above will be sent post free on application

Leaflets dealing with the following examinations have also been prepared and will be sent post free on application.

- "Diploma in Child Health."
- "Diploma in Anaesthetics."
- "Diploma in Radiology."
- "Diploma in Laryngology."
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M.B. SURGERY

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or Private Coaching by arrangement by M.D., M.R.C.P., F.R.C.S. Also Conjoint Classes, commencing November. Address No. 9366, B.M.A. House, Tavistock Sq., or phone (mornings) Kensington 2450

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN (University of London.)

Applications are invited from medical graduates for the appointment of CURATOR of the ANATOMICAL MUSEUM, to give two half-days each week throughout the academic terms, beginning on appointment.

Applications should be sent by Wednesday, October 19th, to the undersigned, from whom further particulars can be obtained.

NANCIE MOLLER,

S. Hunter Street, Warden and Secretary.
Brixwick Square, W.C.1.

THE WARWICKSHIRE AND COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS.

KING EDWARD VII MEMORIAL SANATORIUM,
Hertford Hill, near Warwick.

Applications are invited for the post of JUNIOR ASSISTANT MEDICAL OFFICER (man or woman) at the Memorial Sanatorium, near Warwick, of 225 beds.

The salary will be at the rate of £250 per annum, with board, lodging, and laundry in addition, and the successful candidate will be appointed for six months.

There are three other Medical Officers at the Sanatorium.

Applications, with copies of testimonials, should be forwarded direct to the Medical Superintendent at the Sanatorium, to reach him by not later than Thursday, October 20th, 1938.

Shire Hall, L. **EDGAR STEPHENS,**

Warwick. Clerk of the Joint Committee
October 3rd, 1938.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners with appropriate qualifications for two appointments as ASSISTANT PATHOLOGIST at Group Laboratories in the Council's pathological service. Salary £650-£25-£800.

Candidates should have special experience in one or more branches of pathology in relation to the diagnosis and treatment of disease.

Forms of application and further particulars (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 2), County Hall, Westminster Bridge, S.E.1., returnable by October 31st.

Canvassing disqualifies.

HULL CORPORATION HEALTH DEPARTMENT.

ASSISTANT MEDICAL OFFICER OF HEALTH (Female).

Applications are invited from duly qualified unmarried or widowed medical women, under the age of 40 years, and of not less than three years' standing in their profession, for the post of Assistant Medical Officer of Health.

Salary £600 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700.

The duties consist mainly of work in the Maternity and Child Welfare Department, the School Medical Service, and the Tuberculosis Department.

Candidates must have had special experience in Paediatrics, and preference will be given to those possessing the Diploma in Public Health, or similar qualification, and to those with experience in a children's hospital.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on forms to be obtained from the undersigned, are returnable not later than 10 a.m. on Thursday, October 20th, 1938.

NICOLAS GEBBIE, M.D.,

Health Department, Medical Officer of Health,
Guildhall, Hull
October, 1938.

COUNTY BOROUGH OF BIRKENHEAD. DEPARTMENT OF THE MEDICAL OFFICER OF HEALTH.

BIRKENHEAD MUNICIPAL HOSPITAL. (560 Beds.)

SENIOR RESIDENT MEDICAL OFFICER.

Applications are invited for the above appointment at the Birkenhead Municipal Hospital.

Candidates must be male, unmarried, and duly qualified registered medical practitioners. As the duties are almost entirely of a medical nature preference will be given to candidates who have obtained higher qualifications in medicine and who have had previous medical experience at either a Voluntary or Municipal Hospital.

The appointed candidate will be a member of the staff of the Medical Officer of Health.

The remuneration attached to the appointment will be £350 per annum, rising by annual increments of £25 to a maximum of £450 per annum, together with board, residence, laundry, etc.

The appointment is subject to the Local Government and Other Officers' Superannuation Act, 1922, and is determinable by three calendar months' notice on either side.

Forms of application and further particulars relating to this appointment can be obtained from Dr. D. Morley Mathieson, Medical Officer of Health, 9, Hamilton Square, Birkenhead.

Canvassing, directly or indirectly, will disqualify the applicant.

Applications, endorsed "Senior Resident Medical Officer," should reach the undersigned not later than Saturday, October 22nd, 1938.

Town Hall, E. W. TAME,
Birkenhead Town Clerk.

CITY OF PLYMOUTH. CITY GENERAL HOSPITAL. (570 Beds.)

Applications are invited from duly qualified and registered Medical Practitioners for the post of JUNIOR ASSISTANT MEDICAL OFFICER.

Salary at the rate of £250 per annum, with full residential emoluments. All fees received by the Officer must be refunded to the Council.

The appointment will be for a period of six months in the first instance, and renewable for a further period of six months, and will be terminable by one month's notice on either side.

The duties of the post will be largely on the surgical side of the Hospital.

Further details may be obtained from the Medical Superintendent.

Forms of application may be obtained from the undersigned and should be forwarded, together with copies of not more than three recent testimonials, not later than October 24th, 1938.

Town Hall, Medical Officer of Health,
Stonehouse, Plymouth.

LONDON COUNTY COUNCIL. INFECTIOUS HOSPITALS.

Applications invited from Medical Practitioners of at least one year's standing for appointment as assistant medical officers, grade II, at various hospitals for infectious diseases. Salary £250 a year, together with board, lodging, and washing. Experience in a resident appointment in a general hospital for at least six months desirable. Appointments are for one year only in the first instance (renewable for a second year under conditions).

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division, 2A), County Hall, S.E.1, returnable by October 21st. Canvassing disqualifies.

MIDDLESEX COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT, 10, Great George Street, Westminster, S.W.1.

Additional ASSISTANT MEDICAL OFFICER OF HEALTH required. Must be medical practitioner with degree or diploma in Sanitary Science, Public Health, or State Medicine; previous hospital appointments, good knowledge of clinical medicine and public health organization, and practical experience in public health administration essential.

Pensionable staff, subject to medical examination. Salary £800-£50-£1,000 p.a., and reasonable out-of-pocket travelling expenses.

Duties on central staff under supervision and control of County Medical Officer. Whole-time duties—no other appointments or private practice permitted.

DENTAL ANAESTHETISTS required for duties as and when required at school dental clinics in Friern Barnet, Wembley, South Harrow, Hayes, Southall, Uxbridge, and Staines. Must be registered medical practitioners with special knowledge and experience in administration of dental anaesthetics.

Fee £1 11s. 6d. for 1½-hour session approximately weekly and arranged as far as possible to suit anaesthetists' convenience.

Apply for either post to the undersigned by October 29th, 1938, giving age, qualifications, and special experience, and copies of not more than three recent testimonials. Endorse envelopes either "Asst. C.M.O." or "Dental Anaes."

Canvassing, directly or indirectly, disqualifies.

C. W. RADCLIFFE, "Z."

Guildhall, Clerk of the County Council,
Westminster, S.W.1.

SURREY COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT.

EPSOM COUNTY HOSPITAL (330 Beds).

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of Resident Assistant Medical Officer at the Epsom County Hospital. Applicants should preferably have had previous resident hospital experience and have had postgraduate experience in maternity work, minor surgery, and anaesthetics.

The appointment is for a period of six months, renewable for a further period of six months, and the salary is at the rate of £250 per annum, together with full residential emoluments valued at £125 per annum.

Applications, stating age, qualifications, and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the Medical Superintendent, Epsom County Hospital, Dorking Road, Epsom, so as to be received not later than October 19th, 1938.

County Hall, DUDLEY AUKLAND,
Kingston-upon-Thames, Clerk of the Council.
October 10th, 1938.

LANCASHIRE COUNTY COUNCIL.

WHISTON COUNTY HOSPITAL, near Prescot.

APPOINTMENT OF RESIDENT MEDICAL OFFICER.

Applications are invited for the appointment of Resident Medical Officer (unmarried) at the Whiston County Hospital, near Prescot (500 beds).

Applicants must have held previous hospital appointments in which they have gained experience in clinical medicine and pathology, and they should hold one of the higher medical qualifications.

The salary is at the rate of £400 per annum, together with the usual residential emoluments. The appointment is for a period of one year in the first instance, but may be renewed for a further period of one year.

Forms of application may be obtained from the County Medical Officer of Health, Hospital and Medical Department, County Offices, Preston, to whom all applications must be returned not later than October 31st, 1938.

County Offices, GEORGE ETHERTON,
Preston, Clerk of the County Council.
October 10th, 1938.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (grade I).—Salary £350-£25-£425, with board, lodging, and washing.

(a) PADDINGTON HOSPITAL, Harrow Road, W.9

(b) HACKNEY HOSPITAL, Homerton High Street E.9.

Obstetrical and gynaecological experience essential (both positions).

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division, 2A), County Hall, S.E.1, returnable by October 28th. Canvassing disqualifies.

COUNTY BOROUGH OF HASTINGS

PUBLIC HEALTH DEPARTMENT.

DEPUTY MEDICAL OFFICER OF HEALTH. DEPUTY SCHOOL MEDICAL OFFICER, etc.

The Council invite applications for the appointment of Deputy Medical Officer of Health and Deputy School Medical Officer (male or female) at a salary of £650 per annum, rising by annual increments of £25 to £700 per annum, with an allowance of £85 per annum for use of motor car and other local travelling expenses.

Applicants must be medical men or women, under 40 years of age, holding a special qualification in State Medicine or a Diploma in Public Health, with not less than three years' experience after qualifying.

Preference will be given to applicants who have had experience of Public Health Administration and school medical work, including refractive, infectious diseases, and other branches of public health work, and have held a resident hospital appointment.

The person appointed will work under the direction and control of the Medical Officer of Health, acting as his deputy, and, while mainly employed in the School Medical Service or in Maternity and Child Welfare Work, will be required to assist in any Department of the Health and/or Medical Services of the Corporation.

The person appointed will be required to reside within the Borough of Hastings, to devote the whole of his or her time to the duties of the office, to contribute to the Council's Superannuation Scheme, and to pass a medical examination.

Canvassing will be a disqualification.

Applications, on forms to be obtained from the undersigned, must be addressed to me endorsed "Deputy Medical Officer" and delivered at the Town Hall, Hastings, not later than Saturday, October 22, 1938.

D. W. JACKSON,
Town Clerk.

COUNTY BOROUGH OF WEST HAM

EDUCATION DEPARTMENT.

Applications are invited from fully qualified Dentists (male) for appointment as SENIOR SCHOOL DENTAL OFFICER. The person appointed will be responsible to the School Medical Officer, and will be required to devote the whole of his time to the service of the Education Committee, to co-ordinate and supervise the work of the existing dental staff, and also to undertake clinical work. Salary £550 per annum, rising by annual increments of £25 to a maximum of £675 per annum, all fees received from whatever source to be paid over to the Council.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Acts and to medical examinations as required by the Council for the purposes of the Acts, and the statutory contributions will be deducted from the salary.

Canvassing members of the Education Committee or the Council, either directly or indirectly, will be considered a disqualification.

Forms of application, together with particulars of duties, may be obtained from the School Medical Officer, Municipal Health Offices, 83, Strand Road, E.15, upon receipt of a stamped addressed envelope, and should be returned to the undersigned not later than Saturday, October 22nd, 1938.

CHARLES E. CRANFIELD,
Town Clerk and Education Officer.
Education Offices,
95, The Grove, Stratford, E.15.
October 1st, 1938.

COUNTY BOROUGH OF DEWSBURY

DEPUTY MEDICAL OFFICER OF HEALTH and DEPUTY SCHOOL MEDICAL OFFICER

Applications are invited from duly qualified and registered medical practitioners for the post of Deputy Medical Officer of Health and Deputy School Medical Officer.

Applicants should have had at least three years' experience since qualification and possess a D.P.H. The duties include general Public Health, School Medical work (including refractive, Child Welfare, and Tuberculosis).

The salary is £600 per annum, rising by annual increments of £25 to a maximum of £675 per annum. A motor-car allowance of £50 per annum. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Particulars of the duties and terms and conditions of the appointment, together with application forms, may be obtained from Dr. J. F. Galloway, Medical Officer of Health, Public Health Department, Municipal Buildings, Halifax Road, Dewsbury, to whom applications, accompanied by copies of not more than three recent testimonials, should be delivered not later than Monday, October 17, 1938.

Canvassing in any form will be a disqualification.
Town Hall, HOLLAND BOOTH,
Dewsbury, Town Clerk.
October 10th, 1938.

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in January, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list, and periods of unemployed or half pay are very rare. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than November 21st, 1938.

ROYAL NAVAL DENTAL SERVICE

Applications are invited for appointment to commissions as DENTAL OFFICERS in the ROYAL NAVY.

Candidates, who must be British subjects below the age of 28 years, must hold the degree or diploma of a British University or College of Surgeons, and be registered under the Dentists Acts or Medical Acts. Unmarried candidates are preferred. No examination in professional subjects will be held, but candidates will be required to attend at the Admiralty for interview, and for physical examination as to their fitness for service in any part of the world.

Successful candidates will be appointed to short service commissions as Surgeon Lieutenants (D) and will receive a grant of £50 towards the cost of providing the necessary uniform on entry. Vacancies in the permanent list will be filled by selection from among officers holding short service commissions who desire to make the Royal Naval Dental Service their permanent career. Officers not transferred to the Permanent List will, on the termination of their short service commission after six years' service, be eligible for a gratuity of £1,000.

Opportunities are available for officers on the permanent list for post-graduate study. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances. Naval Dental Officers are included in the Scheme for Marriage Allowance under the same conditions as for other Naval Officers.

Application Forms and copies of the regulations for entry and conditions of service, rates of pay and allowances, etc., may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of Dental Schools.

CITY OF BIRMINGHAM.

Maternity and Child Welfare Department.

Canwell Hall Babies' Hospital. (84 Beds.)

A WOMAN RESIDENT MEDICAL OFFICER is required for a period of six months. Duties to commence on December 6th.

Applicants should have had previous experience as a resident house physician, preferably in a Children's Hospital.

Salary £250 per annum, with board and laundry. Applications, endorsed "Resident Medical Officer," and accompanied by copies of three recent testimonials, to be made on a form obtainable from the Medical Officer of Health, Council House, Birmingham, 3, and returned to him on or before October 26th.

SOUTHERN RHODESIA MEDICAL SERVICE GOVERNMENT MEDICAL OFFICER.

Applications are invited from fully qualified, unmarried, male Medical Practitioners with surgical experience for appointment as a Government Medical Officer in the Southern Rhodesia Medical Service.

Salary will be on the scale £600-£25-£750 per annum. There is also a senior grade (£750-£25-£900) to which promotions are made as vacancies occur. Salary will commence from the date of assumption of duty in Southern Rhodesia. In addition, private practice is allowed.

The successful applicant will be required to sign an agreement for three years' service. In the first instance, and thereafter may make application to be placed on the pensionable establishment.

A free second-class steamship passage to Cape Town and first-class railway ticket thence to Southern Rhodesia will be provided.

Candidates, either directly or indirectly, will disqualify applicants.

The applicants should state the date on which they would be prepared to leave England if appointed.

Applications, stating age, qualifications, and experience, together with copies of testimonials, should reach the Official Secretary, Office of the High Commissioner for Southern Rhodesia, Rhodesia House, 429, Strand, London, W.C.2 (from whom further particulars and application form may be obtained), not later than October 24th, 1938.

COUNTY BOROUGH OF EASTBOURNE.

ST. MARY'S MUNICIPAL HOSPITAL.
RESIDENT HOUSE SURGEON.

Applications are invited from unmarried registered Medical Practitioners for appointment as Resident House Surgeon at the above Hospital.

Salary £150 per annum, with board, residence, etc. The appointment is for twelve months, determinable at any time by one month's notice.

Application forms, together with conditions of appointment and duties, can be obtained from the undersigned. The application form, when completed, should be returned to me not later than October 28th, 1938.

W. G. VILLOUGHBY,
Medical Officer of Health.
The Avenue, Eastbourne.

BUCKINGHAMSHIRE COUNTY COUNCIL. ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited from registered Medical Practitioners, not over 40 years of age, holding a reasonable qualification in Public Health, Sanitary Science, or State Medicine, to act as Assistant County Medical Officer of Health and Assistant School Medical Officer of Health.

The duties will pertain mainly to School Medical Inspection and Maternity and Child Welfare work, but there will be opportunities for the investigation of sanitary conditions generally.

The salary is £500 per annum, rising, subject to satisfactory service by annual increments of £25 to a maximum of £700 per annum.

The successful applicant will be required to pay contributions under the Local Government and Other Officers' Superannuation Act, 1922, and to pass a medical examination as to physical fitness, the final appointment being subject thereto.

Particulars and conditions of the appointments are set out on the form of application, which can be obtained from the undersigned.

Applications, on the prescribed form, accompanied by copies of not more than three recent testimonials, which will not be returned, should be addressed to the Clerk of the Bucks County Council and delivered at the County Hall, Aylesbury, not later than 3.15 p.m. on Friday, October 28th, 1938, marked "Assistant Medical Officer."

County Hall, Aylesbury. GUY R. CROUCH,
Clerk of the Bucks County Council.

SWANSEA COUNTY BOROUGH. RESIDENT MEDICAL OFFICER.

HILL HOUSE INFECTIOUS DISEASES HOSPITAL.

The Council invite applications for the above appointment from duly qualified unmarried (male) Medical Practitioners. The salary will be at the rate of £350 per annum, together with emoluments. Previous experience in an Infectious Disease Hospital is desirable. The appointment is for one year.

Applications (on special forms with particulars of duties) can be obtained from the Medical Officer of Health, Public Health Office, Swansea, to be sent in not later than Wednesday, October 19th, 1938.

ESSEX COUNTY COUNCIL.

JUNIOR ASSISTANT MEDICAL OFFICER.

The County Council of the Administrative County of Essex invite applications for the appointment of Junior Assistant Medical Officer at the Black Notley Sanatorium, near Braintree.

This sanatorium contains 300 beds for the treatment of pulmonary and non-pulmonary tuberculosis in men, women, and children, and possesses all modern facilities for diagnosis and treatment, and a staff of visiting specialists.

The appointment is limited to a period of one year, and the salary will be at the rate of £250 per annum, together with board, lodging, and laundry. The successful applicant will be required to pass a medical examination, and will be subject to the Council's Sick Pay Rules and Regulations, a copy of which will be forwarded on application.

Preference will be given to candidates who have held an appointment as House Surgeon with orthopaedic experience.

Applications, in candidate's own handwriting, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials (which will not be returned), should be addressed to me and delivered at the County Hall, Chelmsford, not later than 10 a.m. on Thursday, October 27th, 1938.

County Hall, Chelmsford, E. S. HOLCROFT,
Clerk of the County Council.
October 10th, 1938.

COUNTY BOROUGH OF DERBY.

DERBY CITY HOSPITAL.

ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Assistant Resident Medical Officer (male) at the above Hospital of 300 beds. This Hospital provides treatment for acute medical and surgical cases, obstetrics, and children's diseases, etc.

Candidates must be registered in medicine and surgery.

The appointment is for a period of six months; two months' notice of termination of duties may be given on either side. The successful applicant will be required to commence duties as soon as possible.

Salary at the rate of £200 per annum, with board and residence.

Applications, stating age, experience, and accompanied by three recent testimonials, should be sent to the undersigned as soon as possible.

GORDON LILICO,
Medical Officer of Health.

Public Health Department,
1, Derwent Street, Derby.

CITY OF MANCHESTER.

WITHINGTON HOSPITAL. (1,184 Beds.) (Recognized under the Regulations for the F.R.C.S.)

The Public Health Committee invites applications from registered Medical Practitioners for the post of assistant to the RESIDENT OBSTETRICAL OFFICER—Grade II—at the above-named hospital. The salary for the appointment is £250 per annum, with board, residence, and laundry in addition, subject to the Manchester Corporation conditions of service.

The appointment will be made in the first instance for a period of six months, renewable for a further six months, but not renewable thereafter.

Full information and forms of application may be obtained from the Medical Officer of Health, Town Hall, Manchester, 2, and applications for the post must be received by him not later than Monday, October 24th, 1938.

Town Hall, Manchester, 2, R. H. ADCOCK,
October 11th, 1938. Town Clerk.

ROYAL SURREY COUNTY HOSPITAL,

Guildford.

WANTED, NOVEMBER 1st. HOUSE PHYSICIAN AND CASUALTY OFFICER (Male).

Six months' appointment—recognized for M.D. examination. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age and essential particulars, with copies of not more than three testimonials, to reach the Secretary-Superintendent not later than first post on Wednesday, October 26th.

ROYAL SUSSEX COUNTY HOSPITAL,

Brighton (272 Beds.)

CASUALTY HOUSE SURGEON (male) required as soon as possible. Salary £120 p.a., with board, residence and laundry. Candidates must hold medical and surgical qualifications of the British Empire and be duly registered under the Medical Act. They must be unmarried and when elected under 30 years of age.

Applications, with copies of recent testimonials, to be forwarded to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

MUNICIPALITY OF SINGAPORE.

Straits Settlements.

APPOINTMENT OF ASSISTANT HEALTH OFFICERS.

The Municipal Commissioners of Singapore require two Assistant Health Officers (male) for their permanent staff, the appointments being in the first instance on a three-years' agreement. The services of one will be required on January 1st, 1939, and the second early in March, 1939.

Candidates must be British subjects and must hold the qualifications in Medicine and Surgery of a recognized British Medical School, and registrable in the Straits Settlements.

The appointments will be in Class III of the Municipal Salary Scheme for Senior Officers, viz.: \$4,800 p.a. rising by annual increments of \$300 to \$7,200 p.a., and thereafter by annual increments of \$480 to \$9,600 p.a. The minimum salary for a candidate in possession of the Diploma in Public Health will be \$6,000 p.a. and a higher commencing salary up to, but not exceeding \$7,200 p.a. may be paid to a candidate according to experience.

In no case will any successful candidate be eligible for promotion above Class III in the department unless he is in possession of a registrable Diploma in Public Health.

Free 2nd Class passage will be granted with half salary during the voyage out.

An allowance for duty transport will be granted.

The selected candidates must pass a medical examination as to their fitness for service in the tropics, and will be required to join the Provident Fund.

A knowledge of mosquitoes and anti-mosquito work is desirable.

Applications, stating whether married or single, giving age and place of birth, with details of education, training and experience generally, accompanied by copies (not originals) of not more than three recent testimonials, to be lodged with Messrs. PERCE AND WILLIAMS, Chartered Civil Engineers, 1, Victoria Street, Westminster, S.W.1, Agents to the Commissioners, not later than October 31st, 1938.

Further particulars, if required, can be obtained from the Agents.

METROPOLITAN BOROUGH OF HAMMERSMITH.

DEPUTY MEDICAL OFFICER OF HEALTH AND TUBERCULOSIS OFFICER.

Applications are invited from gentlemen not exceeding 40 years of age for the appointment of Deputy Medical Officer of Health and Tuberculosis Officer for the Borough of Hammersmith.

The salary attaching to the appointment is £750 per annum, rising by annual increments of £50 to a maximum of £1,000.

Candidates must possess the Diploma of Public Health as well as the qualifications prescribed by the Local Government (Qualifications of Medical Officers and Health Visitors) Regulations, 1930, with experience in a sanatorium or other tuberculosis institution, or otherwise in whole-time work in relation to tuberculosis. They should be experienced in artificial pneumothorax treatment.

The gentleman appointed will be required to devote his whole time to the duties of the office. He will be required to assist in the general work of the Public Health Department and to perform the duties of the Tuberculosis Officer under the direction and supervision of the Medical Officer of Health. He must be prepared to attend the meetings of the Council and such Committees as are directly concerned with the work of the Public Health Department.

The appointment will be subject to the provisions of the Council's Superannuation Scheme, and the successful applicant will be required to pass a medical examination.

Applications, on forms to be obtained from the undersigned, accompanied by copies of not more than three recent testimonials, must be delivered at the Town Hall, Hammersmith, W.6, in envelopes endorsed "Deputy Medical Officer of Health," not later than October 31st, 1938.

Canvassing will be a disqualification.
Town Hall, Hammersmith, W.6, HUGH ROYLE,
October, 1938. Town Clerk.

WILSON HOSPITAL, MITCHAM, SURREY.

(72 Beds.)

RESIDENT MEDICAL OFFICER, male or female, required from November 24th next. Salary £150 per annum, with board, residence, and laundry.

The appointment is for six months, renewable for a further six months at the discretion of the Committee.

The Hospital is quite modern and exceptionally well equipped, and carries out work of a character which gives the Resident Medical Officer a considerable amount of experience.

Applications, with copies of three testimonials, stating age, qualifications, and experience (particularly anaesthetics), should be sent at once to the Hon. Secretary, "Greenview," Lower Green, Mitcham.

STAFFORDSHIRE COUNTY COUNCIL.

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited from medical men holding the Diploma of Public Health for the above post. Candidates should have had at least three years' experience in the practice of their profession subsequent to qualification. Preference will be given to those who have held residential hospital appointments.

The person appointed will work under the direction of the County Medical Officer and the duties of the office will include school medical and maternity and child welfare work, in addition to such general public health work as may from time to time be prescribed.

The salary will be at the rate of £500 per annum, rising by annual increments of £25 to £700 per annum, subject to a deduction of 5 per cent, established under the Local Government and Other Officers' Superannuation Act, 1922.

The successful candidate will be required to undergo a medical examination and to produce a birth certificate.

The appointment will be subject to three calendar months' notice on either side.

Forms of application may be obtained from the undersigned and should be returned by first post on October 27th, 1938, together with copies of not more than three testimonials.

Candidates must state in their applications whether or not they are in any way related to a member of the County Council.

Canvassing, either directly or indirectly will be a disqualification.

Candidates receiving no reply by November 12th, 1938, may assume the vacancy to be filled.

H. L. UNDERWOOD,

Clerk of the County Council.
County Buildings,
Stafford.
October 10th, 1938.

THE CHILDREN'S HOSPITAL,

King Edward VII Memorial, Birmingham, 16.

PATHOLOGIST.

The Board of Management invites applications for a whole-time Pathologist. Applicants must be registered Medical Practitioners.

The appointment is non-resident, and in the first instance is made for three years.

The commencing salary is at the rate of £600 to £700 per annum, according to the experience of the applicant. The appointment is subject to confirmation at the end of three years, when the salary will be at the rate of £750 per annum, then by £50 a year to £1,000.

Applications, stating age and qualifications, together with copies of testimonials, to be sent to the undersigned by November 7th, 1938. If duties to commence January 2nd, 1939.

By Order,

HAROLD F. SHRIMPTON,
House Governor and Secretary.
October 5th, 1938.

PRINCESS ALICE HOSPITAL, EASTBOURNE

(Voluntary General Hospital—120 Beds) Two House Surgeons.

RESIDENT HOUSE SURGEON required on November 1st. Salary at the rate of £150 per annum, with board and laundry. Applications, accompanied by copies of three recent testimonials, should be sent to the undersigned by first post on Wednesday, October 19th, 1938.

W. RUSSELL RUDALL, Secretary.

THE LADY CHICHESTER HOSPITAL

(INCORPORATED). Hove, Brighton. (60 Beds)

Applications are invited for the post of HONORARY ASSISTANT PHYSICIAN to outpatients. One day a week. Annual appointment. Applications, with testimonials, to the Secretary, Mr. P. F. SPOONER, 33, West Street, Brighton, October 11th, 1938.

EVELINA HOSPITAL FOR SICK CHILDREN,

Southwark, S.E.1.

Applications are invited for the post of HOUSE PHYSICIAN (male) for six months (first two months in the Casualty and Out-patient Department). Salary at the rate of £120 per annum, with board and residence.

Applications, with copies of three recent testimonials, should be sent at once to the undersigned, from whom particulars can be obtained.

W. H. SIDNELL, House Governor.

KING EDWARD MEMORIAL HOSPITAL

Ealing. (145 Beds)

Applications are invited for the appointment of CONSULTING PHYSICIAN FOR DISEASES OF CHILDREN.

Particulars may be obtained from the undersigned.
-R. A. MICKELWRIGHT,
House Governor.

THE HOSPITAL FOR SICK CHILDREN.

Great Ormond Street, London, W.C.1.

A RESIDENT AURAL REGISTRAR is required, duties to commence not later than December 1st, 1938.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Monday, October 31st, 1938, with copies of not more than three testimonials given specially for the purpose.

The appointment will be made for one year, but the holder may be re-elected for a further period of one year. Salary £150 per annum, laundry allowance £10, board and residence in the Hospital. The duties will be those of House Officer to the Aural In-patients, and of Registrar in assistance in the Aural Out-patient Department. Opportunities will be afforded for acquiring operative experience.

Candidates must be unmarried and possess a legal qualification to practise, and must have held a responsible resident appointment at a General Hospital.

All candidates must be in attendance to appear before the Joint Committee of the Hospital on Wednesday, November 2nd, 1938, at 4.45 p.m. precisely.

Forms of application and copies of the Rules can be obtained from the undersigned.

HERBERT F. RUTHERFORD,

October, 1938.

Secretary.

THE WILLESDEN GENERAL HOSPITAL,

Harlesden Road, N.W.10.

ASSISTANT SURGICAL OFFICER.

The Council of Management invite applications for the appointment of Assistant Surgical Officer of the Hospital. Candidates must be Fellows of the Royal College of Surgeons of England and shall not be engaged in general practice. An honorarium at the rate of £50 per annum is attached in the appointment.

Six copies of application, with names of referees (testimonials must be sent to be received not later than 9 a.m. on Monday, October 24th, 1938, by the Secretary of the Hospital, from whom a copy of the Regulations may be obtained upon written application.

October 10th, 1938.

THE ROYAL CANCER HOSPITAL (FREE)

(Incorporated under Royal Charter),
Fulham Road, London, S.W.3.

The Committee are prepared to receive applications for the post of ASSISTANT PATHOLOGIST to the Hospital.

Experience in Clinical Pathology is essential. Salary £500 per annum.

The appointment is subject to rules, a copy of which can be obtained from the Secretary.

Applications, to be made on a form which will be supplied by the Secretary, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary not later than Monday, October 17th, 1938.

CLEMENT COBOLD,

Secretary.

THE LONDON LOCK HOSPITAL.

Applications are invited for an appointment of SURGICAL REGISTRAR (male) to the Lock Hospitals at Dean Street (men) and Harrow Road (women). Candidates must be Fellows (or Members) of the Royal College of Surgeons of England, or Surgical Graduates of a University of the United Kingdom. Preference will be given to candidates having previous obstetrical experience. The appointment is for one year in the first instance, commencing November 7th. Honorarium at the rate of £100 p.a.

Applications, with three copies of testimonials, must be in the hands of the Secretary not later than October 25th, from whom copies of the laws relating to the appointment can be obtained.

283, Harrow Road, W.9.

October 7th, 1938.

THE LONDON LOCK HOSPITAL.

283, Harrow Road, W.9.

Applications are invited for a RESIDENT MEDICAL OFFICER (male) to ALL DEPARTMENTS: Candidates must be doubly qualified and duly registered. The appointment is for six months commencing December 1st. Salary at the rate of £120 p.a., with room, board, and laundry. Preference will be given to candidates having previous obstetrical experience.

Applications, enclosing copies of three recent testimonials, must be in the hands of the Secretary (from whom further particulars can be obtained) by first post on Friday, October 28th.

THE INFANTS HOSPITAL.

Vincent Square, Westminster, S.W.1.

Applications are invited for the post of HONORARY ANAESTHETIST to attend on Monday afternoon. An honorarium of £25 per annum will be paid in respect of the appointment.

Particulars of the appointment, and information as to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications must be delivered not later than October 25th.

ARNOLD TUNSTALL, Secretary.

WEST LONDON HOSPITAL.

Hammersmith, W.6. (239 Beds.)

CHIEF ASSISTANT to the Department for TREATMENT OF INJURIES required. The post is a resident one and the duties commence on November 1st. Salary at the rate of £200 a year, with board and lodging. Candidates must be duly qualified registered Medical Practitioners, and it is desirable that they should possess one of the higher Surgical Degrees or Diplomas. They must have had special experience in the treatment of fractures.

The appointment, which is terminable by month's notice on either side, will be for a period of six months in the first instance, but this period may be extended.

Applications, which must be made on printed forms obtained from me, must reach me not later than first post on Thursday, October 20th. Candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at a Medical Council Meeting at 4.30 p.m. on Friday, October 28th, and the House Committee Meeting at 5 p.m. the same day, when the appointment will be made.

H. A. MADGE, Secretary.

THE SAMARITAN FREE HOSPITAL FOR WOMEN.

Marlystone Road, N.W.1.

Applications are invited for the post of HOUSE SURGEON for a period of six months, commencing November 15th next. Salary at the rate of £100 per annum, with board, lodging, and laundry. Previous experience as House Surgeon essential.

Applications, stating age, accompanied by copies of testimonials, should be sent to the Secretary at the Hospital on or before Thursday noon, October 27th, 1938.

G. H. HAWKINS,

Secretary.

THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN,

Waterloo Road, S.E.1.

HONORARY ASSISTANT PHYSICIAN.

There is a vacancy for an Hon. Assistant Physician at the above Hospital. The candidate should be a Fellow or Member of the Royal College of Physicians and a graduate of a University recognized by the General Medical Council.

Applications, accompanied by three testimonials, should be sent to the undersigned, of whom further particulars can be obtained, not later than October 25th, 1938.

J. H. TEASDALE, Secretary.

THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN,

Waterloo Road, S.E.1.

RESIDENT MEDICAL OFFICER.

There is a vacancy for a Resident Medical Officer at the above Hospital. The appointment is in the first instance for a period of six months, salary at the rate of £150 per annum, with board and residence.

Applications, with copies of testimonials, should be forwarded not later than Friday, October 21st, to the Secretary at the above address, from whom further particulars can be obtained.

THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.

Waterloo Road, S.E.1.

There will be a vacancy on November 1st, 1938, for a HOUSE PHYSICIAN (male) at the above Hospital. The appointment is in the first instance for a period of six months. Salary at the rate of £100 per annum, with board and residence.

Applications, with copies of testimonials, should be forwarded not later than Friday morning, October 21st, to the Secretary at the above address, from whom further particulars can be obtained.

METROPOLITAN HOSPITAL.

Kingsland Road, E.8.

APPOINTMENT OF SECOND GYNAECOLOGIST.

Applications are invited for the above post. Candidates must be Fellows of the Royal College of Surgeons, England.

Applications (twenty-four copies), with recent testimonials, must be received by the 21st instant, addressed to the undersigned, from whom further particulars may be obtained.

FRANK JENNINGS,
House Governor and Secretary.

THE WEIR HOSPITAL.

Weir Road, Balham, S.W.12.

(30 Beds.)

SENIOR RESIDENT MEDICAL OFFICER (male, unmarried) required the middle of October. Salary £250 per annum, with board, residence, and laundry. Candidates must be fully qualified and duly registered.

Applications, with copies of three testimonials, to be sent to the Secretary, from whom further information may be obtained.

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES, London, W.9.

RESIDENT MEDICAL OFFICER required

HOUSE PHYSICIAN required November 1st. Salaries are at the rate of £150 and £100 p.a. respectively, and the appointments are for six months. Candidates for the post of R.M.O. should state if they are willing to take that of H.P.

Applications, accompanied by copies of three recent testimonials, should reach me by October 15th. The accommodation at the Hospital does not permit of women graduates holding these appointments.

L. C. DIXON,
Secretary and General Superintendent.

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN.

St. Quintin Avenue, North Kensington, W.10.
(Ladbroke 0133)

The Board of Management invite applications for the post of PHYSICIAN-IN-CHARGE of the Child Guidance Clinic. Applicants must hold the D.M.S. and must have had practical experience in a Child Guidance Clinic.

Applications, accompanied by copies of three testimonials, should be sent to the undersigned at the Hospital, from whom any further information can be obtained, and should reach him not later than October 25th, 1938.

H. J. ELEY, Secretary.

ST. MARY'S HOSPITAL, W.2.

CASUALTY HOUSE SURGEON

Applications are invited for the above post from duly qualified candidates. Candidates must have been House Surgeons for a period of six months in this Hospital, or to some other General Hospital approved by the Board.

The salary is £100 per annum, with board and residence, and the appointment is for six months. Application, with copies of testimonials not exceeding three in number, should reach the undersigned (from whom particulars may be obtained) on or before Tuesday, October 18th, 1938.

W. PARKES, House Governor.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST,

Brompton, S.W.3

The Committee of Management give notice that there will be two vacancies in the office of PHYSICIAN to the Hospital on November 30th, 1938. Intending applicants, who must be Fellows or Members of the Royal College of Physicians of London, should address applications, accompanied by copies of testimonials, not later than Monday, November 7th, to the undersigned.

Two Assistant Physicians to the Hospital are candidates for the posts.

F. C. ROUVRAY,
October, 1938. Secretary.

THE RADCLIFFE INSTITUTE AND MOUNT VERNON HOSPITAL,

1, Riding House Street, London, W.1

A HOUSE SURGEON is required immediately at the Mount Vernon Hospital, Northwood. The appointment will be made for six months at a salary at the rate of £150 per annum, with board and residence.

Applications should be sent at once to the undersigned at the above address.

T. A. GARNER, Secretary.

LONDON CHEST HOSPITAL,

Victoria Park, E.2.
(Bus Tram, and Rail, N.E.R. Cambridge Heath Station.)

The Committee of Management invite applications for the post of ASSISTANT SURGEON. An Honorarium is attached to the post.

Applications should be forwarded to the undersigned on or before October 31st, 1938.

THOMAS BROWN,
Secretary

LONDON HOSPITAL, E.1.

There is a vacancy for the post of CLINICAL ASSISTANT in the X-Ray Department. Candidates must be fully qualified medically. Experience in Radiology is essential. The Honorarium of the post is £100 per annum.

Applications, with testimonials, should be sent to the House Governor, and should arrive not later than Saturday, October 22nd.

ARTHUR G. ELLIOTT,
House Governor.

KING'S COLLEGE HOSPITAL,

London, S.E.5.

Applications are invited for the post of ASSISTANT OPHTHALMIC SURGEON. Particulars may be obtained from the House Governor, to whom applications (accompanied by copies of three testimonials) should be sent not later than October 31st.

CEFN COED HOSPITAL, SWANSEA. (Swansea County Borough Mental Hospital.)

DEPUTY MEDICAL SUPERINTENDENT.

Applications are invited for the above post from registered Medical Practitioners (male) whose ages do not exceed 45 years.

Candidates must have previous Mental Hospital experience, and must hold a Diploma in Psychological Medicine. Preference will be given to those who have experience as House Surgeon or House Physician in a General Hospital.

Salary £525 per annum, rising by two annual increments of £25 each to £575, with pleasant detached house (rent and rate free), coal, electric light, laundry, and garden produce, which are valued for superannuation purposes at £75 per annum.

The appointment will be subject to the provisions of the Asylums Officers' Superannuation Act, 1909, and may be terminated by two calendar months' notice on either side. The selected candidate will be required to pass a medical examination.

Applications, accompanied by copies of two recent testimonials, must be sent to the Medical Superintendent not later than Wednesday, October 26th.

H. L. LANG-COATH,

Clerk to the Visiting Committee.

KENT AND SUSSEX HOSPITAL, Royal Tunbridge Wells. (210 Beds.)

Applications are invited for the post of HOUSE SURGEON, Ear, Nose and Throat, and Ophthalmic Departments, and Resident Anaesthetist, to commence duty on November 1st, 1938. Salary £150 per annum, with board, residence, and laundry in the Hospital.

The Hospital contains the following Departments: Medical, Surgical, Ear, Nose and Throat, Ophthalmic, Orthopaedic, Gynaecological, X-Ray and Electrotherapeutic, Massage, Pathological, Venereal Diseases, etc.

Applications, stating qualifications, together with certificate of registration and copies of not more than three recent testimonials, should be sent to the undersigned as soon as possible.

TOM B. HARRISON,

October 6th, 1938. Superintendent-Secretary.

ALTRINCHAM GENERAL HOSPITAL. (100 Beds.)

Applications are invited for the posts of (1) SENIOR HOUSE SURGEON, salary at the rate of £150 per annum, and (2) JUNIOR HOUSE SURGEON, salary at the rate of £120 per annum, both with board etc., to commence duty on or about November 6th and 12th, 1938, respectively.

Applications stating age, nationality, qualifications, etc., to be addressed to the undersigned as soon as possible.

E. A. BIDEN,

Secretary

SOUTHEAST-ON-SEA GENERAL HOSPITAL.

(235 Beds—8 residents—Hon. Specialist Staff of 20 Members.)

Applications are invited for the post of RESIDENT ANAESTHETIST (male): duties to commence immediately. The appointment is for six months (renewable). Salary £125 p.a., with board, residence, and laundry.

Applications, with names of those to whom reference can be made, should be sent to the undersigned not later than October 19th, 1938.

P. H. CONSTABLE,

Secretary.

EAR AND THROAT HOSPITAL, Birmingham, 3.

THIRD HOUSE SURGEON wanted (non-resident). Must be qualified and with clinical experience. Salary at the rate of £150 per annum, with lunch on six weekdays and an allowance of £50 per annum in lieu of board and lodging. Appointment for six months, to commence as soon as possible. Candidates are eligible for election to Senior posts. Facilities for training for D.L.O.

Applications and testimonials to be forwarded to the undersigned immediately.

W. H. LOMAS, Secretary.

BRISTOL ROYAL INFIRMARY.

Applications are invited for the post of HONORARY ASSISTANT ANAESTHETIST.

Candidates who must be Registered Medical Practitioners, to send in their applications to the undersigned not later than October 29th, 1938. Applications should be accompanied by not more than three testimonials.

ELLIS C. SMITH, F.C.S.,

Secretary and House Governor.

BAILEY AND DISTRICT HOSPITAL. (General Hospital—84 Beds.)

Required, a duly qualified RESIDENT HOUSE SURGEON (male). Salary £175 with board, residence, and laundry. Applications, with copies of testimonials, should be sent at once to—

A. W. WESTERN,

Secretary.

ROYAL HALIFAX INFIRMARY.

Hospital recognized by the Royal College of Surgeons (England).

Wanted, a FIRST HOUSE SURGEON (male, unmarried). Candidates must be duly qualified and registered. The appointment will be for six months from November 1st, 1938, to April 30th, 1939. Salary, including all services required in connexion with Paying Patients' Ward, £200 per annum, with residence, board, and laundry. The Resident Staff consists of Resident Surgical Officer and three House Surgeons. The Hospital contains 250 beds, including Maternity Department and Paying Patients' Block. There is also a Pathological Laboratory, a large Eye, Ear, Nose, and Throat Department, Radiological Department, and Radium Clinic.

Particulars of the duties may be obtained from the undersigned, to whom applications, stating age, nationality, and experience, together with copies of testimonials, should be sent not later than Monday, October 17th, 1938.

A. MIDGLEY,

Secretary.

NORFOLK MENTAL HOSPITAL.

ASSISTANT MEDICAL OFFICER.

The Visiting Committee invite applications from duly registered Medical Practitioners for the appointment of Assistant Medical Officer. Salary £350 per annum, rising by £25 per annum to £450, with furnished apartments, board, attendance, etc., valued at £150 per annum. In the event of the applicant being married the salary will be £400 per annum, rising by annual increments of £25 to £500, together with unfurnished quarters, fuel, light, laundry, vegetables, and the privilege of purchasing from stores at contract prices, valued at £100 per annum. If the selected candidate holds the Diploma of Psychological Medicine an additional £50 per annum will be paid. The appointment will be subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Applications, with copies of three recent testimonials, to be forwarded to the Medical Superintendent, Norfolk Mental Hospital, Thorpe, Norwich, Norfolk, not later than October 20th, 1938.

ROYAL EYE HOSPITAL, Pevensy Road, Eastbourne.

NON-RESIDENT HOUSE SURGEON required; to commence duty at once. The appointment will be for six months in the first instance.

Salary £100 per annum, and allowance in lieu of board-residence £175 per annum.

Applications, stating age, qualifications, and ophthalmic experience, together with recent testimonials, should reach the undersigned as soon as possible.

Before engagement candidates have to be interviewed by the Hon. Surgeon, from whom further particulars could be obtained in person.

H. BYGRAVE, Hon. Secretary.

MINEHEAD AND WEST SOMERSET HOSPITAL.

Minehead, Somerset.

Applications are invited for the post of RESIDENT HOUSE SURGEON (male or female) to this Hospital.

Duty to commence on October 29th. Appointment for a period of six months. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, experience, and qualifications, accompanied by copies of three recent testimonials, to be sent to the undersigned not later than October 22nd.

W. H. P. RODDA,

Secretary.

ROYAL WEST SUSSEX HOSPITAL.

(114 Beds, including 12 in the Private Patients' Block—Two Residents.)

SENIOR HOUSE SURGEON required immediately.

Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications should be sent to the undersigned, together with not less than three recent testimonials, stating age nationality, experience, and qualifications.

By Order of the Board of Management,

J. CONOX INCE,

October 5th, 1938.

Secretary.

NORFOLK AND NORWICH HOSPITAL, Norwich. (417 Beds.)

Applications are invited for the post of CASUALTY OFFICER. Salary £120 per annum, with board, residence, and laundry. Candidates (male) must be unmarried and must possess registered qualifications.

Applications, stating age, nationality, etc., together with copies of testimonials, should be forwarded to the undersigned not later than first post on Tuesday, October 25th, 1938.

FRANK INCH,

House Governor and Secretary.

October 14th, 1938.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Ventnor, Isle of Wight.

ASSISTANT RESIDENT MEDICAL OFFICER (male), unmarried, for six months commencing November 1st, 1938. Salary at the rate of £25 per annum, with board, residence, and laundry allowance. The successful candidate will be eligible for reappointment for a further six months at a salary at the rate of £275 per annum, with similar emoluments.

Candidates must be fully qualified in Medicine and Surgery, and previous experience in Tuberculosis and Bacteriological work will be an advantage. The appointment affords experience in Sanatorium and Surgical treatment of Pulmonary Tuberculosis.

Applications, in candidates' own handwriting, stating age, qualifications, and experience (with one copy of three recent testimonials), to be sent to the Medical Superintendent, Royal National Hospital for Consumption, Ventnor, Isle of Wight, not later than Thursday, October 20th, 1938.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, PENDLEBURY.

Applications are invited for the post of NON-RESIDENT ASSISTANT MEDICAL OFFICER at the Out-patients' Department, Gartside Street, Manchester. Salary is at the rate of £150 per annum, and the appointment is for a period of six months. Candidates must be on the Medical Register.

Particulars of duties can be obtained from the Secretary. The hours of duty are from 9 a.m. till 1 p.m. or until the work of the Dispensary is finished. Patients' attendances number about 100,000 per annum.

Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned as early as possible.

Canvassing, directly or indirectly, may disqualify.

By Order,

H. HEARDMAN,

Secretary

ROYAL MANCHESTER CHILDREN'S HOSPITAL.

OUT-PATIENTS' DEPARTMENT,
Gartside Street, Manchester.

Applications are invited for the post of FULL-TIME SENIOR MEDICAL OFFICER (non-resident). The appointment is for one year as from December 1st, 1938, and may be extended for further periods. Salary £300 per annum. Particulars of the duties can be obtained from the Secretary.

Applications, stating age, qualifications, and experience, and accompanied by copies of not more than four testimonials, to be sent to the undersigned at the Hospital, Pendlebury, Manchester, or before Saturday, October 22nd.

By Order,

H. HEARDMAN,

Secretary

WORCESTER COUNTY AND CITY MENTAL HOSPITAL, Pwllk, near Worcester.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER. Applicants must be male, single, under thirty-five years of age, and duly qualified in medicine and surgery.

Commencing salary £350, rising by annual increments of £25 to a maximum salary of £450 per annum, together with furnished apartments, board, laundry, and attendance. A further £50 per annum will be paid if the selected candidate holds a Diploma in Psychological Medicine. Experience in Anaesthetics will be a recommendation. The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Applications, stating age and full particulars of qualifications and experience, accompanied by copies of three recent testimonials, to be forwarded to the Medical Superintendent not later than Friday, October 21st, 1938.

ABERDEEN ROYAL MENTAL HOSPITAL

Applications are invited for the post of JUNIOR ASSISTANT PHYSICIAN (male or female) in Aberdeen Royal Mental Hospital. Preference will be given to those who have had General Hospital experience. Salary will commence at £300 per annum, with board, room, and laundry.

Applications, stating age and qualifications, with full particulars of experience and copies of testimonials, should be sent to the Physician Superintendent.

MARGATE AND DISTRICT GENERAL HOSPITAL. (98 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male). Salary £150 per annum, with board and laundry.

Duties to commence November 1st, 1938. Applications, accompanied by copies of testimonials, should be addressed to the Secretary of the Hospital as early as possible.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

| Town or District. | Town or District. | Town or District. |
|--|---|---|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(contd.) | PUBLIC HEALTH |
| ABERTYSSWG MEDICAL AID SOCIETY. (Medical Officer.) | MID-RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer.) | COUNTY OF ROXBURGH. (Assistant Medical Officer of Health.) |
| BLAENAVON MEDICAL SOCIETY. (Chief Medical Officer.) | NEATH AND DISTRICT. (Medical Aid Association.) | DISPENSARY APPOINTMENTS |
| GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme.) | OGMORE VALLEY, GLAMORGAN. (W'ndham Colliery Medical Aid Society.) (Workmen's Medical Scheme.) | LIMERICK CITY. (Whole-time Dispensary Medical Officers.) |
| LLWYNYPFA, CLYDACH VALE. PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme.) | OAKDALE, MON. (Medical Officer for Medical Aid Association.) | |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District. | Hon. Sec. of Division or Branch. | Town or District. | Hon. Sec. of Division or Branch. | Town or District. | Hon. Sec. of Division or Branch. |
|---|---|---|---|---|--|
| NEW SOUTH WALES (All Friendly Society Appointments.) | The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W. | VICTORIA (All Institute or Medical Dispensaries.) | The Honorary Secretary, Victorian Branch, British Medical Association Medical Society Hall, Albert St., East Melbourne, Victoria. | WESTERN AUSTRALIA (Contract and Ledge Practices.) | The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia. |
| QUEENSLAND (Brisbane Associate Friendly Societies Institute.) | The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17. | | | | |

October 12, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

DONCASTER ROYAL INFIRMARY. (185 Beds.)

Applications are invited for the post of SENIOR RESIDENT OFFICER WITH CHARGE OF THE CASUALTY AND OUT-PATIENTS' DEPARTMENTS.

The appointment in the first instance is for six months, but is renewable for further periods of like duration. The commencing salary is £200 per annum, rising by half-yearly increments of £25 per annum to a maximum of £300 per annum.

There are the usual residential emoluments. Applications, stating age, nationality, qualifications and experience, and accompanied by copies of three testimonials, should be forwarded to the undersigned.

R. LANCASTER,
Secretary-Superintendent.

DONCASTER ROYAL INFIRMARY (185 Beds.)

HOUSE SURGEON (male) required immediately. Six House Surgeons are resident.

Salary at the rate of £150 per annum, with residence, board, and laundry.

This large Industrial area offers excellent opportunities for gaining experience.

Applications, accompanied by not more than three testimonials, to be sent to the undersigned immediately.

R. LANCASTER,
Secretary-Superintendent.

DORSET MENTAL HOSPITAL. Dorchester.

JUNIOR ASSISTANT MEDICAL OFFICER required. Salary £400-£25-£450, with apartments, board, attendance, and laundry, valued at £120. £50 extra for D.P.M. Laboratory facilities for research and clinical medicine; three Out-patient Clinics.

Study leave may be granted after approved service. General Hospital experience desirable. Apply, with testimonials and references, to Medical Superintendent.

COUNTY MENTAL HOSPITAL. Whitbyham, near Preston.

Wanted, ASSISTANT MEDICAL OFFICER, single, £550 per annum, rising to £600 after one year's satisfactory service. If the candidate has or obtains the Diploma in Psychological Medicine an additional £50 per annum will be paid. A deduction of £150 per annum made from salary for board, furnished apartments, attendance, and washing.

Applications, together with copies of testimonials, and full particulars should be sent to the Medical Superintendent, and must be received not later than October 19th, 1938.

GENERAL HOSPITAL, NOTTINGHAM. (389 Beds.)

ORTHOPAEDIC AND FRACTURE DEPARTMENT. A HOUSE SURGEON (male) is required for the above Department. The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry. Experience in the treatment of fractures desirable. Candidates are asked to send applications stating age, qualifications, and experience, together with copies of testimonials, to the undersigned.

Duties to commence as early as possible.
HENRY M. STANLEY,
House Governor and Secretary.

GENERAL HOSPITAL, NOTTINGHAM. (389 Beds.)

A HOUSE SURGEON is required at the above Institution for the Ear, Nose and Throat Department, containing 40 beds and a large Out-Patient Department. The appointment is for six months, with salary at the rate of £150 a year, with board, residence and laundry.

Candidates are desired to send applications, stating age, qualifications and experience, together with copies of testimonials, to the undersigned. Duties to commence on December 1st, 1938.

HENRY M. STANLEY,
House Governor and Secretary.

WORCESTERSHIRE MENTAL HOSPITAL. Barnley Hall, Bromsgrove.

SECOND ASSISTANT MEDICAL OFFICER (Male, Single).

Applications for this post are invited from duly qualified Registered Medical Practitioners.

Salary £350 per annum, rising by annual increments of £25 to £450, with board, apartments, laundry and attendance, valued for superannuation purposes at £90 per annum. An additional £50 per annum is paid for the Diploma in Psychological Medicine. Appointment subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Forms of application may be obtained from the Medical Superintendent, and must be returned to him (together with copies of three recent testimonials) by Saturday, October 22nd, 1938.

VICTORIA HOSPITAL, BLACKPOOL. (152 Beds.)

HOUSE SURGEON (Male) Required to Surgical Unit No. 1.

There are four resident Medical Officers. Appointment is for six months. Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, with copies of three recent testimonials should be sent to the

GENERAL SUPERINTENDENT.

STIRLING DISTRICT MENTAL HOSPITAL. Larbert.

JUNIOR ASSISTANT MEDICAL OFFICER required (male). Commencing salary £300 per annum, rising by annual increments of £25 to £400, with board, lodging, and laundry. Appointment subject to provisions of Asylums Officers' Superannuation Act. Apply, stating age and experience, with testimonials, to the Medical Superintendent.

(Appointments continued on p. 59)

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ADVERTISEMENT MANAGER, BRITISH MEDICAL JOURNAL,
B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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NOT CLASSIFIED

THE ADDRESS OF PROFESSOR S. L. CUMMINS is CHANGED TO TROED YR AUR HOUSE, BEULAH, NEWCASTLE EMLYN. CARDS.

DOCTOR DONALD McPHEE.—WILL ANY doctor aware of the present or last known address of the above-named, who is believed to have practised in the Chiswick area of London and latterly in West Lothian, Scotland, kindly communicate with Address, No. 9242, B.M.A. House, Tavistock Square, W.C.1.

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TOBACCO GOOD SMOKES at a low price, quality guaranteed. Box of 50 for 25/-, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

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THE finest combination ever discovered of Choice Natural Tobaccos. Every pipeful an indescribable pleasure 12/6 per 4 lb. tin, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

A LADY CAN TAKE SEVERAL GUESTS IN her comfortable warm sunny house standing in large grounds, h. and c. water in bedrooms, electric light, central heating own car, excellent cooking and service.—MISS DUFF, Trwincle, Porthcatho, S. Cornwall.

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TYPEWRITING, DUPLICATING, TRANSLATIONS.—Experts in Medical work. TESTIMONIALS, THESES, etc., accurately copied in style that commands attention.—WOMEN BUREAU, Drayton House, Gordon Street, London, W.C.1 (close B.M.A. House) EUSon 1775.

WINTER SPORTS.—JOHN DR. AND MRS. FOTHERGILL'S large party to Saas-Fee (6,000 ft.), DECEMBER 28-JANUARY 11, for adults, families, schoolgirls and schoolboys. Splendid skiing. Large ice-rink. Ski-school. Largest hotel entirely reserved.—CAMPS AND TOURS UNION, 415, Oxford Street, London, W.1. Mayfair 5542.

"WAITING ROOM NEWS." A NEW AND unique newspaper in miniature for your waiting room, contains no patent medicine advertisements. Your own address on it.—Specimen copy and subscription terms from CAMERON, 4, Blandfield Road, S.W.12.

ASSISTANCIES

WANTED IMMEDIATELY, ASSISTANT TO live at branch surgery, unmarried. Salary £350. all found, plus car allowance £60, plus bonus. Young energetic principal. Midlands.—Address, No. 9231, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR AND OUTDOOR ASSISTANTS for Town and Country Practices, with and without view to Partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED, MID-OCTOBER OR APPROXIMATELY, ASSISTANT AND PARTNER, East London. Panel and private practice.—Address, No. 9227, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ON NOVEMBER 1ST, ASSISTANT to the senior only of three partners in general practice, 40 miles north. Work not hard, time for reading or postgraduate work; suit semi-retired man; must have own car. Reply, stating full particulars, to—Address, No. 9262, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT WANTED, WITH A VIEW TO PARTNERSHIP, in a large mixed and very old-established practice in a well-known town near London. Growing district. Local hospital. Abundant scope for a young, energetic, and well-qualified Englishman. Preference given to one with hospital experience.—Address, No. 8805, B.M.A. House, Tavistock Square, W.C.1.

WANTED, NOVEMBER, YOUNG MALE Indoor ASSISTANT, British Good-day mixed country practice, Shropshire. Hospital experience. £300 p.a.; £50 car allowance.—Address, No. 9254, B.M.A. House, Tavistock Square, W.C.1.

WANTED, EXPERIENCED OUTDOOR MALE ASSISTANT for private and panel practice in Kent, 30 miles from London. Salary £425, £25 car allowance.—Address, No. 9110, B.M.A. House, Tavistock Square, W.C.1.

WANTED, IRISH OR SCOTTISH MALE ASSISTANT for N.W. London; live at branch surgery. Salary £300 to £350, all found; car provided, or car allowance.—Address, No. 9250, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT, BRITISH, country town, Mid-Wales; November. Willing to start age, experience. Commencing £350, all found.—Address, No. 9226, B.M.A. House, Tavistock Square, W.C.1.

WANTED, OUTDOOR MALE ASSISTANT (Scottish or English) for large mixed practice near Manchester. Salary £500 p.a., which includes car allowance. State age, religion, and experience.—Address, No. 9269, B.M.A. House, Tavistock Square, W.C.1.

WANTED, SINGLE MALE ASSISTANT, English or Scots, for East London practice. Commencing salary £300 p.a., all found. Partnership after two years. Suit reliable energetic man. Newly qualified not objected to.—Address, No. 9139, B.M.A. House, Tavistock Square, W.C.1.

WANTED, OUTDOOR MALE UNMARRIED ASSISTANT for South Wales practice. Salary £400, rooms and attendance. Car provided. Apply, with testimonials, stating age, experience (if any), and nationality.—Address, No. 923, B.M.A. House, Tavistock Square, W.C.1.

WANTED, SOUTH COAST TOWN, November 1st, INDOOR ASSISTANT, male. Residence over branch surgery. Salary commencing £300 p.a., all found, plus £50 allowance for car.—Address, No. 9113, B.M.A. House, Tavistock Square, W.C.1.

WANTED, FOR LARGE TOWN, MIDLANDS, LADY ASSISTANT for private and panel practice. Initial salary £280 p.a., all found, car provided. Apply stating age, experience.—Address, No. 9372, B.M.A. House, Tavistock Square, W.C.1.

WANTED, PART-TIME ASSISTANT IN South London, near hospitals. Work 1st suit post-graduate; plenty of time for study, etc.; £150 per annum, live in.—Address, No. 919, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, WITH VIEW TO PARTNERSHIP for old-established inland practice, north-east coast. Salary £400, car allowance £50. English or Irish, Protestant.—Address, No. 9357, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT, OUTDOOR.—WANTED, MALE single, age not over 30, for panel and private practice, Yorkshire, English or Scottish. £300 p.a. all found with car allowance.—Address, No. 912, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT, VIEW PARTNERSHIP, NORTH Wales borders. £400; house; car allowance £50. Thirties; preferably married.—Address, No. 9255, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WITH VIEW TO PARTNERSHIP OR SUCCESSION required immediately by Irish graduate. Preferably Midlands or S.E. Married; 34 years' G.P. experience; own car. excellent references.—Address, No. 9219, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP TO ENGLISHMAN genuinely interested in medicine wanted by married man, aged 32, with hospital and G.P. experience; own car, furniture and equipment. Country district preferred.—Address, No. 914, B.M.A. House, Tavistock Square, W.C.1.

EXPERIENCED PRACTITIONER, CENTRAL London, requires PART-TIME W.O.F.A.—Address, No. 9284, B.M.A. House, Tavistock Square, W.C.1.

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WOMAN ASSISTANT REQUIRED BY married woman doctor, London East End. Full particulars of experience, etc.—Address, No. 9369, B.M.A. House, Tavistock Square, W.C.1.

OUTDOOR ASSISTANT REQUIRED IMMEDIATELY for general practice. South Coast. Young, single, recently qualified man preferred. Salary £456, including car allowance; garage provided. Full particulars. Interview.—Address, No. 9282, B.M.A. House, Tavistock Square, W.C.1

OUTDOOR ASSISTANT WANTED. SOUTH-west country town with modern cottage hospital. Some experience general practice preferred. Share later for suitable man. Apply, stating full particulars.—Address, No. 9367, B.M.A. House, Tavistock Square, W.C.1.

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LOCUM TENENS ASSISTANT MEDICAL OFFICER required immediately. Terms £7 1/2 per week, together with board, lodging, washing, and attendance. Applications, giving age, experience, qualifications, and references, to be addressed to the Medical Superintendent, Staffordshire Mental Hospital, Stafford.

RADIOLOGIST REQUIRES LOCUM FOR 3/4 weeks commencing shortly before Christmas. Work light. Suit Diploma Student or Senior Radiologist.—Address, No. 9368, B.M.A. House, Tavistock Square, W.C.1.

THE NATIONAL UNION OF IRELAND APPOINTMENTS COMMITTEE can recommend suitably qualified Medical Graduates as **LOCUM TENENTES** or **ASSISTANTS**. Medical practitioners who require such services should apply, stating all particulars, to the Secretary, Appointment Committee, N.U.I., 86, St. Stephen's Green, Dublin. Telephone, Dublin 51793.

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WANTED ON KENT COAST OR COUNTY. POST by **SECRETARY DISPENSER** (Hall) with doctor or institution. 31 years' experience in style charge of hospital dispensary.—E. M. W., 18, Hanser Lane, Ealing, W.5.

A LADY DISPENSER BOOKKEEPER supplied immediately on request, qualified with practical experience in private practice and dispensary work; also trained in Bacteriological Laboratories of the **LONDON COLLEGE OF PHARMACY FOR WOMEN**. Preparations for Examinations.—Write, wire, or 'phone (Bayswater 0969) Secretary, 7, Westbourne Park Road, W.2.

A COURSE OF TRAINING IN DISPENSING and Pharmacy is given at **GORDON HALL SCHOOL OF PHARMACY** and Secretary-Dispensers can be supplied to Doctors. Sessions: January, April, and September.—Apply, Principals, School of Pharmacy, Drayton House, Gordon Street W.C.1 'Phone: Euston 3930

DISPENSING CAREER FOR YOUNG LADIES FULL TRAINING for Apothecaries Hall Certificate. Enrolments every three months.—Apply, The Principal, Central School of Pharmacy, 28, Moreton Street, London, S.W.1. Telephone: Victoria 1641.

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DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeur-Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSER'S BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

EXPERIENCED AND EFFICIENT YOUNG LADY DISPENSER (Hall) desires POST with doctor or hospital. Drives car. Live in or out.—Apply, France, Westminster Bank House, Bevelly, East Yorks. Telephone 101.

LADY SECRETARY REQUIRES PART-OR FULL-TIME WORK with London doctor.—Address, No. 9265, B.M.A. House, Tavistock Square, W.C.1.

LADY RECEPTIONIST REQUIRES POST Free now. 15 years' experience with late London surgeon. Used to appointments, telephone, etc.—Miss C. HUGHES, 52, Queen's Grove, St. John's Wood, N.W.8.

LADY RECEPTIONIST-BOOKKEEPER (22) requires post, experienced driver. North of England or Scotland preferred.—Address, No. 9281, B.M.A. House, Tavistock Square, W.C.1.

SECRETARY-RECEPTIONIST (25) REQUIRES post in London, resident if required. Good shorthand, typing and book-keeping, eighteen months' experience in medical work. 'Phone: Bishopgate 5213; or Address, No. 9287, B.M.A. House, Tavistock Square, W.C.1.

SURGEON'S WIDOW, YOUNG, PERSONABLE, tactful, and reliable, shorthand and typing, as **SECRETARY-RECEPTIONIST**.—Address, No. 9359, B.M.A. House, Tavistock Square, W.C.1.

SECRETARY-MASSAGE, C.S.N.M.G., ABLE drive car. Experienced ultra-short-wave radiant heat, foam baths, bergonie, wax, mud, sunlight, lavage treatments. Also bookkeeping experience.—Thatcher, 30a, Muttell Hill, N.10. Mayfair 2200

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

PARTNERSHIPS

WANTED IMMEDIATELY, COUNTRY PARTNERSHIP OR PRACTICE, East Anglia, Home, S. or S.W. Counties. Receipts £1,250 or over Qualified London 2 years' hospital and G.P. experience; aged 29, English. No agents.—Address, No. 9363, B.M.A. House, Tavistock Square, W.C.1.

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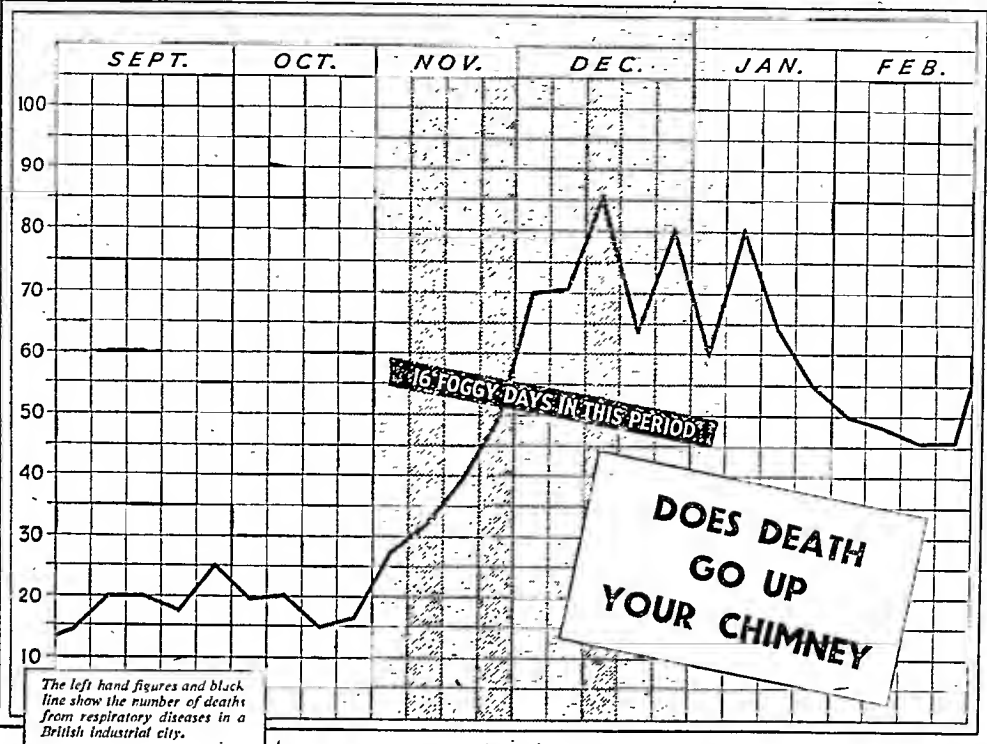
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Fogs are brought on by certain weather conditions. But city fogs are composed at least 70% of soot and grime from home chimneys—chimneys burning old-fashioned smoke-making fuel. Every smoking home chimney is adding to the 'aerial sewage' of England, increasing by ever so little the ill-health of the country.

Can't something be done? Yes, it is being done, slowly. Every time someone decides to do away with an old-fashioned smoke-making fire in his house and burn a smokeless fuel (such as gas or coke), it means an



extra minute, perhaps, of sunshine somewhere. Gas and Coke are working miracles to make homes clean inside. Eventually there will be a national miracle of an air fit for children and old people to breathe. Gas and coke will have helped to bring that miracle to pass.



Where you want warmth quickly, for short periods—a gas fire! Choice of many colours. It ventilates a room automatically.

NO
SMUTS
NO
SMOKE
WITH



The open coke fire burns without smoke. Saves 2d in the 1/- on your fuel bills. Gas-ferried. Very convenient, very modern.

GAS AND COKE

The fuel of clean homes and clean cities

★ The above facts and many others as to the injurious effects of smoke may be found in publications of the National Smoke Abatement Society, Chondos House, Buckingham Gate, London, S.W.1. By joining the Society, which is an independent body, you will keep up to date and help the campaign for cleaner cities.

Issued by the British Commercial Gas Assoc., Gas Industry House, 1 Grosvenor Place, London, S.W.1

THE PLACE OF BRAN IN THE TREATMENT OF COMMON CONSTIPATION

WHEN dealing with a case of common constipation traceable to a deficiency of "bulk" in the diet, the first thought is naturally: "How can the daily intake of bulk most conveniently be increased?"

Fruit and vegetables, of course, supply a partial answer to the problem — but it is not infrequently found that these foods alone are not a sufficient corrective unless eaten in unappetisingly large quantities.

For this reason many nutritional authorities today advise giving prepared wheat bran in the pleasant form of Kellogg's All-Bran.

An attractively crisp breakfast cereal

All-Bran is an attractively crisp cereal which most patients find a pleasant addition to their normal breakfast menu. The fibrous bulk in All-Bran is of the same type as that derived from vegetables and fruit, but has the advantage of being less easily broken down during digestion, and its action is therefore more effective and

thorough. All-Bran is, moreover, an excellent source of both Vitamin B and iron, which add greatly to its dietetic value.

All-Bran is intended to be eaten daily, like an ordinary breakfast cereal. The great value of All-Bran is that it absorbs water like a sponge. This water-softened mass gently but effectively aids elimination. Eaten regularly, it promotes a thorough evacuation of the bowel-contents in a natural manner that gives real relief and freedom from strain.

All-Bran may with advantage be prescribed in all cases where additional bulk in the diet is indicated. It may be eaten with milk or cream or cooked into scones, bread, etc. It may also be sprinkled over salads or other foods. To assure maximum effectiveness plenty of fluid should be taken, preferably between meals. All-Bran is obtainable from all reliable grocers. A packet will be sent free on request to any qualified practitioner. Inquiries should be addressed to: Kellogg Company of Great Britain Ltd., Stretford, Manchester.



Kellogg's All-Bran is most palatable served with plenty of milk or cream. Many like it sprinkled over their favourite breakfast cereal.



MR. LEOPOLD POLTURAK
Doing a Christiania at speed.
Amputation, right leg above the knee

BACK TO ACTIVITY*

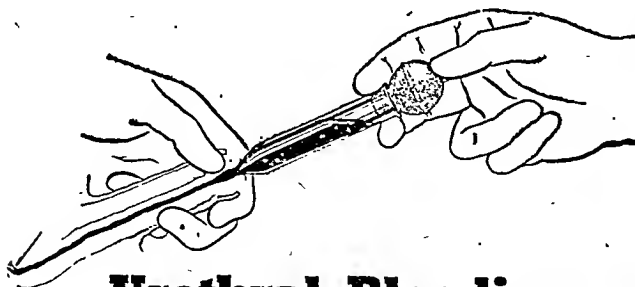
Many patients have actually learned to ski after the loss of a leg, by both above-knee and below-knee amputation. This achievement, perhaps more than any other, shows the remarkable progress that has been made in the construction and fitting of artificial limbs.

* A very complete survey of the extent to which Desoutter Light Metal Artificial Limbs can restore business, social and recreational activity is made by Mr. E. R. Desoutter in a new volume called "Back to Activity." A copy will gladly be sent on request.

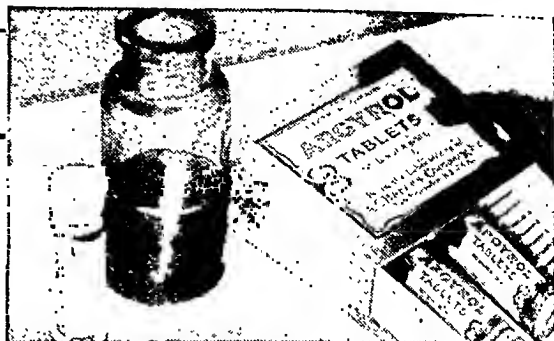
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silver in the same chemical and physical state, nor protein of a similar high quality and suitability. Argylol solution has never been successfully duplicated.

Insistence on having the name ARGYROL on all solutions ordered or prescribed, will ensure the clinical results you expect.

It should be remembered that while there are many mild silver proteins, there is only one Argylol, the prototype of them all, and it stands in a class by itself; *sui generis*, because no other silver product contains

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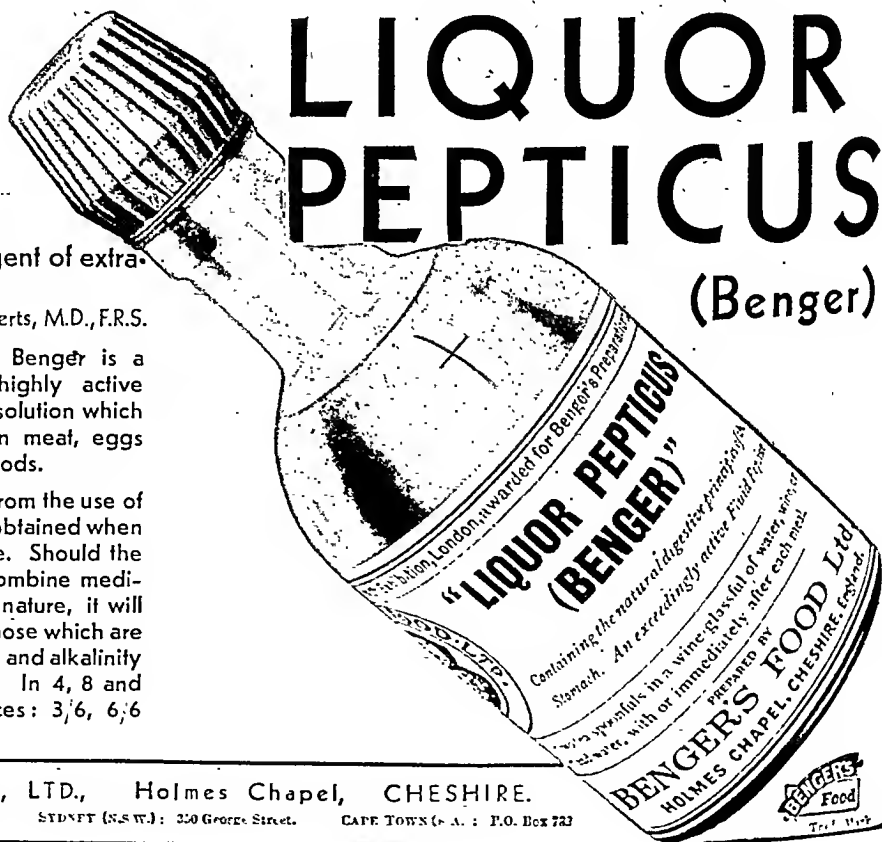
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The best results from the use of Liquor Pepticus are obtained when it is prescribed alone. Should the prescriber wish to combine medicaments of a tonic nature, it will be recollected that those which are free from astringency and alkalinity should be selected. In 4, 8 and 16-oz. bottles. Prices: 3/6, 6/6 and 12/6.

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The advantages of Rhinitol in the treatment of

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1. Its very low ephedrine content.
2. Its property of emulsifying with body fluids owing to the vasogen vehicle.
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4. Its rapid yet prolonged action.

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NASAL COMPOUND

The secret of confidence

is a personal trial

Please write for a free sample for personal or clinic trial.

| | |
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| MENTHOL | 0.2 |
| EUCALYPTOL | 0.5 |
| CAMPHOR | 0.1 |
| CHLORHYDRATE | 0.01 |
| ALUMINUM | 0.2 |
| EPHEDRINE | 0.25 |
| VASOGEN AD 100 | 0 |

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The advantage of "Somnigen" is that it does not produce the Headache, Nausea, Furred Tongue, or Constipation so frequently noticed when preparations of Opium or Morphine are administered. It contains the whole of the Alkaloids of Opium in chemical combination with Hydrobromic Acid, which assists the sedative action, and is STANDARDISED so as to contain 0.75 per cent. Morphine, but entirely free from nauseous odour and characteristic taste.

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"It is free from the odour of the ordinary Tincture of Opium, and does not produce the same disagreeable after-effects."—THE MEDICAL ANNUAL.

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THE DOSE IS 5 TO 40 MINIMS.

Packed in 5-oz., 10-oz., 22-oz., 40-oz., and 90-oz. Bottles.

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Not only does Psoriasis respond readily to local treatment with Sphagnol Peat Ointment, but the relief is lasting. Neither dangerous nor painful, psoriasis is annoying and unsightly. In cases where the correction of faults in clothing and diet brings no satisfactory response, regular applications of Sphagnol Peat Ointment prove beneficial in a very short time. Sphagnol con-

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VP/S/366

OVALTINE

AN AID TO HEALTHY DEVELOPMENT

MODERN medical research makes it increasingly clear that abnormalities of form, mental defects and even permanent constitutional weakness, are often a direct result of failure to obtain in infancy a diet adequate to the physiological needs of the organism. The basic necessity, therefore, in constructing the dietary of the infant and growing child, is to ensure one that is complete in all the essential food elements.

"Ovaltine" finds one of its most valuable applications in this direction. Composed of the nutritive constituents of fresh, full-cream milk, eggs and malt, in well-balanced proportions, it supplies calcium, phosphorus, vitamins and other accessory food factors, and its regular addition to the ordinary diet of the child renders this safe and adequate.

"Ovaltine" is so delicious and easily digested that it can be prescribed with complete confidence for children of all ages. "Ovaltine" is easily prepared and is most economical.

A liberal supply for clinical trial sent free on request.

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Laboratories and Works: KING'S LANGLEY, HERTS.

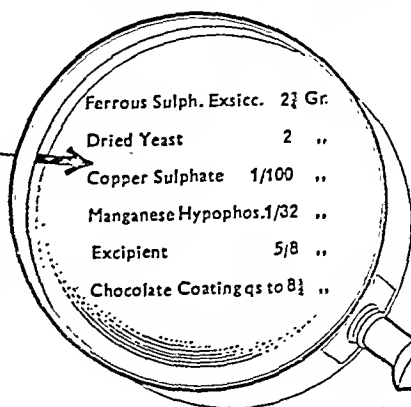
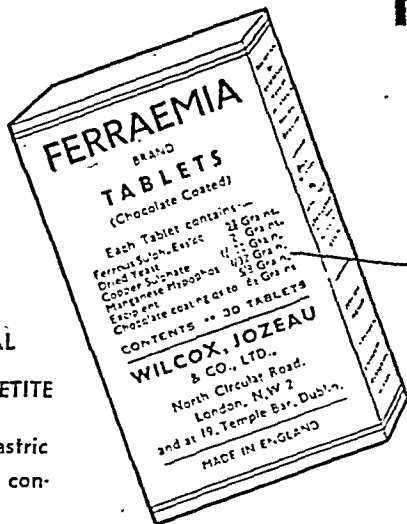


SALET or
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The Goddess
of the
manipulation of
the Nile.

FERRAEMIA FOR ANAEMIA

STABLE
ECONOMICAL
PROMOTES APPETITE

Does not cause gastric
disturbance or con-
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*An enlargement on modern
iron therapy.*

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THE VACCINE TREATMENT OF PNEUMONIA

P. S. I. VACCINE

(WYNN'S FORMULA)

EVANS

The outcome in pneumonia is largely decided during the first 48 hours and specific treatment is of little, if any, value after the third day. The importance of early specific treatment whether by serum or vaccine is therefore urged.

Vaccine has the enormous advantage that it can be carried in the bag and injected without delay. True lobar pneumonia is less common in many districts than a mixed infection pneumonia, so serum is only available for possibly one-third of all pneumonias.

P.S.I. Vaccine (Evans) is made according to the formula given in the B.M.J., December 22nd, 1934, 1159, and contains in each cc:—

| | | | |
|----------------------|---|---|-------------|
| <i>Pneumococci</i> | - | - | 200 million |
| <i>Streptococci</i> | - | - | 200 " |
| <i>B. influenzae</i> | - | - | 200 " |

P.S.I. Vaccine (Evans) is issued in

| | | | | | |
|-----------------------------|-----|----------|-----|------------------------------|------|
| 1 cc. ampoules | - | - | 2/6 | 10 cc. rubber-capped bottles | 15/- |
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Prepared at THE EVANS BIOLOGICAL INSTITUTE

EVANS SONS LESCHER & WEBB LTD.
LIVERPOOL AND LONDON

SERENOL

biological non-toxic

SEDATIVE

Formula

| | | | | | |
|---|---|---|---|------|------------|
| Campho Sulphonate of sparteine | - | - | - | 6.0 | grains |
| Campho Sulphonate of ephedrine | - | - | - | 2.5 | " |
| Extract of boldo | - | - | - | 10.0 | " |
| Extract of crataegus | - | - | - | 20.0 | " |
| Extract of salvia | - | - | - | 10.0 | " |
| Tincture of marrubium | - | - | - | 10.0 | " |
| Glycerine extract of thyroid (1 equals 1 of fresh gland) | - | - | - | 0.10 | " |
| Valerian | - | - | - | 50.0 | " |
| Hexamethylene-tetramine | - | - | - | 10.0 | " |
| Excipient q.s. | - | - | - | ad | 1,000 c.c. |

PRICE - 4/6 per 4 oz. bottle.
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Serenol is a sedative with action on the centres of the nervous vegetative system, sympathetic and parasympathetic, and on the cortical centres. Recent knowledge has shown the interaction of nervous vegetative system and endocrine system, and on this knowledge SERENOL is based. It is thus a biological, not a symptomatic, sedative, and, unlike many other sedatives, has not a direct depressant action on the cortical cerebral centres.

Serenol is indicated in conditions of anxiety and general irritability, insomnia, hyperthyroidism, hyperadrenalism (as in neurocirculatory asthenia, effort syndrome), the so-called nervous palpitations of the heart, etc.

Serenol is given in the following dosage. For mild cases one to two dessertspoonsful on retiring. For more severe cases one dessertspoonful at 10 a.m., one dessertspoonful at 4 p.m. and two dessertspoonsful on retiring.

Serenol, being a biological sedative containing no barbiturate, is not habit forming.

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The Original Stable Solution
of Caffeine Iodide
for

ASTHMA
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HAY FEVER
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A series of 49 formulae based upon the prescriptions of dermatologists
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Formula:—*Ichthammol* ... 10%
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Betanaphthol ... 2½%
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Streptocide Ointment

Research at The Evans Biological Institute has resulted in the issue of Streptocide in solution as an ointment. The solvent used is non-toxic and the ointment may be applied over extensive areas. Streptocide Ointment contains 5 per cent. of Streptocide. There are numerous infective conditions of the skin in which its use is indicated. Favourable reports have been received concerning the following:—

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Issued in 2-oz. Collapsible Tubes 2/3 each; 1-lb. Tins 13/-.

Streptocide Cream

Streptocide is also issued in the form of a non-greasy cream, which is specially recommended in acute inflammatory conditions when rapid absorption of the drug is desired.

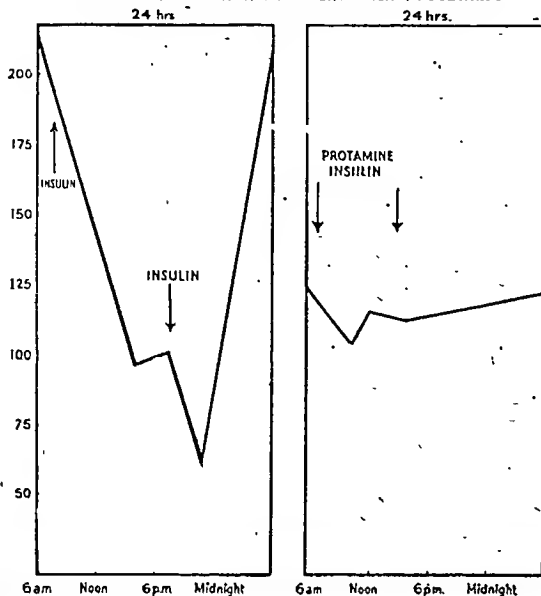
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BRAND (with zinc) SUSPENSION

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The absorption of insulin injected in the form of 'A.B.' Brand Protamine Insulin (with Zinc) Suspension is much prolonged and closely resembles the natural secretion of the pancreatic islets. This insulin has a steady action and exerts a better control than that of ordinary insulin over the carbohydrate metabolism. The number of injections can be reduced, a lower total dosage is usually necessary, and the subjective symptoms of diabetes markedly improve.

40 units per c.cm.

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Full particulars will be sent free to members of the Medical Profession.

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WHAT HAPPENED FIFTY YEARS AGO



is not acceptable to our present-day standards, whether it be in the matter of anaesthesia or intravenous therapy.

Baxter Laboratories have proved to the satisfaction of the medical profession and many thousands of Hospitals that their intravenous solutions in the "Vacoliter" container are available on a thoroughly economic and practical basis.

Baxter Solutions are absolutely sterile—stable and unquestionably safe.

Baxter Laboratories provide a complete and thoroughly economical intravenous service comprising a wide range of Dextrose, Saline, Acacia and Sucrose Solutions with ready-to-use accessories.

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Ovoferrin Brand Colloidal Iron Tonic presents iron in its most agreeable, most assimilable form. It does not stain the teeth; it is odourless, practically tasteless, non-astringent. It does not constipate... it stimulates the jaded appetite... it is tolerated by the most sensitive stomach and is readily taken by children. Adult dose is one tablespoonful in milk or water after meals and at bedtime. Prescribed in 11-ounce bottles. Write for free professional sample.



Palatable Blood Builder.

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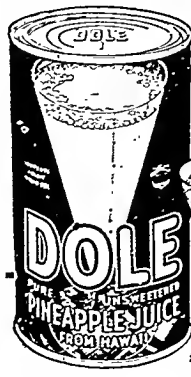
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IT ISN'T JUST "GOOD-FOR-YOU"

DOLE Pineapple Juice, as you can see from the analysis below, is a valuable addition to anybody's diet. It is a good source of Vitamins A, B and C and natural fruit sugars. It provides mineral salts Calcium Oxide .022%, Magnesium Oxide .019%, Copper .0002%, Manganese .0003%, and Iron .0005%. **DOLE** Pineapple Juice has an alkaline reaction in the body which tends to offset the effects of acid-producing foods. It has been accepted by the American Medical Association Committee on foods and is in constant use in many American Hospitals and Nursing Homes.

But it is equally important that this valuable fresh-fruit drink is more than acceptable to patients, especially children with obstinate appetites or fickle tastes. Its fresh tangy flavour, not like the syrupy liquid you expect to find with tinned pineapple, is refreshing, thirst-quenching and invigorating. *It is not often you come across a drink that you can recommend with such sure knowledge that your advice will be followed.*



TYPICAL ANALYSIS OF DOLE PINEAPPLE JUICE

| | | | |
|-------------------------------|--------|----------------------------------|--------|
| Moisture | 85.3 % | Titrateable acidity as | |
| Ash | 0.1 % | citric acid | 0.9 % |
| Fat (ether extract) | 0.3 % | Reducing sugars as invert | |
| Protein (N x 6.25) | 0.3 % | sugar | 12.1 % |
| Crude fibre | 0.02% | Carbohydrates other than | |
| | | sugars (by difference) | 0.38% |

★

Dole Pineapple Juice is tinned hygienically with no preservative and no added sugar.

★

Nearly 2,000 doctors have received their sample tin of Dole Pineapple Juice. If you will write us on your letterhead we shall be pleased to send you one.

★

It comes to you field-fresh from sunny Hawaii where it is tinned by the exclusive Dole Fast-Seal Vacuum Packing Process.

DOLE PINEAPPLE JUICE *From Hawaii*
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COLITIS

Colitis - Scourge of Civilisation

COLITIS

— Chronic

(Simple Mucous, Muco-Membranous,
Post-Dysenteric.)

Alternating intervals of constipation and diarrhoea often occur in cases of colitis. Kaylene-ol is applicable in either phase. Its soothing and adsorptive actions combat the irritative diarrhoea, and its softening and lubricating actions counteract constipation during the intervals.

DOSE—KAYLENE-OL: 1 or 2 dessertspoonsful three times a day, half hour before meals, or in mild cases half hour before breakfast and at bedtime.

Kaylene-ol \bar{c} Phenolphthalein (0.5 per cent.) is taken when constipation is particularly troublesome. Dosage as for Kaylene-ol.

KAYLENE-OL

(KAYLENE BRAND OF COLLOIDAL KAOLIN WITH HIGHLY VISCOUS LIQUID PARAFFIN)

Samples and literature from the Sole Manufacturers:

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L I V O G E N

In conformity with recent research concerning the value of the Vitamin B complex, Livogen has been modified so that it now contains in ample proportions Vitamin B₁, Vitamin B₂ (lactoflavine), Nicotinic Acid and Vitamin B₆ as well as all the blood-regenerating principles of liver.

Vitamin B₁, Lactoflavine, and probably Nicotinic Acid and Vitamin B₆, constitute part of enzyme systems necessary for the normal metabolic processes of the

cell and supply molecular groupings which the body needs but cannot synthesise.

Livogen, therefore, is the perfect reconstructive tonic inasmuch as it supplies those substances most usually lacking in the diet which are necessary for the stimulation of the processes of repair and reconstruction of tissue, and for the maintenance of normal function when restoration is complete.

Sample on request

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Telephone: Clerkenwell 3000 Telegrams: Tetradome Telex London

Lgn/5/62



'CAPROKOL'

In urinary tract infections

Caprokol, by virtue of the bactericidal and analgesic action of this product, provides a form of treatment of inestimable value, particularly to the elderly who are suffering from either acute or chronic infections of the urinary tract.

Sample on request

CAPROKOL

(Brand of Hexylresorcinol)

SOLUBLE 125 CAPSULES
CAPROKOL
PAIN-RELIEVING ANTISEPTIC
THE BRITISH DRUG HOUSES LTD.
SHARP & DOHME LTD.

SOLE SELLING AGENTS: THE BRITISH DRUG HOUSES LTD. and SHARP & DOHME LTD. LONDON.

Cap 114

'PANOPEPTON'

'PANOPEPTON' presents the entire digestible substance of prime lean beef and best wheat in a perfectly soluble, diffusible, and absorbable form. It is at once a grateful stimulant and food.

Supplied in 12-oz. bottles.

For an adult the usual portion should be a dessertspoonful to a tablespoonful several times a day and at bedtime.

PEPTOGENIC MILK POWDER

For preparing HUMANISED MILK.

Humanised Milk is easily prepared with Peptogenic Milk powder, is very palatable, being thin and sweetish like human milk. It very closely approximates to Mother's Milk, both qualitatively and quantitatively, and calls for the same digestive action on the part of the infant as does breast milk.

Supplied in two sizes.

Originated and Manufactured by—

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Agents:

BURROUGHS WELLCOME & CO., LONDON, SYDNEY and CAPE TOWN.

Cadburys have perfected a
SPECIAL CHOCOLATE
which is Sugar Free and
therefore a suitable addition to
the dietary of diabetics

This chocolate is extremely palatable, and because Cadburys have unlimited facilities for laboratory research and the subsequent manufacture and marketing of such a product it sells at a very low price. Further details and analysis with a sample of this Special Chocolate will be gladly forwarded to anyone interested. Please write to Cadburys Laboratories, Bournville.

CADBURY BROS. BOURNVILLE ENGLAND

VOLPAR

The British Drug Houses Ltd. announces the issue of Volpar, a new contraceptive formulated in co-operation with the Medical Sub-Committee of The National Birth Control Association and the outcome of nearly ten years' continuous investigation conducted by University research workers under the direction of the Birth Control Investigation Committee. Laboratory tests have shown that the active principle of Volpar is the most powerful non-toxic spermicidal substance known. The product is presented in two forms:—

VOLPAR GELS

Soluble suppositories primarily intended for use alone, or (for maximum safety) with a cap or sheath. *§ They cannot withstand tropical heat, but are suitable for use in Great Britain and other temperate climates.*

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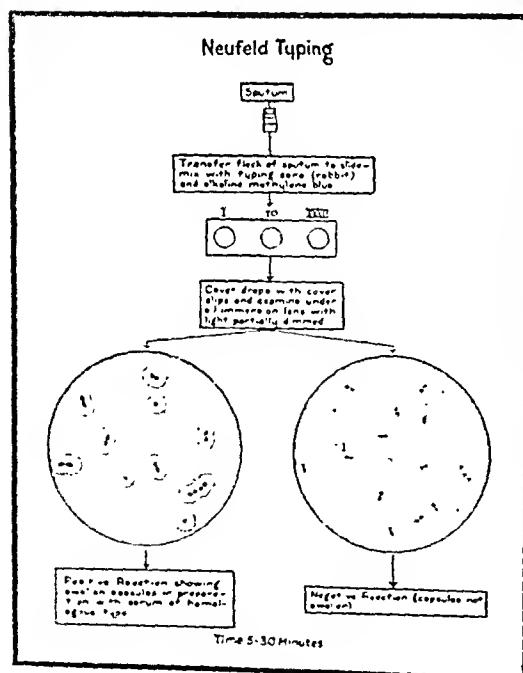
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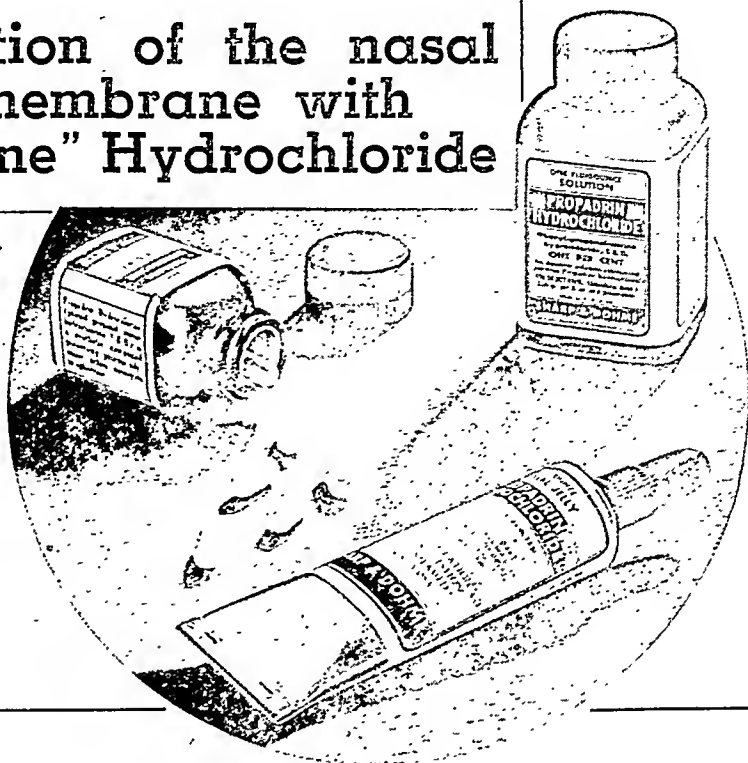
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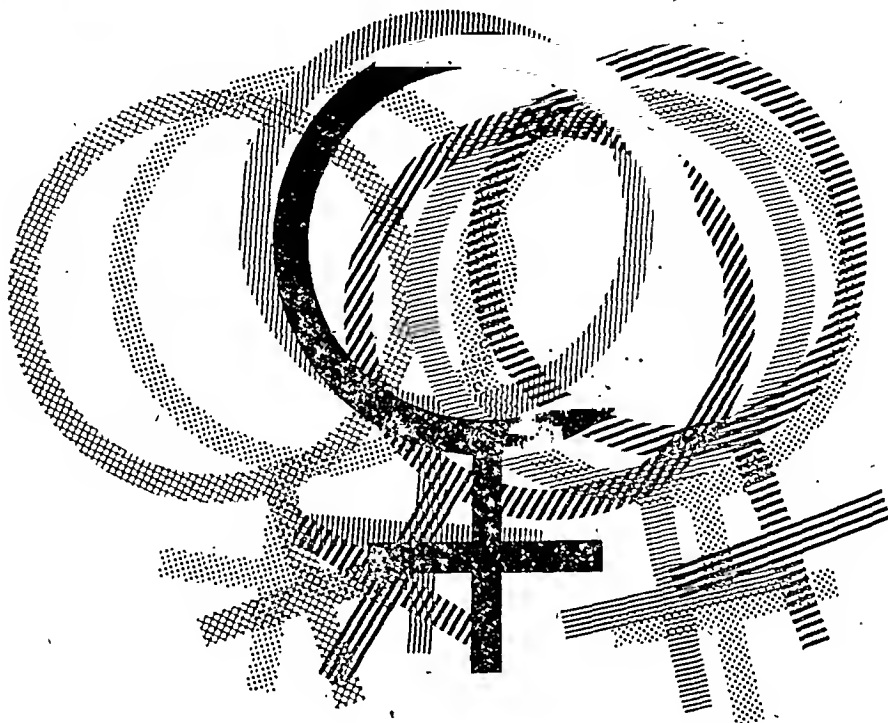
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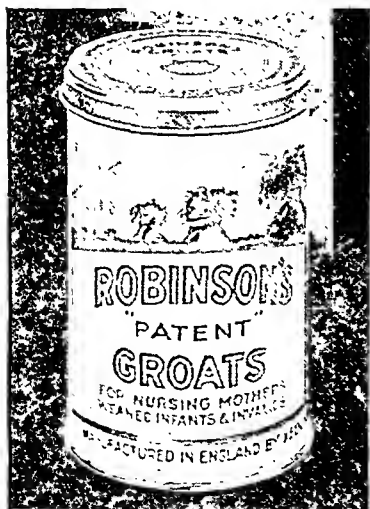
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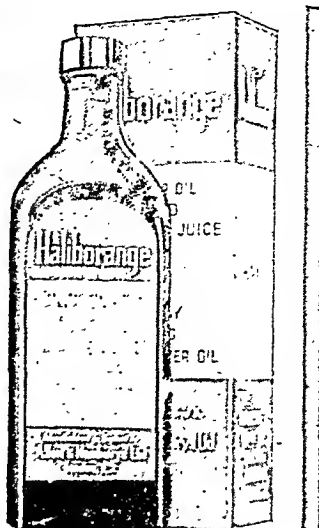
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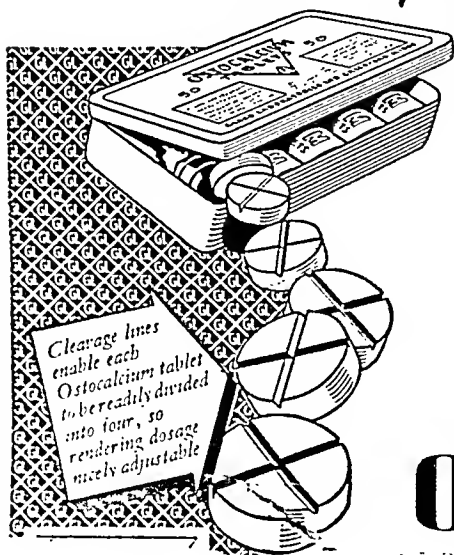
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THE STATE AND MEDICAL RESEARCH*

BY

SIR EDWARD MELLANBY, K.C.B., M.D., F.R.C.P., F.R.S.

Secretary, Medical Research Council

At no time has the position been more favourable than to-day for appreciating Harvey's greatness as an investigator or for acknowledging the extraordinary position he holds as a leader of medical science. More and more men are endeavouring to follow his example, and the revolutionary changes in medicine during the past sixty years have only increased the appreciation of his foresight and skill.

Many still living have seen this revolutionary phase of modern medicine and surgery in its entirety—the introduction of new methods of prevention, diagnosis, and treatment of disease, the enormous increase in hospital accommodation, the initiation and development of clinical laboratories and radiological departments, and the transformation and multiplication of the public health services. Most medical men will agree that the main cause of these developments is the great increase of knowledge in medical science acquired in the past sixty or seventy years as the result of investigation. People began to realize that health and disease are not conditions conferred upon man for humble acceptance, but that a certain method (Harvey's method) of acquiring knowledge is at hand, and that by this knowledge disease can be combated and death itself warded off. More men and women entered the field of investigation, and knowledge accumulated more rapidly. Success bred success. A spirit of optimism as regards the acquisition of good health and the elimination of ill-health pervaded the mind of civilized man.

It cannot be denied that in this country, and even more so in the United States of America, the increase in scientific research has had no special intellectual basis so far as the public, even the enlightened public, is concerned. Research has been found to deliver the goods in these countries often enough to deserve special encouragement. This was not the case in Germany, where for a hundred years or more it had been accepted that teaching in medicine should be done by those who could extend or had extended the boundaries of knowledge by research. It is true that great medical discoveries were made in the past century in countries other than Germany, but in such cases the researches which led to these discoveries were made by men of genius working independently and often under uncongenial conditions. Germany, on the other hand, had an academic atmosphere saturated with the research spirit. Whatever may be the present or future state of medical and other science

in Germany, we ought to remember with appreciation this enlightened attitude, which flourished at a time when medical research breathed but feebly in other countries. Nor, in these earlier times, was the outlook utilitarian. A time came, however, when it was apparent that medical research could and did forge weapons to fight disease. The discovery of antiseptics, antitoxins, and salvarsan left no doubt on this point. It came to be realized that medical and other research was not an interest of a few curious people with a special aptitude for discovering facts which seemed to have but little bearing on life. Wise men, both in public life and in industry, saw that scientific research was the life-blood of modern existence, that it was a means of providing easily the needs of mankind and the knowledge necessary for healthy existence under modern conditions. As might be expected, the earlier disinterested German attitude was first affected by the practical issues, and organized research there received even a greater fillip. Industrial leaders in Germany and in the United States of America also soon grasped the significance of research applied to industry, and found that throwing a sprat of expenditure on research to catch a mackerel of large profit was good business.

It has sometimes been said that it took the great war to make this country realize the importance of scientific research, and it is true that the Department of Scientific and Industrial Research was only set up in 1915, largely as the result of the urgent demands of war. The Medical Research Committee, however, was initiated in 1913. Practically all its activities until 1919 were directed to the solution of medical problems related to war, and right well did it justify itself.

The Endowment of Research

During the present century there have been two rapid developments in medical research activity running side by side, the one in this country and the other in the United States: the former organized and to a large extent financed by the State, the latter richly endowed and controlled by private interests. Each movement has already produced a good harvest, but the crops differ in many respects. It can at least be said that the American record of medical research during the past twenty years has been a very fine one. There is good reason to believe that in America the State intends in the near future greatly to supplement private endowment for medical research, and the recent

* Harveian Oration (abridged) given to the Royal College of Physicians of London, October 18, 1938.

Nuffield scheme started at Oxford is possibly an indication that private individuals here will in future regard the endowment of such research as more worthy of support than in the past.

Financial aid, either from the State or from private endowment, is an essential to research. Money cannot, of course, buy discoveries, certainly not great discoveries, in the same way as it can buy manual labour; but it can offer freedom from the need for earning a living by ordinary work, and afford to those with the necessary ability the means to devote their lives to research. Until recent times, scientific discovery in this country has depended only too often on the haphazard distribution of wealth. Sometimes, as in the case of Darwin, private means have allowed leisure for experiment and contemplation. Sometimes a private society, such as the Royal Institution, has endowed men like Humphry Davy and Faraday in the same way as Trinity College, Cambridge, subsidized Newton. If these men had been completely without financial resources, and dependent for their living on ordinary labour, there can be no reasonable doubt that the particular discoveries associated with their names would not have been made by them.

On the other hand, the limitations of finance to ensure additions to knowledge are equally undoubted. Some of the best work has been done by men labouring under conditions of extreme simplicity. Would, for instance, the work of Claude Bernard and Pasteur have been better had they received abundant financial support early in their lives? It is true that when their work was more or less finished both these men were given adequate laboratory facilities, but for most of their active lives, when they were making their great discoveries, they worked under very poor conditions. The Harveys, the Claude Bernards, and the Pasteurs of this world will make discoveries under the most meagre circumstances, and, beyond a minimum of amenities, increased finance and improved facilities may not aid their output—may, indeed, detract from it.

These instances from past history, where men given slight but real opportunity have made discoveries of the first order, have imbued us all with the thought that many a genius for research must have been lost to the world by lack of such opportunity, and there is a determination that in future finance will not be the preventing factor. Nothing is more clear than that the mental outlook and ability to discover are present throughout all grades of society. Whether this ability is equally distributed is not so sure. In any case, the real discoverer is a rarity in all classes of society, and it must be the object of civilized communities to find these individuals and give them the means of freely carrying out their activities. As a class, those who choose research for their life's work are unworldly in the sense that they are content with a relatively low standard of living as compared with what they could often obtain in other walks of life. It is generally true that the more able the investigator the less are his demands on life's amenities. Even so, however, there is a limit to this, and the scientific genius when found must be given his chance and not be expected to use up all his time and energy fending for a living. In addition to these men there are a larger number who, although not men of genius, work out the rich veins discovered by their leaders. These men must also be looked after and given facilities for their work.

This, then, was the great justification in this country for State support for research, since private endowment was completely inadequate. Everybody will be agreed up

to this point. In the absence of private endowment State support assures the opportunity and offers a means of livelihood to potential investigators who could not otherwise direct their activities to medical research. On the other hand, it is certain that State endowment of medical research must be associated with State control. According to general experience, such control is often repressive and is accompanied by bureaucratic methods and all that these imply. The words "control" and "bureaucracy" have a disagreeable sound in all ears, but more particularly in the ears of those searching after truth by experiment, when success depends upon freedom to work quietly. One of the main objects of this discourse is to show how State control of medical research can be brought about and be compatible with freedom to the investigator. Another object is to explain the manner in which State funds are used for the purpose of promoting discovery in medicine.

The Medical Research Council

It is now twenty-five years since the Government decided to promote medical research by setting up the Medical Research Committee under the National Health Insurance Joint Commission to administer funds provided by the National Health Insurance Act of 1911. This arrangement was terminated in 1920 when the Medical Research Council received its present title and constitution. From this time funds for its work began to be provided direct from the Treasury in the form of a Parliamentary grant-in-aid, and the Council became subject to the general direction of the new Committee of Privy Council for Medical Research, with the Lord President of the Council as Chairman.

Of the present eleven members of the Council, eight are men chosen for their scientific and medical qualifications in the various fields of medical science. Every scientific member must not only have the approval before election of the Lord President of the Council but also that of the President of the Royal Society. Only two members are politicians in the sense that one must be a representative of the House of Lords and the other of the House of Commons. At present the remaining member, the treasurer, is a distinguished banker. With a body of this nature it will be seen that direct political influence is not likely to affect their decisions. It might then be said that, although direct political influence is obviated by the constitution of the Council, some such influence might still be exerted through the secretariat and permanent officials. To meet this the Secretary of the Council is elected by the Council itself—that is, by the scientific majority of the members. The Secretary of the Council is also Secretary of the Committee of Privy Council for Medical Research. There are, in other words, no administrative officials or machinery standing between the Medical Research Council and the Lord President of the Council. So far as constitution and powers are concerned, every action has been taken to see that the Council consists mainly of a group of experts in medical research with full authority to use and control the public money placed at its disposal, independently of all other bodies.

A question that often arises calls for consideration here. Some will doubt whether it is good for medical science that any group of men, such as constitute the Medical Research Council, should be in a position to act almost as dictators in a whole branch of scientific study. It may be argued that, however able, they are apt to become for the time being a body of official interpreters of the truth and, if they are wrong, to misdirect the lines of investigation.

even the interpretation of results so as to interfere with the development of truth. The first answer is that a sure safeguard against the continuation of biased views by an authoritative body is the constant change of personnel of the Council, whose individual term of office is four years. It is, however, a most important question, and its importance is made particularly evident when medical men occasionally appeal to the Council, not for financial support so much as for moral backing of their particular views and a pontifical declaration in favour of their special solutions of problems of health and disease. It is obvious that the Council must never become a backer of any speculative views. In forwarding research the Council must clearly use its discretion, and it can only act to the best of its judgment in this most difficult enterprise.

For the most part, good work is financially supported, but occasionally other work of a more uncertain nature is given the benefit of the doubt and assisted until its true value is seen; but whether the work be good or otherwise, the results obtained, and the views expressed thereon, are those of the individual investigators and not of the Council.

There always have been, and there probably always will be, mistakes in the appraisal of some investigators and their work—cases where relatively poor workers stand, especially in the eyes of their near colleagues, on a pedestal of distinction, and the much more serious case where the first-class discoverer and his work go unrecognized. After all, it is not so long since Lister passed through ten years of criticism and obloquy before the value of antiseptics was accepted. The Medical Research Council can do something to prevent the recurrence of an incident of this kind by asking other workers to repeat the investigation which is criticized; but that is not enough, and it is necessary for all medical men, especially those not engaged in research, to be guarded in their criticisms of the discoveries of others. The critical mind is useful, however, especially when it is associated with the power of discovery. A long experience of scientific research has taught me that only seldom are the facts of a discovery wrong; but the interpretation of these facts, and especially the first interpretation, is often wrong.

This question of the appraisal of new discoveries, especially when they are of a nature which requires much time and careful inquiry for repetition, is clearly one of great difficulty. Nor, so far as the individual worker is concerned, does the matter end always with the establishment of the correctness of the discovery itself, especially if it is one of great importance, and even Harvey's reputation as a clinician was anything but raised by his discovery of the circulation of the blood. Wrong personal judgments and false values are always liable to be met with in the research field, and this is one of the strains which individual workers must expect to experience. At least it will be clear that the estimation of the relative value of discoveries and their discoveries is one of great importance to the Medical Research Council, all of whose actions in promoting research are a reflection of its judgment of men and their investigations. In my experience more mistakes of judgment are due to benevolence than to harshness, so far as the Medical Research Council is concerned.

Advisory Committees

A brief description of the mechanism and some of the general principles guiding the actions of the Medical Research Council may now be given, because there are probably many medical men interested in research who have no idea of these facts.

For general guidance, as regards much of the detailed work, the Council relies on the advice of committees specially set up to cover a large part of the field of medical science. Here, as in the formation of the Council itself, and indeed as in every problem of medical research, the question of personnel holds the key to the situation. Every person should be chosen primarily because of his capacity to aid investigation. Representation either of territory or of learned societies must be absolutely subsidiary to the main purpose of research itself. Territorial and representative interests are out of place in these committees; detailed technical knowledge and sound judgment alone are essential. Representation on committees must, if possible, be confined to representation of research in different parts of the special field of investigation, and it is always wise to have a number of active workers as well as those with past experience of research in any body whose duty it is to plan, initiate, and guide investigation into unknown territory.

The Medical Research Council has twenty-seven such committees. In addition, the Industrial Health Research Board, an important subsidiary of the Medical Research Council, receives advice and guidance from those committees whose work is primarily associated with problems of industry. Some of these committees are appointed conjointly with other bodies. All the services of the members of committees are given voluntarily, and magnificent work has been done by them. Their advice and help are absolutely essential for the work of the Medical Research Council.

Finance

Now a few words as to the finance of the Medical Research Council. Its present annual grant from the State is £195,000, having increased to this sum from about £50,000 which it received at the time of its institution as the Medical Research Committee twenty-five years ago. The block grant is considered every five years, a method which has its advantages and disadvantages. It has the advantage of allowing the Council to plan ahead with some feeling of security. It has the disadvantage of having to provide suddenly for expensive research, often at the request of other Government departments, out of a fixed income, and so curtailing the ordinary programme. It tends to lead to periods of expansion followed by periods of penury. The present time is one of penury. One year of penury in five is probably good, as it gives an opportunity for reviewing research programmes more closely and cutting out any dead wood that tends to occur. In addition to its public funds, the Council is in a position to help in the disposal of private endowments for medical research, and to do this either by directly controlling such funds or by giving advice to others who themselves hold the money. Private funds held by the Council for disposal as interest or capital amount to over £100,000, and, in addition, it receives annual sums of money for special purposes from the Rockefeller Foundation, the Dental Board, the Leverhulme Trustees, the British Empire Cancer Campaign, and the Halley Stewart Trustees amounting to £12,000. Altogether the sum at the disposal of the Council at the present time amounts to about £220,000 per annum.

There has recently been some public criticism, both in the Press and in Parliament, about the small amount of financial support provided by the State for medical research. It has been said that it is a curious anomaly that only £195,000 per annum is provided by the Government for research on disease which costs the country from 200 to 300 million pounds annually, since it is mainly by

research that the Government can hope to reduce the vast amount of sickness and the expenditure it involves. Whereas it is undoubted that much more financial provision is required for medical research, there is no reasonable doubt that in course of time this money will be forthcoming. The Treasury naturally demands that every request for an increase in research expenditure must be justified.

There are three main directions in which the Council disposes of the money. In the first place, the National Institute for Medical Research at Hampstead and Mill Hill has been established. Secondly, a rapidly growing number of research units, both clinical and laboratory, and whole-time workers at various centres in London and elsewhere are maintained. In the third place, grants are given to individual workers for specific pieces of research at many of the universities and hospitals throughout the country.

The National Institute for Medical Research

This organization was set up with the idea of doing large-scale and long-distance work requiring investigation by teams, and of a nature not suitable for university or hospital laboratories. Here, under the direction of Sir Henry Dale, the work is done in two main divisions: physiology, pharmacology, and biochemistry on the one hand, and experimental pathology and bacteriology on the other. An active subdivision of the former is endocrinology; while subdivisions of the latter include protistology and microscopy and physical methods. In addition to the above there is a Department of Biological Standards, the personnel of which is small, since every member of the staff of the National Institute is expected to contribute to this important part of the work when his special knowledge of a particular problem is regarded as essential.

The work of the National Institute has always reached the highest standard, and to recall its many triumphs would be a pleasant task, but it may be well to dwell on one aspect of it only—of particular interest to the practising doctor—which it has taken in its stride. I refer to the biological standardization of drugs.

Standardization of Biological Substances

Here it can be claimed without cavil that the National Institute has led the world and, both nationally and internationally, has rendered a great practical service to mankind. Here have been devised, are held, and are distributed standards required by the British Government for the purpose of the Therapeutic Substances Act, others for the Health Organization of the League of Nations, and some made necessary by the inclusion in the *British Pharmacopoeia* of biological assays for certain remedies. The following standards are held at the National Institute:

Antitoxins and Antisera: Tetanus antitoxin; diphtheria antitoxin; gas-gangrene antitoxin—(a) *perfringens*, (b) *Vibrio septique*, (c) *oedematiens*; staphylococcus antitoxin; anti-dysentery serum (Shiga); anti-pneumococcus serum, Types I and II. *Drugs*: Digitalis, ouabain, strophanthin, arspenamine, neoarphenamine, and sulpharsphenamine. *Vitamins*: Vitamins A, B, C, and D. *Hormones*: Insulin; pituitary (posterior lobe); oestrus-producing hormones—(a) hydroxyketonic form (oestron), (b) benzoate form (oestradiol monobenzoate); male sex hormone (androstosterone); corpus luteum hormone (progesterone).

Recently additional standards have been adopted by the Health Section of the League of Nations for four of the active principles of the anterior pituitary gland, and these will be prepared and stored at the National Institute.

In addition, the Medical Research Council maintains at the Lister Institute the National Collection of Type Cultures of Micro-organisms, so that, at any time, any doctor in the world can obtain for a nominal sum a specimen culture of almost any type of micro-organism. The value of this service is shown by the fact that 5,000 such applications were made last year. In a similar way medical men and research workers can obtain standard bacterial suspensions and sera for the diagnosis of enteric, dysenteric, brucella, and meningococcal infections from the Standards Department maintained at the pathological laboratory of Oxford University by the Medical Research Council. It will be obvious to anybody interested in the subject of biological standards that this work necessitates continuous research in the maintenance of standards, in the search for new standards, and in helping towards a solution the innumerable problems which arise during their use.

Research Units and External Staff Workers

The second line of policy is the placing of units of research in different institutions. This plan has shown great developments in recent years, and its progress is limited only by finance and personnel—that is to say, the Council is desirous of promoting further development along these lines, as it considers this is one of the most effective methods of aiding research. When such a unit is set up in any place the Council makes itself responsible for the payment of salaries and the actual cost of the research. It expects the university or hospital, however, to provide accommodation and ordinary services, and in the case of hospitals the provision of beds and nursing facilities. To ensure the success of each unit the most crucial point is the choice of a suitable director, who becomes a member of the Council's whole-time staff. Every encouragement is given by the Council to ensure that the unit is regarded with pride by its hosts, and each unit is considered to form an integral part of the hospital or university where it is placed. The following units have been established by the Council:

(1) The department of clinical research at University College Hospital; (2) the neurological research unit at the National Hospital for Diseases of the Nervous System; (3) the department of research in puerperal infections at Queen Charlotte's Hospital (with the aid of (a) the Rockefeller Foundation and (b) the Pilgrim Trust); (4) the department of bacteriology and chemistry at the Bland-Sutton Institute of Pathology and Courtauld Institute of Biochemistry, Middlesex Hospital; with the help of the Leverhulme and Halley-Stewart Trusts; (5) nutritional units (a) at the Lister Institute and (b) at the Dunn Nutritional Laboratories, Cambridge; (6) a unit of clinical research at Guy's Hospital; (7) a unit of research of mental defect at the Royal Eastern Counties Institution, Chesham; (8) a unit of research in experimental and clinical surgery at Edinburgh University and the Royal Infirmary, Edinburgh; (9) a department of statistics at the London School of Hygiene and Tropical Medicine; (10) a unit of industrial psychology at Cambridge University. Other members of the staff of the Medical Research Council are seconded in other universities and hospitals, each an expert in his own line and acting as a central stimulus to those around.

The influence of this policy on medical research at individual universities, hospitals, and medical schools is great. In some cases the appointments have been too recent to reach their maximum effectiveness, but in some of the older-established units the work has been first-class and is known throughout the world. There are still many important gaps in this programme, and the expansion of the policy will undoubtedly continue.

Research Grants

Now as regards the third part of the Council's policy—the giving of personal and expenses grants to aid research by individuals. The personal grants are temporary, and are usually limited to three years. This rule is, however, not always applied, and, so far as the Council can help, it is not allowed to end promising and successful research. In making these grants the initiative nearly always rests with the head of a laboratory or hospital in favour of some individual worker, or with the worker himself. The success of the application depends upon the individual and his choice of subject, and the kind of help, when given, varies greatly. Sometimes personal grants for whole-time or part-time work are made; sometimes money is provided for research expenses; and occasionally, in the case of more established workers, for technical assistance. It is in this part of the Council's activities that the various committees are most helpful.

It is difficult to appraise the real value of this policy. It is the side of the Council's work of which most is heard, for every grantee is expected to refer in his publications to help he has received from the Council. A review of scientific and clinical journals soon reveals, therefore, the number and nature of these grants, and it is commonly found in many particular journals that a large part of the work published has been financed from this source. On the other hand, there is undoubtedly some wastage, which is probably not surprising, since at any time about three hundred separate investigations are being thus supported.

One point ought to be realized by those interested in applications for research grants. The Council provides money to individuals and not to institutions. The reason for this is obvious, because the Council considers it essential to control the choice of the individual worker and the type of investigation. Much trouble and much criticism of the Council's activities have arisen through non-appreciation of this rule. When, therefore, institutions, such as universities or hospitals, are planning a scheme of medical research which they cannot completely finance it is desirable, if they wish for financial support, that they should consult the Council in the early stages and before the personnel are appointed. Needless to say, its advice is entirely disinterested, and help in such cases is gladly given.

After a personal or expenses grant is once made every individual is given the fullest freedom to develop his problem. He is encouraged to keep in touch with other investigators studying allied subjects, and it is the duty of the secretary to help in every way. Apart from sending in a short statement each year to be grafted into the annual report of the Council, and the return of vouchers for expenses, the grantee has absolute freedom, and his work is generally allowed to continue for three years unless for some special reason. By this time the average worker has had his chance, and, if at all successful, he qualifies either for a further grant or for one of the many fellowships established in the country, or is definitely placed in a post allowing research facilities. By this means also many young clinicians are given an opportunity both for research and to establish themselves. This interest of the Council in providing personal and expenses grants must not be viewed too narrowly in terms of discovery, but its influence as a recruiting field and as an educative process must also be taken into account.

There is one other activity of the Medical Research Council which touches this College closely and about

which it is desirable to speak. I refer to its policy of awarding travelling fellowships in research. The greater number of these are generously financed by the Rockefeller Foundation of New York, and others are paid out of the Council's private endowments. In all cases the award is at the full discretion of the Council, and each year many applications for these fellowships are received from young medical men with excellent medical and scientific records. A large number of the prominent young medical men in this country—both in clinical and in laboratory work—will be found among the past holders of travelling research fellowships.

Research for Government Departments

This part of the work is rapidly growing, and only its great importance justifies the large expenditure of the Council's resources on these investigations. Questions of health and disease in all their aspects are assuming greater prominence in the view of Government departments, and since many of these problems demand investigation and expert advice the Medical Research Council is often called upon for assistance.

It is useless to deny that the attitude of the Council towards the problems presented varies greatly, and all are not greeted with enthusiasm. Most of them require from the investigators answers which offer a practical solution of difficulties. If an effective answer to any problem can be foreseen the probability is that the work required is more of a routine nature and for that reason itself the inquiry may be unattractive. If the problem is more difficult and no immediate solution can be foreseen, the fact that an early answer is expected may make the task irksome to the investigator.

On the other hand, some of the problems raised by Government departments are greatly welcomed by the Medical Research Council because they offer entry into fields of opportunity where a rich harvest can certainly be obtained. One of these, in which the Council has gladly taken on large responsibility, is that of tropical medical research at the request of the Colonial Office. Already it has sent a number of trained workers into different parts of the tropical Empire to study various problems, and the opportunities are so great that it has also embarked on a scheme for training young men in research in tropical diseases. Quite recently it has also appointed a small number of experts to direct and co-ordinate a large nutritional survey in many colonial territories.

It is impossible, however, to deal adequately here with this aspect of the Council's work, but it can be assumed that most Government departments call on the Council for help and advice, and such calls often involve large-scale research. This phase of activity is removed from the public eye, but its value is none the less very great, and promises to be even greater in the future.

Research Supported by the Council

A few words now on the actual research supported by the Council. On the whole, although there are many exceptions, it will be seen that the Council's initiative in research is largely confined to the work of its permanent staff, while as regards grants (personal and expenses) the initiative lies with the investigators. This is a crude way of expressing the situation, because the permanent staff themselves have wide liberty of action in planning their investigations, and the initiative of the Council is only apparent

in the choice of the personnel, which depends on the merits of each member and on the subject he represents.

The Council seldom chooses particular diseases for investigation, though here again there are exceptions, and any promising line is followed up as a special problem when it offers itself. Generally the choice is of a broader nature, so as to include a group of diseases or a type of treatment of wide application or a system of physiological control. For instance, in the early days of the National Institute for Medical Research the Council decided to encourage specially the study of virus disease. A staff of workers was appointed, with Sir Patrick Laidlaw as leader. More recently the Council decided to extend its interests in endocrinology, and appointed Dr. Parkes to lead this work. Other able investigators were chosen as the undertaking developed, and now there is an energetic team at the National Institute investigating endocrinological problems from all angles and also working in close harmony with most of those engaged in research on this subject, both from a laboratory and a clinical aspect, throughout the country. The most recent decision of the Medical Research Council to develop the field of chemotherapy on a much larger scale than anything previously seen here is now well known. The reasons for this decision have received wide publicity, and I shall not discuss the matter further.

These, then, are some examples of the kind of initiative in research shown by the Council. In a sense, however, all its appointments to the permanent staff, whether at Hampstead or in different parts of the country, are examples of initiation of specific research. Posts have been made for suitable men in the subject to be stimulated, and not men appointed to established posts.

Nothing has yet been said specifically about the desire to encourage clinical research by the setting up of clinical units. It is well known that this is one of the main objects of the Council. This programme is being slowly but steadily developed. As men suitable for appointment to posts of this nature appear, more units will be set up. If clinical research is to enter into its kingdom, success in its early enterprises must be obtained, and this can only happen if first-class investigators are appointed to these posts.

It will thus be seen how it comes about that the Medical Research Council has not usually adopted the practice of making an organized attack on special diseases except when the problem has developed as part of a larger and more general investigation. It has not, for instance, made a mass attack on such important diseases as rheumatism in its many forms and cancer, although, of course, in both instances it supports a good deal of research by different individuals. It considers that it would be relatively unprofitable to spend the large part of its total resources necessary for the adequate study of these diseases at the expense of other work. Extensive *ad hoc* research on a disease like rheumatism, however important as a practical problem, is apt to be unprofitable until the master key of its aetiology or some other essential fact has been disclosed. This master key is just as likely to be discovered by the use of the experimental method over a wide field as by the direct study of a particular disease where the experimental method is hardly available at present. Much is heard about the value of team work nowadays, and far be it from me to deery this method of investigation. But the success of team work depends either on brilliant leadership or on the working out of a special line of inquiry, and this latter is usually supplied by the observation of one

individual. There is no great difficulty in arranging team work; the difficulty is to find the outstanding individual discoverer—the Harvey—to blaze the trail.

Criticism is often made of the type of medical research supported by the Medical Research Council. Sometimes it is said that this work is generally too academic and includes too many problems of biochemistry, biophysics, and physiology. These critics take the view that much more money should be devoted to clinical research and direct attack on disease. The opposing school say that more money ought to be used for the support of fundamental research and that all major discoveries in medicine come from disinterested research in fundamental medical science. The fact is, however, there is no royal road to discovery in medicine, and all we know is that the experimental method used by Harvey with such brilliant results is still the sure method for acquiring knowledge and "searching out Nature."

The Physiological Aspect of Disease

Claude Bernard took the view that all experimental medicine was applied physiology—a view which was killed at the time and for many years after by the success of the investigations of his fellow-countryman Pasteur, of Koch, and of the army of bacteriologists who followed them. When all disease came to be regarded as due to the invasion of the body by some form of *materies morbi*, the body itself was either forgotten completely or attention was mainly confined to the blood and its immunological powers. In more recent times the Claude Bernard point of view has received wider acceptance. The sooner the investigator recognizes the truth of both the physiological and the invasive bases of disease and the close interaction of these factors, the quicker will be the advance of medicine. Defence of the body against invasion by pathogenic micro-organisms represents a physiological process, and there ought to be no dividing-line between the two aspects of the subject for the wise investigator.

My predecessor, the late Sir Walter Fletcher, whose wisdom in guiding the policy and action of the Medical Research Council for the first nineteen years was exceptionally great, was strongly imbued with the Claude Bernard point of view, and played no small part in encouraging the revival of this philosophic outlook on medical research. It requires wise interpretation and tends to mislead those of narrow orthodox outlook who think of physiology in terms of the textbook. Yet there is nothing more prominently established in modern times than the success in discovery which has followed the extension of interest by the physiologist into that aspect of a problem which concerns a function going wrong—that is, its pathology. Again and again we have seen points of major physiological interest established by work on the pathological side. What would we know at present about such things as vitamins B₁, C, and D, insulin, thyroxine, cortin, liver and stomach active principles of pernicious anaemia, if experimental research had not been directed to the abnormal? Yet all these are physiological substances of the first order. Who can doubt that the physiology of the eye would be greatly extended by a knowledge of glaucoma, of the blood vessels by a knowledge of the cause or causes of hyperpiesis, of the heart by a knowledge of the causes of auricular fibrillation, of the kidneys by a knowledge of albuminuria, of the alimentary tract by a knowledge of gastric and duodenal ulcer, appendicitis, and colitis? It is probably an exaggeration to say that it is no more unlikely that a

physiological truth will come out of an experimental study of a pathological condition than that a fact of pathological significance will result from a purely physiological study. Every man working on a problem from either angle ought to be familiar with the other aspect. There has too long been a divorce between the two subjects, although this is tending to diminish. In recent years the Medical Research Council has endeavoured to help this situation by offering studentships to highly qualified young men to enter the field of experimental pathology as well as clinical investigation. The best qualification for such men is undoubtedly a good training in physiology, and physiologists in general would find a greater opportunity for essential discovery if they realized that a study of abnormality of function often offers the key to the elucidation of the normal process. Harvey himself did not confine his observations to one aspect of his problem. When necessary he called up evidence from every branch then known of physiology, pathology, and clinical medicine to support his argument.

The Future of Medical Research

And now, what can be said of the future? Short of a catastrophic change which may upset or even destroy national life, the future of medical discovery is bright. Past experience shows that, whatever problem concerning the body can be formulated by the human mind, there is a possibility of a solution or partial solution to it being obtained. There is thus no doubt that more and more knowledge will be obtained, giving control, both preventive and curative, of disease. The limiting factor in this progress will always be the men of genius available who make the first-class discoveries, but it is probable that with the spread of educational opportunities to poorer people more of these men will present themselves. The money available for medical research will increase, and financial obstacles will almost certainly be removed as the work develops now that the State has put its hands to the plough. No insurmountable difficulty may be expected in the direction of finance if the situation is handled wisely.

The difficulty I foresee is not that of obtaining knowledge but of its application to human needs. Curative remedies as they appear will, as in the past, undoubtedly be generally taken up by the medical profession. Much of the new knowledge to be gained, however, may concern the prevention of disease, especially the prevention of chronic and degenerative conditions, including cardiovascular disease, rheumatism, and pulmonary disease. The adoption and application of this knowledge will generally depend on the degree of education and wisdom of individuals. In some cases it will involve Government action. Without an enlightened public opinion the average individual will do nothing to save himself or herself, and the State even less. If we are to continue as a successful democracy, dependent on public opinion for action, this must be guided suitably and quickly in problems of health as in other matters.

It seems to me that one of the most important functions of this Royal College in the future will be to lead public opinion and to guide State departments, especially in matters of preventive medicine. The Royal College of Physicians is an ideal body for giving guidance and to press for action, if such be needed, in cases where scientific discovery has supplied new knowledge of importance to public health. Its independence and freedom from political relations, and the high and honourable standing

of its Fellows, would give its edicts an unassailable power.

I have now completed my task of giving a bird's-eye view of the modern movement of State support for medical research. It would be idle to pretend that the State or any other body could do much more in this matter than supply facilities to assist generally, and guide the natural genius of the country in studying problems relating to health and disease. Much remains to be done to improve and develop the movement, but, bearing in mind the limitations of any such enterprise, it will probably be agreed that the entry of the State into this field of discovery has been both stimulating and fruitful.

SOME ASPECTS OF RECENT WORK ON THE BACTERIOLOGY OF RHEUMATISM*

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Reviews of the rheumatism problem appear with a regularity which is certainly not in keeping with the rate of advance of our knowledge of the subject, for rheumatism in its diverse forms presents an aetiological problem which is among the most difficult that medicine now faces. Consideration of its complexity suggests that entirely new conceptions of the host-parasite relationship may have to be evoked before the observed clinical, pathological, bacteriological, and serological results can be resolved into a comprehensive pattern.

For present purposes it is proposed to discuss the more recent work in its bacteriological and serological aspects, picking out certain salient and significant observations for more detailed consideration. As a starting-point the now well-known phenomenon of throat infection with *Streptococcus haemolyticus* followed by a latent period, which is in turn succeeded by an attack or relapse of acute rheumatism, will be considered. (Schlesinger, 1930; Collis, 1931; Sheldon, 1931; Coburn, 1931.)

Each phase has received careful study by Coburn (1932, 1935, 1936). The initial throat infection is often of very mild type, causing a slight rise of temperature, and in many cases it is overlooked by the patient. The presence or absence of tonsils does not affect the outcome, since a pharyngitis or nasopharyngitis clinically recognized as a febrile cold may be the starting-point for the rheumatic attack. Coburn and Pauli (1935d) have studied the characteristics of those strains which may be effective in producing a rheumatic relapse in susceptible subjects, contrasting them with strains which are non-effective in this respect. The effective strains were characterized by the capacity to produce strong erythrogenic toxins and haemolysins, and were in fact indistinguishable from scarlatinal strains. Those strains lacking in exotoxin production, although of human Group A and culturally similar to the effective strains, were not associated with rheumatic relapse. The toxins produced were not regarded as causative of the rheumatic lesions. On the contrary, a very low incidence of Dick-positive reactions was found among rheumatic children, and the erythrogenic toxin is

* Read in opening a discussion in the Section of Pathology, Bacteriology, and Immunology at the Annual Meeting of the British Medical Association, Plymouth, 1938.

probably neutralized as it is produced. The significance of exotoxin production appears to be as an indication that the organism is able to elaborate other soluble antigens. It may be that some hitherto unrecognized component is the effective agent in producing the rheumatic lesions.

The Latent Period

The latent period may next be considered. This may be very short, in which case the rheumatic attack follows at once on the respiratory infection. In the majority of cases the interval is from seven to twenty-one days, after which onset of fever, with increased sedimentation rate and development of clinical signs and symptoms, ushers in the rheumatic attack.

Studies have been made of the serological changes during the latent period. The antibodies found include precipitins reacting with protein fractions and antistreptolysins. In their earlier studies Coburn and Pauli (1932c) found that in normal individuals who contracted haemolytic streptococcal infection a slight concentration of precipitin appeared about four weeks after infection in the absence of rheumatic sequelae. In cases where rheumatism followed, the precipitin reaction was more definite. Schlesinger *et al.* (1935) have also noted this. They considered that the antibody-producing mechanism of rheumatic patients appeared to react more strongly to acute streptococcal infections than that of the non-rheumatic. They noted that the antibody content of the patient's serum was at its height just when a relapse was to be expected. Turning next to the anti-haemolysin, an antibody which is susceptible to accurate titration, we find similar results. Taking first non-rheumatic individuals, Coburn and Pauli (1932c) found that patients acutely ill with haemolytic streptococcus infection showed no change in titre but that a marked rise occurred during convalescence.

The same authors (1935f) confirmed this in rheumatic children. They showed clearly that in a group which developed rheumatic attacks the antistreptolysin titre rapidly rose to reach its maximum two to five weeks after the infection. On the other hand, failure to find a rheumatic relapse was associated with little or no rise of antistreptolysin titre even though the infecting organism possessed all the characters of an "effective" strain. They concluded that the greater the antibody response the more severe was the accompanying attack. As a corollary to this they suggested a conception of rheumatic disease as being the result of the following sequence: (1) infection with toxin-producing strains which initiates a process peculiar to rheumatic subjects; (2) antibody response, associated with (3) release of a substance, presumably from the antibody-producing tissues, which is toxic and which directly or indirectly alters mesodermal structures.

Coburn (1936) suggested that the rheumatic subject is characterized by a delayed development of antibodies. The evidence on which this conclusion is founded is not altogether clear. Thus in scarlet fever without rheumatic complication the maximum titre was found within seven days, while two cases of streptococcal infection with rheumatic relapse are quoted which showed a maximum on the twelfth and nineteenth days respectively.

Referring to the fact that some cases of pharyngitis are followed by rheumatism while others are not, Coburn stated:

"In both types of subjects immune responses vary widely in degree, occasionally failing to appear. When antibodies develop in the normal subject they are not associated with disease, but the development of an immune response in

rheumatic subjects is frequently accompanied by the appearance of rheumatic activity."

In view of these facts, with which most workers are in agreement, the only proof that a delay in antibody response is characteristic of rheumatism would appear to be a statistical one. It must be emphasized that delay does not imply deficiency, since the response was maximal, and increased progressively, in the more severe cases, and fall of antibody did not occur till after the disease had become clinically quiescent.

Persistent Infection by Haemolytic Streptococci

The presence of antibodies to high titre in the serum of cases of acute rheumatism irrespective of a history of *Strep. haemolyticus* infection has been amply corroborated by Todd (1932), who was instrumental in demonstrating the antigenic properties of streptococcal haemolysin, and by Myers and Keefer (1934); while Hadfield, Magee, and Perry (1934) have shown that the antifibrinolysin response follows a similar course. In association with the very definite epidemiological relation between haemolytic streptococcal infection and initial attacks of acute rheumatism as shown by institutional outbreaks (Bradley, 1932; and others), this serological evidence strongly suggests that a persistent infection with that organism is an important factor. That it is operative in every case is difficult to disprove, because the period during which the organism may be found on the respiratory mucosae is known to be a short one.

Failure to elicit a history of sore throat may be explained by the mildness of the condition, which is indeed a very characteristic feature of the prodromal infection. Thus we (Gibson and Thomson, 1933) were able to secure a history of respiratory infection within the three weeks preceding the attack in only 27 per cent. of the 119 rheumatic cases investigated in Edinburgh. As illustrating how extraneous circumstances may influence such an investigation, a year later over sixty post-scarlatinal rheumatic cases were treated in the hospital in which our series was studied. Thus a similar investigation on cases from the same population in the same hospital one year later would have produced an entirely different impression. Shapiro (1935) also could find no evidence that respiratory infection preceded the rheumatic attack in any large proportion of cases. Colds, sore throats, scarlet fever, and otitis accounted for only 30 per cent. of his cases. In 45 per cent. the onset was gradual without any evidence of infection. That writer records a number of instances where injury was followed by acute rheumatism after a latent period of some days. Wilson *et al.* (1934) from a study of convalescent rheumatic cases obtained evidence that did not support the conception of a specific aetiological relationship between respiratory infections and rheumatic fever in children. Thus less than 10 per cent. of the rheumatic attacks were preceded within three weeks by a respiratory infection. They further reported that two-thirds of the subjects experiencing rheumatic activity unassociated with respiratory infections did not exhibit a rise of antistreptolysin titre.

The failure of infections other than haemolytic streptococcal ones to activate rheumatism has been noted by Coburn (1931) in the case of pneumococcal infection and Coburn and Pauli (1935b) in the case of influenza and chickenpox. Bland and Duckett Jones (1935), on the other hand, have reported pyelitis, herpes zoster, and a febrile reaction to the Schick test as being activating factors. They are also able to show repeatedly the phenomenon of latent period followed by relapse after the intravenous injection

of T.A.B. vaccine. Operations and accidents were found by these authors to act in the same way. Thus haemolytic streptococcal infection may not be the only activating factor. Conversely, haemolytic streptococcal infection in erysipelas does not appear to be capable of initiating the rheumatic process. This is indicated by Keefer and Spink (1937), who showed that the strains responsible were mainly toxigenic, with all the other attributes of "effectiveness" in the sense of Coburn. The immune response was also shown to be efficient by the rise of antistreptolysin and antifibrinolysin in the blood, and a marked delay in the fall of the former was noted.

To sum up, epidemiological and serological findings taken together provide a striking mass of evidence in favour of the aetiological relation of the haemolytic streptococcus to acute rheumatism. Contrary evidence gathered from sporadic cases, which by their nature are not susceptible to bacteriological study in the pre-rheumatic phase, is much less convincing; but the possibility cannot be ignored that there may be a group of cases which arise without a preceding acute haemolytic streptococcal infection. Such cases may be overlooked entirely if such infections, epidemic or sporadic, are made the starting-point for the collection and study of rheumatic cases, in all of which there will naturally be serological residua in the form of specific antibodies.

Theories of Aetiology

The full interpretation of these results is admittedly impossible. Rather they enable us to discuss hypothetical mechanisms by which the rheumatic response may be produced. Two alternative theories appear to fit the observed facts. Either the disease is an infection with *Strep. haemolyticus*—and this includes the possibility of chronic systemic infection of a type not now recognized—or some other specific rheumatic agent is primary and the streptococcus is to be regarded as merely one of a number of secondary inciting causes.

Theory of Chronic Haemolytic Streptococcal Infection

Direct evidence of this is slight. Organisms isolated from the blood, joints, and elsewhere have been mainly non-haemolytic types (Póynnton and Paine, 1913; Clawson, 1925; Cecil, Nicholls, and Stainsby, 1929), and reports of such bacteriological observations are conflicting. In this connexion there are two circumstances which should be mentioned. First, the latent period allows time for the development of antibodies, and the *in vivo* culture medium of persisting organisms may become antagonistic to survival in their original form. The conditions are, in fact, those used artificially to enforce dissociation of other bacteria into variant forms. Secondly, in gonococcal infection of joints it is often found that the blood and joint fluid are sterile. This has been emphasized by Myers, Keefer, and Holmes (1934), who found, even in acute cases, that isolation of the organism from the joint fluid was only possible in 25 per cent. of cases. They concluded that the inflammatory reaction in cases with non-infected fluids is below the surface of the synovial membrane and in the periarticular tissues. They compared the non-infected effusion to that sometimes found in the pleura in pneumonia, the aseptic meningitis of extradural or brain abscess, and the sterile effusions in joint cavities in osteomyelitis. For these two reasons the failure to find organisms or the finding of types differing from those of the respiratory tract is not conclusive evidence against a generalized low-grade infection.

The failure to find bacterial products of primary toxicity has led to the theory of allergy, in which the specific element of the process is transferred to the tissues, the bacterial substance involved being an antigen of no primary toxicity, possibly derived from any of a number of bacterial types. The acceptance of this theory presupposes that we know all regarding the pathogenic potentialities of the streptococcus and that this knowledge will not explain how chronic infection with that organism could cause disease of the rheumatic type by the well-recognized modes of invasion or toxin production. Such an assumption is not justified. Within the last few years we have learned of antigenic haemolysin, fibrinolysin, capsule production as a general phenomenon among haemolytic strains, the Lancefield groups, and the Griffith types, and much evidence has been given that Dick toxin is manifold in its structure and perhaps also in its works. The antibody response so characteristic and of such a marked degree and duration in acute rheumatism may simply be an indicator of the diffusion of other exo-products possessing specific toxicity which have yet to be defined. Recent work on the multiple toxins produced by *B. welchii* and their specific effects in a variety of animal diseases is an instructive analogy.

The allergic or hyperergic variant of this theory has recently acquired support from the histological and experimental studies of Klinge (1936) and others, and merits further comment. It has been stated in its most recent form by Swift, Moen, and Hirst (1933) as follows:

"The primary haemolytic streptococcus infection is followed quickly by a state of antitoxic immunity, in contrast to a relatively delayed type-specific antibacterial immunity, and a state of bacterial hypersensitivity (hyperergy to streptococci) is concomitantly induced. With the development of partial immunity, the persisting streptococci are reduced to a state of relative avirulence for the individual, but continue to be active in the tonsils, lymph nodes, sinuses, and other tissues, where they set up focal infections, which are ideal sites for the further continuous stimulation of a hypersensitive state of the entire body. Moreover, the persistence of streptococci in these foci results in the elaboration of poisonous substances, either from the bacterial bodies or from the patient's tissues, or from both, which irritate and damage certain portions of the hypersensitive mesenchymal system."

In this form the allergic sequence resembles closely the phenomena which constitute chronic infection—for example, in syphilis or tuberculosis, where late manifestations are undoubtedly coloured by allergy. In such chronic infections the antigen circulates in the form of whole organisms capable of multiplying at the fresh sites of involvement. In rheumatism the suggestion is that bacterial products carried by the blood stream are the active agents producing similar widespread tissue changes without actual metastatic infection.

The hyperergic reaction probably has a place whatever the nature of the primary infecting agent, and is an important field of investigation which will certainly lead to a fuller understanding of the pathogenesis of the disease. The allergic conception of acute rheumatism was originally derived from the analogy between the latent period common to that disease and serum sickness. Schlesinger *et al.* (1935) have, however, pointed out that the same interval is noted between the initial infection and frankly septic complications such as otitis, meningitis, and adenitis, which are not regarded as allergic in any of the many senses of that term. Acute glomerulonephritis occupies an interesting position because it follows streptococcal infection after a latent period and a high serum antistreptolysin titre is of frequent occurrence (Seegal and Lytle, 1933; Coburn, 1933).

A final word may be said on the therapeutic evidence bearing on the relation of *Strep. haemolyticus* to acute rheumatism. Coburn and Pauli (1935c) found that active immunization with Dick toxin neither prevented streptococcus infection nor inhibited the development of the rheumatic process. Passive immunization with serum did not modify the rheumatic relapse and possibly increased its severity. Sulphanilamide has been shown by Swift *et al.* (1938) to be definitely harmful in cases of established rheumatism. Under its influence in certain cases the pulse was more rapid, pyrexia increased, fresh joints became involved, nodules appeared, and pancreatitis developed. There was no evidence that antistreptolysin production was influenced, and, on the contrary, rising antibody curves were noted after administration of the drug.

Swift points out that such incidence has no real bearing on the hyperergic theory because sulphanilamide is known not to be effective in chronic infections. Eason and his co-workers (1934, 1937) reported favourable results after the administration of large doses of scarlatinal antitoxin in established cases, but regard the effect as partly non-specific. Taken as a whole the therapeutic evidence does not support the streptococcal view-point, though it does not disprove it.

Theory of a Specific Rheumatic Infective Agent

The alternative of a specific rheumatic infective agent, possibly of virus type, is an almost equally satisfactory explanation of the facts as we know them. Such an agent might infect in childhood some 5 to 10 per cent. of the whole population. It would be characterized by latency, its presence only becoming clinically manifest when some incident such as infection (most frequently perhaps with haemolytic streptococcus), operation, or accident causes the balance of the symbiosis to be upset in favour of the parasite. This would account for the incidence of apparently new cases of rheumatism following outbreaks of scarlet fever or haemolytic streptococcal respiratory infection in about 10 per cent. of those attacked. That the rheumatic process may remain latent throughout life is shown by those cases which come to necropsy with scarred valves in the absence of any clinical history of rheumatism. It may be argued that the intense and prolonged antibody response to the exo-antigens of the streptococcus may be incidental and related to the inciting factor rather than to the primary cause of the disease. The rising curve of antibody titre extending over the whole period of rheumatic activity is, however, difficult to reconcile with this view. It may be noted that the persistence of the antitoxin giving rise to the Dick-negative state after scarlet fever is not considered to be due to continued activity of the streptococcus, and the same may be true of the antistreptolysin. There is, then, much to be said in favour of a specific rheumatic micro-organism or virus. The work of Schlesinger, Signy, and Amies (1935), Coles (1935), and Eagles, Evans, Fisher, and Keith (1937) along these lines is interesting, and forms a valuable positive contribution to the observed phenomena of rheumatism.

Obviously no conclusion is possible at this stage. Each theory which has been put forward conflicts to a greater or less extent with the available evidence. The problem may be restated but not answered.

Rheumatoid Arthritis

The relation between acute rheumatism and rheumatoid arthritis is a subject of much controversy. Clinically

there is little similarity, but on the pathological side there is a good deal of evidence that the two diseases may be aetiologicaly related. One may perhaps recall that erysipelas and scarlet fever are separate diseases which show little clinical relationship and yet possess in common an identical ultimate bacterial cause. For a discussion of this question the reader is referred to the review by Dawson and Tyson (1935), in which a great deal of evidence is collected. Poynton (1938) deals in a similar way with the whole group of "rheumatisms."

With regard to rheumatoid arthritis it is proposed simply to mention one aspect of recent evidence, the demonstration of serum antibodies to the haemolytic streptococcus.

Cecil, Nicholls, and Stainsby (1931) reported the isolation of haemolytic streptococci from the blood and joints of a high proportion of cases of rheumatoid arthritis, and the agglutination of the strains by the patients' sera in high dilution was shown by Nicholls and Stainsby (1931). The isolation of the organism has been confirmed by some but not by other later investigations, but the agglutination reaction has been demonstrated by practically all who have repeated it.

The titres reached, up to 1 in 10,000 or more, and the duration of the response are far in excess of those associated with acute haemolytic streptococcal infection. Dawson *et al.* (1932) have studied the reaction closely. They reported that the agglutinins in their thermostability and increase with the age of the subject resemble the natural antibodies of normal sera rather than the immune agglutinins following immunization or infection. They are extremely wide in their valency, and practically any haemolytic streptococcus of human group A may be used to elicit the reaction, although some strains give a higher proportion of reactors than others. The antibodies produced are thus not specific for any typical strain of rheumatic origin, as was at first suggested by Nicholls and Stainsby (1931). They were found, indeed, to react also with *R. pneumoniae*, although the type of agglutination was different in certain respects. The reaction showed no parallelism with the plasma and serum protein changes which are so pronounced in rheumatoid arthritis and which account for the increased sedimentation rate. They did, however, show a considerable but not complete correspondence with the precipitin content of the serum when tested with protein and carbohydrate antigens of *Streptococcus haemolyticus*. The antistreptolysin and antifibrinolysin of rheumatic fever are not found in rheumatoid arthritis (Stuart-Harris, 1935; and others).

Levinthal (1938) has repeated this work at the Royal National Hospital for Rheumatic Diseases, Bath. Taking a strain of haemolytic streptococcus quite at random (Group A, Griffith Type 3) from the throat of a rheumatoid arthritis patient, and examining sera "blindfold"—that is, without any knowledge of the clinical condition present—he has found agglutinin in 71.5 per cent. of cases of rheumatoid arthritis, the reaction being strong in 51.3 per cent. His figures agree closely with those of Nicholls and Stainsby (1931), Dawson *et al.* (1932), Cox and Hill (1934), Blair and Hallman (1935), and McEwen *et al.* (1935). The reaction was negative in all but a very small proportion of other clinical types of chronic rheumatism. Of particular interest is the fact that cases of ankylosing spondylitis, by many regarded as a specialized form of rheumatoid arthritis, gave the reaction in only a very few cases. He has extended the work to a comparison of the agglutinins of joint fluid with those of blood. The observation has been made that there is a group of cases in which the test is positive in the fluid and negative in the blood serum. Out of eleven serum-negative cases eight showed positive reactions in the joint fluid.

It is argued that such joint-fluid antibodies could only have arisen from a local source—the disintegrating tissue of a joint—and that such a distribution (presence in tissue, absence in serum) is that associated with sensitization. The antigen continuously discharged from a focus of infection is unchecked by circulating antibodies and

reaches the tissue cells, where it reacts with their antibody, leading to a local anaphylaxis; the so-called hyperergic inflammation. Levinthal suggests that the basic lesion is a debility of antibody-forming mechanism which does not permit of that prompt response necessary for effective disposal of infection. He regards the micro-organism merely as a source of antigen, the streptococcus being operative in some 90 per cent. of cases, while other bacteria may be responsible in the remainder. Dawson *et al.* (1932) have shown that the formation of serum agglutinins in rheumatoid arthritis is a very slow process, requiring months of active disease before high titres are reached. He and many others have observed that the titres tend to fluctuate in a remarkable way on repeated tests. Following Levinthal's views, such periods of intermission would leave the tissues vulnerable to attack.

It will be noted that the evidence is explicable by a hypothesis which is essentially similar to that of Swift in the case of rheumatic fever. It assumes that the agglutinins are true immune antibodies, and their presence is accepted as evidence of the continued presence of the streptococcus, although Dawson *et al.* (1932) suggest that neither assumption is fully justified on available evidence. Again, the fluctuating serum titre may recede, leaving antibody temporarily locked in the joint fluid, a circumstance which would explain the combination of "serum negative; joint fluid positive" upon which the theory is based.

Space does not permit of any further consideration of the great mass of recent work on chronic rheumatism. Hench (1938) has examined the evidence critically, and concludes as a clinical investigator that it still remains to be proved that the disease is infective in origin; as a practising physician he has committed himself with reservations to the microbe theory. This is a perfectly accurate summing-up of the present unsatisfactory position. From epidemiological considerations we may be fairly certain that acute rheumatism is infective; even this is denied us in the chronic forms. But the present revival of interest in rheumatism must in the near future produce results which will do something to remove this uncertainty.

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ALCOHOL INJECTION IN INOPERABLE MALIGNANT GROWTHS OF THE JAWS AND TONGUE

BY

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Carcinoma of the tongue and malignant growths in the facial bones, especially in the antrum, maxilla, and nasopharynx, whether they are called sarcoma, carcinoma, or endothelioma, are in the first instance naturally the affair of the general or of the ear, nose, and throat surgeon. Sometimes one of these cases in the initial stages presents itself as a case of neuralgic pain in the face, and there may be no clear localizing signs of growth. In this way I have seen early a few cases of nasopharyngeal growths, tumours of the bones of the base of the skull, and even antral growths invading the maxilla, though the obvious evidences of antral opacity in these latter should have been sufficient to side-track such patients from a neurologist.

It is not, however, of the early diagnosis of these difficult cases that I wish to write, but rather to draw attention to the terrible pain that many of these patients suffer in the later stages, perhaps after an excision of half the tongue or of the maxilla, or after treatment of a nasopharyngeal tumour by x rays, radium bomb, or radium needles. I have yet to see a nasopharyngeal malignant growth cured by surgical removal, and though radium treatment may cause temporary disappearance of the growth and great amelioration of the symptoms, yet recurrence after the lapse of a few months is the rule, and further treatment on the same lines is useless as the new growth now appears to be radium-fast.

When the surgeon in charge has decided that no further treatment can arrest the growth, it is then essential to render the remainder of the patient's life as bearable as

possible, and only too often analgesic tablets and finally morphine injections are considered the sole remedy.

It is in just these cases, where the malignant growth is invading the territory of the fifth cranial nerve, and where the growth has not spread into the neck or ear, that destruction of the Gasserian ganglion, and perhaps of the glosso-pharyngeal nerve also, may arrest the pain completely and give the patient comparative ease and comfort.

Illustrative Cases

From my case books I have picked out seven cases of malignant growth of the maxilla and antrum in which surgery failed to arrest either the growth or the pain, and in which alcohol injection of the Gasserian ganglion gave complete relief.

Case 1.—A woman aged 36 was sent to me by a surgeon in February, 1919, after he had removed the right maxilla for a malignant growth which had been causing severe constant pain for twelve months. As the pain was in no way lessened I injected the right Gasserian ganglion with alcohol by the lateral route, causing total trigeminal anaesthesia of all three divisions of the nerve. The pain was arrested at once, and ten days later the anaesthesia remained unaltered and there had been no return of pain.

Case 2.—A woman aged 65 had suffered for two years from pains in the left cheek shooting up the temple and across the cheek, and more or less constant. There was a perforating ulcer in the left palate posteriorly, and paresis of the left external rectus muscle. Hyperaesthesia to the scratch of a pin was noticeable over the whole left trigeminal area, though she stated that the left upper lip felt "rubbery." She was referred to me by an ear, nose, and throat surgeon in August, 1932, for alcohol injection, which I did, injecting the outer two-thirds of the Gasserian ganglion by the lateral route, with complete relief of the pain.

Case 3.—A man aged 70 was sent to me in November, 1933, by a surgeon for inoperable malignant growth of the right cheek and maxilla, causing intolerable shooting pains in the territory of the second division of the fifth nerve. The cheek was so seared and tender that I used the lateral route in preference to the anterior for injecting the ganglion. It proved to be quite easy, taking only a few minutes to complete, and total trigeminal anaesthesia persisted. The neuralgic pains were at once completely relieved.

Case 4.—This patient, a man aged 52, was sent to me in June, 1936, by the same surgeon as in Case 2. He had complained for the past two months of severe pain in the left cheek, which was swollen and very tender. There was no anaesthesia of the face, though the skin was much mottled and atrophic on both sides following x-ray treatment for syphilis years before. Injection of the left Gasserian ganglion with 10 minims of 90 per cent. alcohol produced total trigeminal anaesthesia of all three divisions, with immediate cessation of the pain and tenderness.

Case 5.—A man aged 55 was seen in March, 1936, for pain affecting the whole of the left side of the head. For several months past he had had occasional bleeding from the nose, and neuralgic pain in the left side of the nose and across the cheek to the ear for three or four hours every afternoon. Turbinotomy gave no relief; another ear, nose, and throat surgeon found the left antrum opaque and removed a piece of growth, which was reported to be sarcoma. There was some numbness and partial anaesthesia of the left lower lip and half of the tongue, and also Eustachian deafness. The pain was controlled to a certain extent by taking sixteen veganin tablets daily. Alcohol injection of the outer two-thirds of the Gasserian ganglion was done by the lateral route on May 25, 1936, producing total anaesthesia of the left second and third trigeminal divisions, and immediate disappearance of all pain in the face.

Case 6.—In July, 1935, this patient, a man aged 59, complained of sore throat, and a piece of tonsil removed proved

to be malignant. He was exposed to heavy radium treatment for 138 hours, and felt completely cured. Six months later the symptoms returned, and he was again similarly treated for fifty hours; in addition five radium needles were immediately afterwards inserted into the left tonsillar region for five days. Pain of a neuralgic shooting character started at once, and persisted continually afterwards in both left upper and lower jaws and side of the tongue, the pain spreading into the left ear and temporo-mandibular joint, with occasional intermissions. The jaws became fixed from contracture due to a radium burn close to the temporo-mandibular joint. It appeared to me that the acute onset of the pain immediately following the second heavy radium treatment was due to a trigeminal neuritis and probably glosso-pharyngeal neuritis, also secondary to the radium treatment. Left Gasserian injection, producing complete trigeminal anaesthesia, relieved the lower jaw pain, but neuralgia persisted from the ear to the maxilla and temple, probably glosso-pharyngeal in origin. This nerve was then dissected out behind the angle of the jaw and avulsed from its point of emergence from the base of the skull. Though his pain was relieved he unfortunately developed pyrexia and increasing weakness, dying three days later.

Case 7.—A man aged 73 had suffered from a chronic left antral discharge following an antral operation forty years previously. Severe pain in the left side of the face began in January, 1937, and when seen by an ear, nose, and throat surgeon a diagnosis of carcinoma was made. Deep x-ray therapy produced some improvement, though the pain was just as severe six months later. Radium needles were inserted, but the disease advanced, a large perforation in the palate being visible and the cheek being much swollen and discharging pus. The whole area of the cheek and jaw was intensely hyper-sensitive to touch. I saw him with his doctor on March 25 this year, and on the next day, under ethyl chloride anaesthesia, I injected his left Gasserian ganglion by the anterior route. Owing to the great swelling of the cheek the needle had to be inserted rather lower than usual, but no particular difficulty was encountered, and total trigeminal anaesthesia resulted. This persisted unaltered on the following day, when all the facial hyperaesthesia had disappeared, and the parts could then be handled with impunity.

These seven cases of malignant growth involving the antrum, maxilla, or tonsil illustrate the great relief to the pain that can be obtained by a well-placed alcohol injection in the Gasserian ganglion. No doubt the same relief could be secured by a sensory-root resection of the fifth nerve or by a trigeminal tractotomy, but owing to the severity of these open operations they will probably be generally held unjustifiable in view of the weak state of the patients and their short expectation of life.

Carcinoma of the tongue that is considered to be inoperable owing to spread of the disease in the floor of the mouth or from recurrence after operation or radium treatment also causes great suffering from pain in the face, which may be relieved by a less extensive injection than the type described above. Alcohol injection of the third trigeminal division at the foramen ovale will anaesthetize the area of the disease and give complete relief to the pain without pushing on the needle into the Gasserian ganglion. The anaesthesia of a well-placed injection should last as long as the patient's expectation of life.

Case 8.—In January, 1936, this patient, a woman aged 55, had been treated by radium needling for carcinoma of the tongue, but severe pain persisted along the left side of the mandible as far as the middle of the chin, and the tongue was very painful on moving. For the past twenty years she had complained of a "sore ear," being unable to sleep on that side, with pain around the ear following exposure to a draught. This I considered to be a "geniculate neuralgia" following a chill neuritis, though another neurologist who had seen her thought the pain was glosso-pharyngeal in origin and unsuitable for injection. However, alcohol injection of the foramen ovale ended her jaw and tongue pain completely, leaving

untouched the otic or geniculate neuralgia, to which she had become quite accustomed.

I have notes of three other cases of pain due to inoperable carcinoma of the tongue similarly treated by alcohol injection of the third trigeminal division, but their details are of no special interest.

Conclusion

I bring these cases forward to illustrate the great relief that it is possible to afford patients racked with the constant severe pain of inoperable growths in the tongue or jaws, by a treatment involving little or no shock, and one which can usually be done under local anaesthesia only.

RELATION OF HODGKIN'S DISEASE AND THE LEUKAEMIAS TO GASTRIC DISORDERS

BY

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Dr. Cramer's paper in the *Journal* of April 16, 1938 (p. 829), will, I hope and believe, prove a landmark in the history of our ideas with regard to the aetiology and treatment of at least certain forms of cancer. My observations, for whatever they are worth, entirely confirm all that he says with regard to gastric (and indeed intestinal) cancer. I have some reason also for thinking that Hodgkin's disease and the leukaemias may be diseases sequential to or coincidental with gastric derangement following on what Dr. Cramer aptly terms "insult to the gastric mucous membrane." I give a brief summary of five case histories.

Case I

In August, 1936, a casual labourer aged 32 was admitted to hospital complaining of severe vomiting coming on after every meal, with abdominal pain, rapid loss of weight, thirst, and diarrhoea. He had very much enlarged cervical glands and enlargement of glands in the left axilla, with a clean smooth tongue. His medical history told of removal of the appendix somewhat over a year previously. He proved to be a typical case of Hodgkin's disease. Examination of his blood showed: haemoglobin, 95 per cent.; red cells, 5,475,000 per c.mm.; white cells, 7,800 per c.mm.; neutrophil polymorphs, 57 per cent.; eosinophil polymorphs, 1 per cent.; lymphocytes, 42 per cent. His usual diet was stated to be: Breakfast—white bread and butter, very strong tea, sometimes an egg or bacon; dinner—stewed beef and potatoes, white bread and butter, very strong tea; evening meal—white bread and butter, very strong tea; supper—a repetition of the evening meal. Curiosity was evoked by this dietetic history, and a test meal was given. It showed the absence of free hydrochloric acid in all specimens. As a consequence of this finding it was thought worth while to try the effect of injections of campolon, in addition to the hospital dietary and deep x-ray treatment of the enlarged glands. How far the campolon helped him is only conjectural, but he improved much in his general condition, with loss of pain and vomiting, increase of weight, etc., so that eventually he left the hospital on the understanding that he would come weekly for inspection to the out-patient dispensary. His subsequent history, however, was that of sudden serious relapse necessitating immediate removal to another hospital, where, I fear, death ensued quickly.

Case II

A carpenter aged 37 was admitted to hospital in August, 1937, complaining of loss of weight and strength, with quick fatigability and frontal headaches following on an attack of influenza six months previously. There were also intermittent pains in the back and legs, with profuse perspiration at times, a tendency to constipation, and great distension after meals. He had a jaundiced colour, which he stated had been constant for five years previous to admission. The glands in the left cervical and right and left inguinal regions were greatly enlarged: the patient had first noticed them two months previously.

There was a previous medical history of measles, whooping-cough, and tonsillectomy. He had been "pernickety" regarding food all his life, with little appetite for dinner but a good appetite for breakfast and the evening meal. He was very fond of strong tea, had indulged heavily in whisky, and had some addiction to stout and the moderate use of tobacco. The urine for some time after admission was ammoniacal and was positive to Ehrlich's urobilinogen test. Blood examination showed: haemoglobin, 74 per cent.; red cells, 2,900,000 per c.mm.; white cells, 3,400 per c.mm.; polymorphs, 52 per cent.; lymphocytes, 48 per cent. Anisocytosis was somewhat marked. This would indicate pernicious anaemia, while the glandular condition was one of Hodgkin's disease. A test meal showed free hydrochloric acid and total acid within fairly normal limits. The patient was put on campolon and collorion, with deep x-ray therapy over the enlarged glands. He responded poorly to treatment. One month after admission examination of his blood showed: haemoglobin, 59 per cent.; red cells, 2,350,000 per c.mm.; white cells, 5,100 per c.mm.; polymorphs, 63 per cent.; lymphocytes, 37 per cent.; and megalocytosis. Later he sank rapidly and died.

Case III

In February, 1938, a signalman aged 59 was admitted to hospital complaining of a very large "lump" in the abdomen which was incapacitating him from work. On examination the "lump" was seen to be an enormously enlarged spleen extending well to the right of the umbilicus and down to the inguinal ligament. The liver was also enlarged about two fingerbreadths below the costal margin in the mammary line.

A blood examination on February 4 showed: haemoglobin, 69 per cent.; red cells, 3,320,000 per c.mm.; white cells, 214,000 per c.mm.; polymorphs, 3 per cent.; premyelocytes, 97 per cent.; slight anisocytosis and poikilocytosis. The diagnosis of myelogenous leukaemia was made. On inquiry a history of daily vomiting before breakfast for eight to nine years previously was elicited. His diet had been: breakfast—4 to 5 oz. of white soda bread, a plain boiled egg, two cups of strong tea with two drachms of sugar to each cup; 10 to 11 a.m.—4 to 5 oz. of white soda bread, one cup of strong tea with two drachms of sugar; dinner, 2 p.m.—potatoes boiled in jackets, fried steak up to 8 oz., cabbage or turnips cooked with soda, one cup of strong tea with two drachms of sugar; evening meal, 4 to 5 p.m.—same as for breakfast, omitting the egg. Occasionally oatmeal porridge with milk was taken for breakfast. No alcohol was drunk, but 1½ oz. of tobacco was smoked weekly. The history of vomiting, and the very avitaminous diet, with the strong tea superadded so constantly, led to a test meal being given. It showed no free hydrochloric acid in any specimen. The patient received hospital diet with deep x-ray treatment over the enlarged spleen. His white cell count decreased rapidly, and on March 30 a blood examination showed: haemoglobin, 85 per cent.; red cells, 4,700,000 per c.mm.; white cells, 4,500; neutrophil polymorphs, 22 per cent.; eosinophil polymorphs, 2 per cent.; premyelocytes, 76 per cent.; red cells, regular.

On April 7 a further test meal was given. Again there was no free hydrochloric acid in any specimen. Parallel to the decrease in the white blood cell count was the rapid

decrease in the size of the spleen. Eventually it was considered that the patient was fit to resume work, and he was discharged from hospital.

Case IV

In February, 1938, a herdsman aged 65 was admitted to hospital complaining of weakness, tiredness, and inability to work—the condition dating from several years previously. He was seen to have large discrete glands in the neck and axillae, with a slighter enlargement of the inguinal glands. Blood examination on February 9 showed: haemoglobin, 79 per cent.; red cells, 4,500,000 per c.mm.; white cells, 19,400 per c.mm.; polymorphs, 5 per cent.; lymphocytes, 95 per cent. A diagnosis of lymphatic leukaemia was made. The patient's diet had been: 6 a.m.—a cup of fairly strong tea with two drachms of sugar and a slice of white bread and butter; 9 to 10 a.m.—a rasher of bacon and two fried eggs, or two boiled eggs, plenty of white bread and butter, two cups of strong tea with four drachms of sugar; 2 to 3 p.m.—boiled bacon and cabbage or turnips or parsnips, potatoes boiled in jackets, rarely beef or mutton or fowl; 5 p.m.—white bread and butter, two cups of strong tea with four drachms of sugar; 8 to 9 p.m.—flaked oats porridge with 1 pint of milk, or porridge made with buttermilk. When at fairs—that is, about once a fortnight—he took a great deal of draught porter or whisky. He used 5 to 6 oz. of tobacco a week. A test meal was given; this showed no free hydrochloric acid in any specimen.

The patient was given deep x-ray treatment, and his white cell count on March 31 was 5,800 per c.mm., with 82 per cent. lymphocytes. The enlarged glands decreased a great deal in size as the result of the treatment, but he grew gradually weaker, and died on April 11.

Case V

A man 66 years of age, caretaker of a forest wood, was admitted to hospital towards the end of February, 1938, with a greatly enlarged spleen and a history of periodical attacks of vomiting with pain in the left side. He had had paralysis of the right side about two and a half years previously from which he had never wholly recovered.

Examination of the blood on February 23 showed: haemoglobin, 61 per cent.; red cells, 2,194,000 per c.mm.; white cells, 159,000 per c.mm.; neutrophil polymorphs, 31 per cent.; neutrophil myelocytes, 50 per cent.; eosinophil myelocytes, 1 per cent.; transitional myelocytes, 12 per cent.; lymphocytes, 26 per cent.; nucleated red cells, 4 per cent.; anisocytosis and poikilocytosis. The diagnosis of myelogenous leukaemia was made and the patient was given deep x-ray therapy.

Inquiry into his diet seemed to show that there was nothing very unhygienic in his present mode of living, but he said he had always been able to eat well until lately, and that at one time he ate up to a pound of beefsteak at dinner. He had also in the past been taking stout very freely, and had smoked heavy "twist" tobacco up to 5 or 6 oz. a week. He was given a test meal on February 25, when no free hydrochloric acid was found in any specimen. Under x-ray treatment his white cell count fell to 32,750 per c.mm. on March 30, with 76 per cent. neutrophil polymorphs. His spleen also decreased in size under the treatment, but his general condition remained poor, and it was not considered advisable to give him further x-ray treatment for the present. He was advised to go home and come up later for inspection with a view to a repetition of the treatment if he was able to undergo it.

Comment

Here were five successive cases of glandular or splenic enlargement, all with dietetic histories which seemed to the clinical pathologist to warrant examination of test meals. In some cases there seemed to be positive abuse of the stomach by strong tea (and tea is often used in Ireland with very high tannic acid content), or alcohol,

or tobacco, or excessive amounts of food, etc. In general, too, the diets of these patients tended to be very avitaminous. Anyway, in four out of the five cases the test meal showed complete achlorhydria, while in the fifth case, although free hydrochloric acid and total acid were present in normal amount, the patient's blood seemed to disclose a state of pernicious anaemia. The two cases of myelogenous leukaemia tended also to have a colour index greater than unity. The number of cases, no doubt, is too small for any generalizations to be made, but they seem well worth presenting in the hope that other clinical pathologists may be induced to examine patients suffering from Hodgkin's disease or leukaemia, with a view to eliciting the state of the gastric mucous membrane and the previous dietetic history. If any considerable proportion of such patients show gastric anomalies comparable to those now being recorded there will be fair justification for thinking that the aetiology of these diseases runs somewhat on the same lines as Dr. Cramer believes to be true in the case of cancer of the stomach (and intestine?). Quite possibly, as in the case of cancer, we may have to consider how far a virus factor may also be involved. Dr. M. H. Gordon and his co-workers have adduced good evidence that a virus is at work in the case of Hodgkin's disease. Yet, as in the case of cancer—assuming the truth of Dr. Cramer's conception—it may be possible to prevent Hodgkin's disease in the future by a more strict attention to what dietetic hygiene is teaching us, or will teach us when its laws are more perfectly known. And the same may be true of leukaemias. Indeed, with regard to the latter, one cannot but think that they may be in some way analogous to pernicious anaemia. Just as in pernicious anaemia a degradation of the mucous membrane of the stomach (whatever may be its cause) makes the manufacture of haemopoietin impossible, with consequent inability of the bone marrow to produce mature red blood cells, so in the leukaemias some other anomaly of the gastric mucous membrane may be responsible for the flooding of the blood stream by the bone marrow with myelocytes or lymphocytes. We hope we shall yet learn to cure the leukaemias (and Hodgkin's disease) as we have learned to cure pernicious anaemia. If the work of van Rooyen regarding the effect of x rays on the virus of Hodgkin's disease *in vitro* is to be taken as correct, I fear we must turn our attention to the discovery of some other mode of treatment of that disease than by use of x-ray therapy. But meanwhile, or concurrently, we may perhaps learn to prevent it (and the leukaemias), just as Dr. Cramer thinks we ought to be able to prevent gastric cancer.

I am indebted to Dr. A. Parsons, F.R.C.P., physician to the Royal City of Dublin Hospital, under whose care the patients were admitted, for permission to write up these case histories in so far as they bear on the subject of this paper.

The University College Hospital report on radiotherapy for 1937, by Drs. Kenneth C. Eden and C. H. Offord, is upon the same lines as its predecessors. During the year under review the radiotherapeutic department has been entirely separated from that of radiodiagnosis. In general, the technique adopted remains the same as in previous years, except that the 1-gramme mass unit of radium has been replaced by a 2-gramme unit, and a new apparatus for superficial therapy has been installed to replace that which has been in use since 1920. During the period considered 567 patients were treated; of these 431 were new patients, including 250 cases of malignant disease. The total number of treatments given has risen from about 500 in 1930 to nearly 9,000 in 1937.

THE BIOLOGICAL SIGNIFICANCE OF THE TONSILS AND ADENOIDS AND OTHER EXTERNAL LYMPHOID MASSES

BY

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In the wall of the pharyngeal cavity and intestinal canal numerous masses of lymphoid tissue are situated; they are not wholly enclosed in the tissues of the body, and for that reason may for descriptive purposes be termed "external lymphoid masses." Some of the larger masses have received names—the tonsils, the adenoid mass, and Peyer's patches; each is so situated that one of its surfaces is in contact with food or air, the remainder being buried in the tissues. Like other organs an external mass has an arterial and a venous blood supply through which it receives the material necessary for its special metabolism and from which by osmosis and filtration its lymph supply is derived. It possesses an efferent vessel through which lymph is conveyed to an adjacent node, but, unlike lymph nodes, it has no afferent lymph vessel. This anatomical peculiarity is of some importance, and will be referred to later.

The lymphoid tissue of the larger external masses is arranged so that folds alternate with fissures like the gyri and sulci of the cerebral cortex, or so that deep crypts lead inwards from its surface. Between the folds or in the crypts living micro-organisms are always found, except of course in the case of the newly born infant. It will thus be seen that an external mass has three salient features: (1) one surface is in contact with food or air; (2) it only possesses an efferent lymphatic channel which leads to the adjacent nodes; (3) the crypts contain living micro-organisms.

The Function of the External Lymphoid Mass

The external mass selects its inhabitants from food or air, and these flourish there to a greater or lesser extent. During its growth a micro-organism produces its specific toxin, which must be removed if growth is to continue. There are three routes by which this removal can be accomplished. The toxin may pass either (1) into the pharynx or intestine; (2) through the efferent lymph vessels into the lymphatic system; (3) direct into the blood stream. The following clinical evidence shows that the toxin is able to pass through the efferent lymph vessel into the lymph system and thence eventually into the blood stream.

It is well known that in the common air-borne infection called acute tonsillitis and in the food-borne infection typhoid fever, the external mass involved, be it tonsil or Peyer's patch, becomes inflamed, increases in size, and on it an exuberant growth of micro-organisms ensues. After a short interval the temperature of the body is raised, indicating that the toxins have passed into the blood stream. In addition, the lymph nodes in the vicinity of the external mass have become enlarged and sometimes tender. Since, as we have seen, an efferent lymph vessel passes from the external mass to the nodes we may conclude that the toxin has chosen this pathway into the lymphatic system and thence into the blood stream. It is not uncommon for nodes to suppurate, and when this occurs the specific organism in the external mass can be recovered from the abscess. Similarly the *B. typhosus* has been recovered from a Brodie's abscess and even from the "rose" spots in the acute stages of that disease. It is

clear, therefore, that when inflamed an external mass admits not only toxins but also micro-organisms into the lymphatic system which may form colonies in lymph nodes. But living micro-organisms are also to be found in all healthy external masses, consequently, their toxins too are being formed and removed unceasingly. It is obvious that the amount of toxin passed into the lymphatic system both in health and in disease bears a direct relation to that formed in the external mass at any given time.

Granted that an external mass is performing a positive function, we may define an external mass as one whose function is to cultivate micro-organisms deposited on its surface with the object of admitting some of them or their toxins, or both, into the lymphatic system and thus into the blood stream. The biological application of this definition will be clear from a consideration of the following facts.

It will readily be conceded that the common air-borne and food-borne infections are of more frequent occurrence in childhood than in adult life, that the child as he advances to the adult state contracts fewer and fewer infections, in spite of the fact that he is living generally under the same conditions as to food and air. He has by means of repeated infections and recoveries established an immunity, partial or complete, to many of the infections that still attack more particularly the younger members of the community in which he happens to live. The process by which this result is achieved may be termed "auto-immunization," the biological importance of which is evident, for by this means the adult population becomes relatively immune to infection current among the younger members of the community.

Particular stress is laid upon the fact that although any organism may be deposited upon an external mass, that external mass will only cultivate those to which the immunity of the individual is low or absent. In the case where immunity is complete, sufficient concentration of antibodies is present in the blood stream to prevent growth of organisms in the external mass. On the other hand, when immunity is low, growth takes place, toxin is absorbed, metabolic disturbance ensues, and the necessary antibodies are produced. It is clear, therefore, that external masses are extremely valuable organs and have a highly important biological function to perform in the establishment of a healthy adult population by auto-immunization of the growing child.

The Clinical Significance of Enlarged Tonsils and Adenoids

The removal of tonsils and adenoids is perhaps the commonest of all surgical procedures. Let us therefore review the situation with regard to the removal of tonsils and adenoids, bearing in mind clearly the function as defined above, its biological significance, and its medical implications.

At the present time children are often referred for removal of tonsils and adenoids for one or more of the following reasons: (1) enlarged tonsils alone; (2) enlargement with recurrent colds and mouth-breathing; (3) recurrent attacks of tonsillitis; (4) enlarged adenoids with chronic catarrh or suppurative otitis media. The operation is often performed when any one of these conditions is present, without a thought being given to the biological value of the tonsil and adenoid or to the ill effect which early removal may have on auto-immunization. In the first class of case, enlargement alone, there are frequently no other symptoms. The child is often sturdy and well nourished: his tonsils are enlarged because an organism is

present to which immunity is required in the interests of his future health. Auto-immunization is progressing satisfactorily, and when complete the tonsil will shrink in size from an enlarged, soft, succulent functioning organ to the fibrosed and atrophied organ of the adult.

In the second class of case the position is more complicated. Two additional conditions are present: these are frequent colds and nasal obstruction. It is generally taught, and believed, that both conditions are caused by an adenoid mass obstructing the post-nasal space—so much so that the term "adenoid facies" has crept into the literature. An adenoid mass large enough to obstruct an airway is certainly sometimes found, but, on the other hand, it is not unusual for almost complete nasal obstruction to exist although there is only a very small adenoid mass present, or for nasal obstruction to persist after its surgical removal.

What is nasal obstruction due to in these cases? Thorough investigation reveals (1) that nasal obstruction is due to rhinitis with congested and hypertrophied turbinates; (2) that on transillumination the sinuses are duller than normal on one or both sides. This has been confirmed repeatedly both radiologically and by exploratory puncture. The latter physical sign is invaluable, and is invariably present in such cases, being diagnostic of catarrhal sinusitis, and accounting for the rhinitis and the congested and hypertrophied turbinates so often seen in these children. This, therefore, would appear to be an adequate explanation of such cases of nasal obstruction: It is true that removal of adenoids in such cases sometimes restores nasal breathing and allows the catarrhal sinusitis to clear up; but this happy result is by no means common—failures are often experienced. It is doubtful, even in the apparently successful cases, whether permanent benefit has been secured. In any event an organ of biological value has been removed.

That catarrhal sinusitis should be diagnosed is important, for, apart from the symptomatic relief its cure affords, this condition is the precursor of many other medical conditions which lead to chronic ill-health, such as bronchial asthma, bronchitis, and bronchiectasis. It is also a direct cause of discharging ears and middle-ear deafness. It has been found that the conservative methods adopted at the Royal Liverpool Children's Hospital in preference to the radical removal of adenoids have yielded excellent results during the last few years.

A Plea for the Conservative Treatment

The treatment referred to is the administration of small doses of potassium iodide over a period of three months—1 to 3 grains once a day, according to the age of the child. Potassium iodide causes an increased secretion from the mucous membrane of all the nasal sinuses, as is evidenced by the greater amount of watery discharge seen in cases of catarrhal sinusitis so treated. Given over a period of at least three months it is an excellent "nasal aperient." As will be seen from the accompanying table there are failures, but the results as a whole compare favourably with those treated in a more radical manner. In 70 per cent. of those so treated it was seen that cases of enlarged tonsils and adenoids with nasal obstruction were transformed to cases of enlarged tonsils and adenoids only. Where no improvement was observed operation was considered.

In the third type of case, in which there are recurrent attacks of tonsillitis, it is difficult to make a decision for or against operation. It should always be borne in mind that the child is acquiring auto-immunization through

repeated mild infections. Of course it is impossible to say how many attacks of tonsillitis will produce such an immunity. In the routine examination transillumination should never be omitted, and if this should reveal a concurrent sinusitis this condition should be treated as outlined above, before any operative measure is warranted. In the case of recurrent tonsillitis without a sinusitis, more especially in the adolescent and the adult, we must come to the conclusion that the tonsil is now harbouring an organism to which that individual cannot acquire an immunity. Here operation is advisable.

In the above category two other classes of case fall—namely, rheumatic fever and nephritis which are not responding to treatment. Here again auto-immunization has given place to auto-intoxication, and, such being the case, removal of tonsils is urgently indicated. It will be noted that both conditions usually begin as a tonsillitis; that when the case is examined either the initial tonsillitis is not apparent or the acute stage has passed off and consequently the tonsillitis cannot be detected by inspection only. However, enlarged and/or tender glands can invariably be detected in the anterior triangle, showing that the micro-organisms or their toxins (or both) responsible for those conditions are still being absorbed and damaging the kidney or the heart. It is clear that in such cases removal of the tonsils which are harbouring these organisms is now a necessity.

The remaining indication for removal of adenoids is in those cases of chronic catarrhal otitis media and persistent otorrhoea where it is claimed by some clinicians that the enlarged and infected adenoid mass is retarding the improvement of the middle-ear infection.

Cases Operated on after Potassium Iodide Treatment

| Period Under Review | No. of Cases Under Observation | No. of Cases where Operation was Primarily Indicated | No. of Cases Operated on After Potassium Iodide Treatment |
|---------------------|--------------------------------|--|---|
| 1928 | 426 | 9 | 170 |
| 1929 | 369 | 19 | 141 |
| 1930 | 300 | 11 | 83 |
| 1931 | 376 | 9 | 105 |
| 1932 | 358 | 22 | 76 |
| 5 years | 1,829 | 70 | 575 |

The cases operated on after treatment with potassium iodide, excluding those in which operation was primarily indicated, amount to 30 per cent. The number successfully treated by potassium iodide is 70 per cent.

Conclusions

1. That the function of an external lymphoid mass is to collect micro-organisms from food or air and to grow those to which an immunity is needed.
2. That the condition "enlarged tonsils" alone is definitely an indication against their removal.
3. That the adenoid facies is more commonly caused by catarrhal sinusitis than by an adenoid mass.
4. That catarrhal sinusitis can be treated successfully in a large number of cases without operation, by giving a "nasal aperient."
5. That tonsils and adenoids at the present time are removed too frequently and without due consideration of their important biological function.
6. That many cases of rheumatic fever and acute nephritis that are going downhill can be cured or greatly benefited by removal of the "carrier organ."

Clinical Memoranda

Idiopathic Epilepsy from Another Aspect with Treatment of the Fit

It has been an accepted fact for many years that the epileptic fit is the result of a sudden discharge of nervous energy from the cerebral cortex. However, apart from certain reflex phenomena, such as worms in children, no cause has been described either clinically or pathologically.

Bearing in mind the absence of any constant pathological cerebral changes, and viewing the condition from all aspects, one cannot help being struck by the features which are the manifestations of the phenomenon known as the epileptic fit. These features are the uniformity in the characteristics of the prodromal symptoms and of the fit itself, these being very similar, if not identical, in the one individual. This orderly sequence of events suggests that the fit is a response to some unknown stimulus of equally unknown *modus operandi*, and therefore that the fit is really a phase of reflex activity in response to an exciting cause, the aura being merely the distant impressions caused by the mobilizing of a vast army of nervous impulses, the discharge of which may in reality be a protective mechanism on the part of the body.

What of the possibility that this unknown stimulus produces a spasm of certain of the arterioles supplying the brain substance, the local anoxaemia so caused being responsible for the generation of impulses which on discharge cause the convulsions? If this be the case it may be analogous to the convulsive movements seen in asphyxia just before the stage of exhaustion: To test this theory it was resolved to experiment with the well-known vasodilator amyl nitrite in the next case seen.

EXPERIMENTAL CASES

This patient was a girl aged 11 with a history of epilepsy from early childhood. The attacks usually occurred monthly, and the common method of administering a general anaesthetic had always been employed. According to custom, the child was put fairly deeply under with ethyl chloride and maintained thus for some minutes. On regaining consciousness she appeared to have recovered, and, the parents being satisfied that the fit was over, further attention was unnecessary. Seven hours later there was another call to the child, who, after sleeping quietly for some hours, had another fit, and when seen was in status epilepticus. It was then resolved to try out the above theory of vascular spasm. One 3-minim ampoule of amyl nitrite was broken and held for the patient to inhale. A dramatic effect followed. The attack ceased almost immediately and, after regaining consciousness for a few minutes, the patient fell into a deep sleep.

Following this apparent success, an ampoule was given to a man, aged 35, who invariably had a fit when the moon was full. He was instructed to use the drug immediately he experienced the aura, and also to inform a relative of it. Unfortunately the patient's aura never gave him adequate warning. However, his mother administered the drug, with the satisfying result that he recovered in about a quarter of the usual time.

Although my experiments have been very limited, I thought it worth while to record the cases in the hope that the drug might be tried on other epileptics, especially those whose aura gives them fair warning of the approaching fit, and thus render them a service similar to that experienced by those who suffer from angina pectoris.

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Reviews

ELECTRICITY IN THERAPEUTICS

Traité d'Électroradiothérapie. By L. Delherm and A. Laquerrière. Volumes I and II. (Pp. 2,015 (both volumes); 450 figures. 480 fr.) Paris: Masson et Cie. 1938.

These two volumes form a most interesting and valuable contribution to medical literature. The title does not indicate, as might be thought, a new method of treatment, but has been adopted by the editors, Dr. Delherm of Paris and Professor Laquerrière of Montreal, to express the comprehensive nature of the work, which is designed to include all therapeutic uses of electricity, whether direct or indirect. Containing over 2,000 pages it is written by more than ninety contributors, each of whom is an expert in the particular subject of which he writes. A preface—reproduced in facsimile—is contributed by Professor d'Arsonval, whose experimental work on the physiological action of high-frequency currents has been so fruitful in the modern developments of electrotherapy. Like many other scientific discoveries, d'Arsonval's work was not at first appreciated at its true value, but, unlike too many pioneers, he has had the gratification of receiving the honour which is his due, and of witnessing the enormous progress in therapeutic procedure which is the direct result of his discoveries.

The present work contains excellent introductory sections on the more purely scientific aspects of the subjects considered, which include heat, light, ultra-violet radiation, x rays, radium, ordinary electrotherapy, and electrosurgery. The editors have exercised a nice discrimination in their choice of material, and omitted consideration of those elementary physical facts which should already be familiar to all who have received a medical education. In the accounts given of the biological effects caused by exposure to x rays and radium there is one statement with which we are unable to agree—namely, that nerve cells, even when they are in process of development, are almost completely immune to the action of x rays and radium. Recent work has shown that manifest histological changes can be set up in these cells¹; the remarkable fact is that these changes, even when extensive and considerable, do not seem to be associated with corresponding interference with the normal life of experimental animals. Such a dogmatic statement as "radioresistance of nerve cells is almost complete" (p. 470) tends to obscure the need for further experimental work upon a highly interesting physiological phenomenon. Not only have these changes been found in the cells of the central nervous system but also in Auerbach's and Meissner's plexus, and indeed it has been suggested that this may be a contributory factor in the causation of some forms of radiation sickness.

In the clinical sections the subject-matter is mostly grouped regionally; the various forms of physical therapeutics are systematically discussed and the possibilities of their combination considered. There is a brief but excellent section on electrosurgery, in which the types of current suitable for different purposes, such as electrocoagulation and electrodissection, are described and illustrated by a series of diagrams. Throughout the book the illustrations and diagrams are excellent and well selected, and they fulfil their purpose of really illustrating the text. Although primarily intended for workers in highly

¹ *Brit. J. Radiol.*, 1936, 9 (N.S.), 620; 1937, 10 (N.S.), 549.

specialized fields, others will find it a valuable book of reference, which is greatly facilitated by a copious index and the regional arrangement of subject-matter. In conclusion the editorial secretaries, Dr. Morel Kahn and Dr. H. Fischgold, must be congratulated upon the successful accomplishment of a task the magnitude of which needs personal experience for its true appreciation.

THE INITIAL LESION OF PHTHISIS IN THE ADULT

Der Beginn der Lungentuberkulose beim Erwachsenen. By Dr. H. Braeuning. (Pp. 222; 87 figures; 20 tables. RM. 22; bound, RM. 24.) Leipzig: Georg Thieme. 1938.

Among the problems in tuberculosis still awaiting solution none is more important than that of the development of the initial lesion of phthisis in the adult. The excellent monograph by Dr. Braeuning is a valuable contribution to the study of this problem. In the course of following up a very large number of patients at Stettin, Dr. Braeuning was able to collect serial radiographs of 226 persons in whom a tuberculous lesion developed some time after a normal x-ray film had been obtained. He points out that to achieve the utmost value from such an investigation only cases should be chosen in which the interval between normal and abnormal radiological appearances was no longer than four months. This condition, however, obtained in only twenty-one persons. He was therefore obliged to extend the interval, and the present study is based on eighty-six individuals in whom the interval between a normal radiograph and one showing a tuberculous lesion was as long as twelve months (in one case the interval was twenty-one months). A detailed account is given of each of these patients from the moment he first came under observation as a healthy person, including data of environment and course of the disease after the lesion had appeared. This material is analysed in an attempt to discover the relative importance of factors that may play a part in the development of the pulmonary lesion, the manner in which the lesion appears, its subsequent course, and the effect on the latter of therapeutic measures.

Dr. Braeuning uses an attractive and very helpful method of representing diagrammatically the essential items in each case, and the reproductions of the x-ray films are as near perfection as we have seen, much use being made of reproduction in natural or almost natural size of parts of the lung fields. Every tuberculosis physician should see and read this book.

CLINICAL NOTES ON CHILD LIFE

Common Happenings in Childhood. By Sir G. Frederic Still, K.C.V.O., M.A., M.D., Hon. LL.D., F.R.C.P. (Pp. 180. 5s. net.) London: Oxford University Press. 1938.

The literature of children's diseases already owes much to Sir Frederic Still, but his latest contribution to it, *Common Happenings in Childhood*, is not the least valuable. The basis of the book as stated in the preface is "a consideration of some everyday phenomena in the life of the child and of their relation to disease or ill-health." Chapters are devoted to such "happenings" as crying, laughter, temper, tiredness, appetite, and fear, and there is also a study, the longest and one of the best, of sleep. The final chapter is on school, which, although not exactly a "happening" in the sense of the other subjects dealt with, plays such a large part for good or ill in child life. In it the author points out the many

ways in which health may be injured by an often all too strenuous school routine, and what he says in this regard might well be taken to heart as a warning by many enthusiastic educationists.

Each "happening" is considered from the clinical standpoint, and is abundantly exemplified by case histories drawn from the author's notebooks. These exhibit a remarkable power of minute and accurate observation. For example, in the chapter on laughter it is stated that in making a diagnosis in a difficult case of early tuberculous meningitis "if a real amused smile can be provoked" it is very unlikely that meningitis is present. Elsewhere we read that the absence of tears in that disease is "so noticeable a feature" that it may be considered a small point in favour of the diagnosis. Other illustrations of like clinical acumen are the remarks that drowsiness as a late symptom in bronchopneumonia is of bad prognosis and that a bout of laughter or of prolonged screaming may sometimes usher in an epileptic fit. Almost every page contains similar shrewd observations, and it is interesting to note that so experienced a paediatrist agrees with the older physicians—and with all mothers and nurses—in attributing many of the disorders of childhood to teething, while constantly he emphasizes the importance of digestive troubles in the production of fears, ill-temper, tiredness, or disturbed sleep.

The book exhibits throughout a real love and understanding of children combined with mature clinical wisdom. It may be read and pondered with profit not only by doctors but by anyone who has much to do with children, whether well or ill; and not with profit alone but with real pleasure, for it is written in the agreeable and scholarly style and with that wealth of apt quotation from literature, ancient and modern, which we have learned to expect from its author. Every reader of it must wish that Sir Frederic Still may be moved to give us further gleanings of a similar sort from his great store of experience.

A STUDY OF CONCEPTUALISM

Human Powers and their Relations. By K. W. Monsarrat. (Pp. 289; 60 figures. 10s. 6d. net.) London: Hodder and Stoughton; Liverpool: University Press of Liverpool. 1938.

In a previous work, *Human Understanding and its World*, Mr. K. W. Monsarrat set himself to probe the philosophical difficulties that beset men of science as to how processes arise by which they interpret the conclusions to which they come. He endeavours to dissect, in the present volume, the human power of idea-forming in its psychological and biological aspects. Science has reached the stage of questioning the traditional uses of ideas and the powers that form them, and the proper manner of employing these powers is as great a problem as that of recording them. The habitual modes of idea-forming place the student in the dilemma of a want of conceptual relation between "matter and body" and "influence and action." The author examines the ways in which common sense, physics, and biology behave when faced with this dilemma, and finds that none of these factors can solve it because there is no difference in the modes of thinking employed by scientists who use them. He discusses the relation of knowing to the events in the human system by which it formulates ideas and reports, and then deals with the general application of ideas to particular events. Idea-forming requires two sets of powers: first, the power to use proper words to describe accurately what is done, seen, and heard; and, next, the power of forming an

accurate and comprehensive view of what is being regarded. But there are difficulties in the way of fitting oneself as an idea-forming individual or unit in a unitary fashion with what one seems to find, and it therefore becomes necessary to discover the most appropriate means of using one's powers before proceeding further. The author seeks to analyse and place in different categories all these appropriate means, and does so in a wealth of words, examining and criticizing all the methods by which human idea-forming words are evolved. He maintains that "man never discovers what any happening is absolutely, but only what it is according to his specific and limited powers of imaging." It might be illustrated thus: if A strikes B and sees him lying on the ground A can say, "I did that." To A his own action is the one "cause" and the image is conceived as one which this "cause" has effected. It may be a tale of the event, but it is not representation, for A has left out of conception and report his opponent's share in determining what has happened. So when A says "I did that" he is indulging in imperfect representation, for he has disregarded events in which he had no share.

The whole book is a close and detailed examination of conceptualism, in which Mr. Monsarrat employs his didactic powers in the realms of psychology and biology to penetrate Nature's secret of how human beings formulate ideas and apply them and how the interpretation of terrestrial events can be tested in terms of the assemblage of dynamic units or, in other words, human powers. This volume can only be read in a spirit of studious concentration. One could wish that the chapters had been less diffuse and that more analogies could have been introduced to illustrate the workings of the author's mind. Much of what he writes is cryptic and abstruse—but so is the whole subject. It is a courageous attempt, nevertheless, to unravel the mysteries of how the human brain begets ideas and to elaborate the whole logic of thinking.

ORAL SURGERY

A Textbook of Exodontia. Exodontia, Oral Surgery and Anaesthesia. By Leo Winter, M.D., D.D.S., Sc.D.Hon., LL.D. Third revised edition. (Pp. 502; 446 figures. 2 coloured plates. 42s. net.) London: Henry Kimpton. 1937.

In the new edition of his work on tooth extraction and oral surgery Dr. Leo Winter has attempted to incorporate, "as a result of recent experiments, only such available knowledge as has met satisfactorily the anticipated scientific requirements of dentistry." Here the author is thinking of the latest findings in the field of local anaesthesia and calls special attention to "cobefrin" (which might well figure in the index). Cobefrin, a Bayer product, is *o*-dioxophenylpropanolamine, and while possessing marked ischaemic properties is free from the dangers of adrenaline. Winter says that it can be used in hyperthyroidism and heart disease, or in arteriosclerosis and high blood pressure. The chapters devoted to local anaesthesia and its possible accidents are a valuable contribution to dental literature; in particular may be mentioned the "carpule system" of injection. We note with interest the Winter appliance for splinting fractured jaws, though, since this depends on wires passed between and round the teeth for its retention, we cannot help doubting its cleanliness. Cysts are shortly, perhaps too shortly, dealt with. We note the recommendation to use "pariphor" paste, consisting of parathesin as an anaesthetic and rivanol as germicide, is accompanied by the statement that parathesin is practically insoluble—

how, then, can it act as an anaesthetic? The larger part of the book is devoted to extraction of teeth and deals with both normal and abnormal conditions. Here the use of "overhead" forceps, in place of the hawkbill type in use in England, for the removal of lower teeth is noteworthy, and there is a wealth of x-ray pictures illustrating difficult extractions, and of wood-cuts illustrating the flaps appropriate to such cases and the manner of using specially devised elevators. We should like to see a fuller discussion on root variations and disease conditions of roots and bone in relation to extraction, though scattered references show that the author is fully alive to them.

Notes on Books

Dr. H. I. SCHON, in his monograph, *Some Investigations into the Physiology of the Emotions* (Oxford University Press, 8s.), analyses the disturbances in function that are produced by moderate emotional upsets. The acceleration of the pulse rate of a nervous patient by some minor exciting cause, such as the presence of a strange doctor, is a very familiar clinical fact. On the other hand, it is not always remembered that a procedure such as the taking of a basal metabolic rate or a fractional test meal is a serious ordeal to a nervous person, and that the derangement of function caused by the consequent emotional disturbance may prove a very serious source of error. The author investigated a series of patients in a sanatorium for nervous disorders whom he regarded as emotionally labile. He found that slight, mixed emotions could increase the basal metabolic rate by 23 per cent. The taking of repeated test meals showed that achlorhydria was often present on the first occasion, but that normal figures for acid were obtained later, when the patient had become accustomed to the procedure. In such cases, however, any emotional disturbance that was intentionally introduced would greatly decrease or even abolish the acid secretion. Slight emotional disturbance could produce a rise in blood sugar lasting more than an hour. Dr. Schon's findings demonstrate the powerful influence of emotions on the results of routine methods of clinical examination. He discusses briefly current theories regarding the mechanism by means of which the emotions affect the autonomic nervous system.

Fundamentals of Biochemistry with Laboratory Experiments is the full title of a book by CARL L. A. SCHMIDT and FRANK WORTHINGTON ALLEN, Ph.D. (McGraw-Hill Publishing Company, 18s.). Primarily designed for the student engaged in laboratory work, it furnishes a suitable and solid background for such work. Technique, while included in moderate proportion in descriptions of illustrative experiments, is a secondary consideration, and the book is by no means a laboratory guide. The fact that technique is regarded as incidental is adequate explanation for the comparative dearth of diagrams of apparatus, but at the same time it would likewise have afforded good reason for the omission of some of the very elementary laboratory directions which appear at the beginning. For the most part the book is clearly and simply written, formulae are generously employed and conspicuously set out, though that for testosterone is erroneous. The big subjects of modern biochemistry, the vitamins and hormones, are necessarily compressed, which perhaps accounts for the abrupt, staccato style in these sections. Style, however, is at its poorest in the introduction to the chapter on mineral metabolism, where the word "water" is repeated almost *ad nauseam*. Strong emphasis is laid upon the physico-chemical foundations of the subject, and the student is thoroughly familiarized with the basic calculations by being taught to work from examples. Moreover, every encouragement is given him to consult the original literature, and throughout carefully selected books and papers are cited to which he can refer,

to be condemned, and Miss Kenny has done a valuable piece of work in calling attention to it. Finally, in spite of Miss Kenny's optimism, it is to be feared that in the more severe cases, whatever the treatment, there will often be a residual paralysis, requiring the assistance of an appliance or of orthopaedic surgery.

SCIENCE IN ADVERTISING

As in the case of so many other purposive activities, advertising is these days often dignified by the title of "science." Advertising has its own technical language, and it employs statistics and charts and graphs in its efforts to discover the laws governing the purchasing idiosyncrasies of the public. The advertiser—or shall we say advertising specialist?—applies with some effect common-sense psychology in his efforts to induce the public to buy, for example, a certain brand of cigarette. If a well-known actor declares from the advertisement pages of a newspaper that such and such a cigarette does not irritate the throat, then members of a local dramatic society will feel that they can safely follow his example; and others will feel at least that they are smoking this brand in good company. This is perhaps an example of "snob appeal" combined with "prestige appeal." The vendors of patent medicines will crudely work upon the reader's fears. Manufacturers who want to "put across" foods and drinks, normal or "invalid," will, by implication, suggest that the substance to be consumed has almost magical powers. One of the latest developments in the science of advertising is to write advertisement copy in the language of the accepted sciences. Just as toys are now described as "educational playthings" so are simple saline purgatives placed before the public with short and learnedly sounding notes on acid-alkali balance. And if there is one thing the public is really afraid of it is acid. Now that we are all urged to drink more milk the makers of numerous varieties of milk products—so their advertisements imply—are getting really worried about the possible dangers to anyone going to sleep with milk-curd in the stomach. From this it is but a short step to the suggestion that a certain milk product will in itself induce sleep, and even give a better kind of sleep than one would get otherwise. In an advertisement which has recently come to our notice the doctor is boldly brought in on the side of the manufacturer of the product advertised. The public is informed that in a "great London hospital" special investigations are being carried out on fatigue, and that this was related to an excess of "acid waste products." So far, so good. The remarkable discovery is then announced that product X was the only one among many other drinks that neutralized the "acid wastes." To make assurance doubly sure that this was really all very scientific the advertisers appended a note which invited "doctors who would like to read the full scientific report of these experiments . . . to write for the monograph entitled" so and so. The text of this "monograph" covers two pages of an eight-page pamphlet. The observations briefly and dogmatically

set down in this "monograph" are either accurate or inaccurate. If the former, then they would be of some considerable interest to medical men. The firm in question was asked by a physician for further information so that contact might be made with the hospital and the research workers engaged in the investigation. This was not forthcoming. Is the apparent endorsement by medical men of the claim set forth in the advertisement put in to persuade the public of the truth of these claims? And if these claims are true, then why this reluctance to disclose the identity of the "doctors and scientists engaged on a special series of experiments in a great London hospital"? Medical men must view with some alarm the possibility of the profession thus being used in an advertising campaign.

SEQUELS OF BLOOD TRANSFUSION

The great increase in the use of blood transfusion in medicine during the past ten or fifteen years has naturally led to the recognition of sequels which may be serious or fatal. Cases have been recorded in which syphilis and malaria have been conveyed by this means, while the symptoms of transfusion with incompatible blood are now comparatively well recognized; they include rigors, fever, dyspnoea, vomiting, muscular pains, haemoglobinuria, and jaundice. In patients with blood disease predisposing to retinal haemorrhage this, too, may occur as a sequel to transfusion. Renal insufficiency following blood transfusion has recently been studied by De Gowin, Warner, and Randall,¹ who point out that urinary excretion may be immediately diminished or suppressed, resulting in nitrogen retention, vomiting, and death from uraemia. Attempts have been made to explain the renal lesions as due to (1) mechanical blockage of the renal tubules by the precipitation of haemoglobin in contact with an acid urine; (2) anaphylaxis; (3) hypochloreaemia consequent on the vomiting; or (4) the release of a nephrotoxic substance from the haemolysis of blood. The authors have considered the first of these theories in the light of histological examination of the kidneys of nine human subjects dying after transfusion or haemolysis, and of experimental material obtained from nine dogs transfused with haemolysed canine erythrocytes, in which the chemical and clinical findings pointed to death from renal insufficiency. In six of the dogs there was good evidence of obstruction by pigment of the tubules in the region of Henle's loops, and a minimal amount of necrosis. In three there was severe tubular necrosis in addition to obstruction, one dog showing also hepatic necrosis. The authors found that death resulted from renal insufficiency only when the urine was acid. From the human material they obtained evidence of the same two independent mechanisms—namely, obstruction by pigment and necrosis. The authors suggest that the obstructive factor might be eliminated by alkalinizing the urine before transfusion, but consider that renal insufficiency in the majority of human subjects is due to the release of a nephrotoxic factor. De Gowin²

¹ *Arch. intern. Med.*, 1938, 61, 609.

² *Ann. intern. Med.*, 1938, 11, 1777.

points out the importance of using typing sera of high titre, and quotes examples of donors at first classified as of Group O but found on retyping to be of Group A; the importance of cross-matching in each instance is also emphasized. He reports seven deaths occurring in 3,500 transfusions, five due to renal insufficiency and two to pulmonary oedema. The latter complication was found not to be due to the use of incompatible blood but more probably to overburdening the right heart.

SANITY AT GENEVA

In the midst of so much international strife it is reassuring to hear of international action directed to such sane and dignified ends as health, nutrition, housing, and the raising of the standard of life of the peasantry. Reports on all these subjects were presented to the recent Assembly of the League of Nations at Geneva and carefully considered in spite of preoccupation with the European crisis. The Health Organization reported on the technical assistance it has rendered to China. This has taken the form of three missions, under the direction of specialists, to aid in anti-epidemic measures. The missions, which include both Chinese and foreign staffs, have already under conditions of great difficulty had to combat outbreaks of plague, typhus fever, small-pox, cholera, and dysentery. During the summer the Chinese Government appealed to the Health Organization for a considerable supply of anti-cholera vaccine. Thanks to disinterested support by institutes and laboratories all over the world it was possible to arrange for the free supply of eight million doses of vaccine; and there were yet further offers—in fact, greatly in excess of demand. Special mention was made of the generous contribution of the United States, which gave three million doses, and of Rumania and Turkey, which each supplied one million. The Health Organization has also done signal service to countries in which malaria is prevalent by perfecting an anti-malaria remedy made from quinine substitutes which are much cheaper than quinine itself. Many public health administrations are unable to organize anti-malaria campaigns by quinine treatment on a sufficiently large scale because of the high cost of the drug. The recent issue of an analytical study embodying the Organization's views upon malaria control by treatment of malaria-infected populations is the result of extensive and carefully correlated experimental investigations—conducted over more than a year in five countries in Europe and Asia—into the comparative values of anti-malaria remedies. The important work of the League in the field of nutrition has been developed and extended. The technical commission on this subject is continuing systematically to carry out a scheme of research which is gradually throwing light both on the essential function of various nutritional constituents in body building and maintenance and on the actual conditions of nutrition among certain representative population groups in a number of countries. The commission is at present conducting an inquiry in Europe into the manner in which cereals are consumed, and especially into the composition of bread, as the nutritive value of these foods differs considerably accord-

ing to the mode of preparation or to varieties within a given cereal species, and the results of inquiries into consumption might be distorted if these details were not obtained. In July of next year there is to be held a European Conference on Rural Life, and a preparatory committee has been at work at Geneva preparing the agenda. The conference is intended as a starting-point for systematic action by the public authorities in the direction of initiating, supporting, and accelerating the material and moral reconstruction of the conditions of life of the rural masses. It was pointed out by the rapporteur, the Yugoslav delegate, that the raising of the standard of living of the peasantry in matters of education, health, and rural planning is of vital interest to all countries in Europe, even the most highly industrialized and advanced. The documentary material prepared for the conference includes a memorandum on social insurance medical services by the International Labour Office and memorandums on health in rural districts and on medico-social policy, with special reference to tuberculosis, typhoid, and brucellosis, by the Health Organization.

THE SMALL HOUSE

Housing, in all its aspects, has long been recognized as a matter of medical concern. Domestic architecture is a phrase more often applied to the "stately homes of England," but England, after all, is in the main a country of small houses, and the Royal Institute of British Architects, in staging a "small house" exhibition at its headquarters in Portland Place, does good work in drawing attention to the value of the services of the architect even in the six-roomed dwelling. Photographs and drawings point the moral of good and bad estate development. Examples of bad development, anonymous in this exhibition, are found without difficulty, and some of the pleasantest situations in the southern counties have been spoiled by "bungalow" growths, like a skin infection on the face of the country. But it must also be said that around London, to go no further afield, there are many examples of excellent estate development, by private enterprise too, and no wholesale condemnation can be made of the two million small houses which have been built in this country during the last ten years. The motive of the exhibition is to plead for a return to good homely domestic building, with houses arranged in harmonious groups in town and village. Equally useful is the insistence on hygienic construction in the small house itself, and this is what particularly interests the medical profession. The very fact that space and materials are restricted makes it all the more important that windows should be large, that the disposition of the living-rooms should have regard to the morning and afternoon sun, that the heating should be efficient, and that the kitchen should be well planned. All these conditions can be met by the exercise of careful choice and good craftsmanship and materials. The work of the architect is not simply to design a pleasing exterior. It includes, before the design is made, the choice of site, and afterwards it brings in all the various modifications and compromises which reconcile the physical conditions available with

the material and spiritual needs of those whose dwelling it is to be. Perhaps the wisest word on this as on many subjects was said by Bacon: "Houses are built to live in, not to look upon; therefore let use be preferred before uniformity, except where both may be had."

A SEASONABLE SERVICE

We publish this week once again a letter from Sir Thomas Barlow, as President of the Royal Medical Benevolent Fund, appealing for contributions towards the Christmas gift fund. The plan, now nearly thirty years old, is to send at Christmas time a small present of money, with a friendly message of remembrance and encouragement; but to give even 30s. to each of the regular beneficiaries will need at least £1,000. The response to Sir Thomas Barlow's annual appeal has proved, if any proof were needed, that there is no lack of warm hearts in the world of medicine. Those who for the first time contribute to the Christmas gift fund will, it is hoped, become regular supporters of the R.M.B.F. A perpetual flow of new subscribers is needed to fill gaps in the ranks and to keep up with the ever-growing demands on the resources of this great professional charity.

PAINTINGS BY DOCTORS

The exhibition by members of the Medical Art Society, now open at the Rembrandt Gallery, London, is well "worth a short detour" into Vigo Street. It comprises thirty-eight oil paintings, fifty-four drawings, mostly in water-colour, two aquatints, one etching, and four pieces of sculpture—giving an appropriate medical total of ninety-nine. The first impression is that the society has put plenty of colour and feeling on to the walls of the two rooms. Some of the exhibits are rather weak, but here and there works of real competence stand out—pictures that would do credit to any whole-time artist if shown in a general exhibition of contemporary art. Most of the drawings and paintings have been made on holiday; landscapes, seascapes, views of river or lake, and street scenes form the bulk of the pictures, but there are also indoor flower pieces, still-life studies and faithful drawings of flowers, and three or four interesting portraits. A love of Nature and keen powers of observation are evident everywhere, and many of the exhibits give proof of sound draughtsmanship and composition and the clean use of colour. It is not at all remarkable that doctors should enjoy sketching in their off time; the remarkable thing is that they should master the hard grammar of art and then achieve freshness and an air of spontaneity when recording their visual impressions on paper or canvas. There is an entertaining diversity of manner and method among the works shown, which range from elaborately planned and finished water-colours to dashing attempts to hold a glimpse with a few flicks of the brush, and between them a number of carefully wrought studies in one or other of the modern moods and techniques.

THORACIC SURGERY AT NEWCASTLE

The Newcastle General Hospital is one of the first hospitals in the provinces to have established a special department for all types of thoracic surgery. Mr. George Mason, who is in charge of the department, for the creation of which he was largely responsible, was the first surgeon in this country to carry out pneumonectomy and, after its originator, the first to perform O'Shaughnessy's operation for cardiac ischaemia. He has issued a report¹ on the work of his department from its inception on an experimental basis in December, 1934, until the end of 1936. Altogether 340 operations were performed on 174 patients: Seventy-three of the patients were referred by some local authority other than that of Newcastle-upon-Tyne. Of the 174 patients fifty were suffering from pleural or pulmonary tuberculosis; sixty-seven from inflammatory conditions of the lungs, such as abscess, gangrene, pneumonitis, infected lung cysts, and bronchiectasis; twenty-seven from other inflammatory conditions of the pleura, chest wall, and subdiaphragmatic spaces; and there were twelve cases of malignant disease of the lungs and bronchi, four of mediastinal growths and abscesses, seven of oesophageal obstruction, and seven of diseases of the heart and vessels. The report gives a good detailed account of the scope of thoracic surgery in language that will be intelligible to the layman. This is particularly useful at a time when more and more local authorities are being asked to provide facilities for thoracic surgery. Mr. Mason also discusses the training of the thoracic surgeon in relation to voluntary and municipal hospitals, and its influence on the provision of special departments. There is an appendix to the report showing radiographs illustrating the treatment of six widely different types of thoracic disease: thoracoplasty for pulmonary tuberculosis, the drainage of an enormous lung abscess, lobectomy for bronchiectasis, removal of a congenital lung cyst, the drainage of a mediastinal abscess, and the removal of a dermoid tumour of the mediastinum.

At the eleventh meeting of the International Congress of Surgery at Brussels last month Sir D'Arcy Power, K.B.E., was elected President of Honour of the International Society of Surgery. He was one of the founders of the society and was for many years the honorary local secretary for Great Britain and Ireland.

¹ Report on the Work of the Department of Thoracic Surgery during the Years 1934-36. City and County of Newcastle-upon-Tyne. Newcastle General Hospital.

The inauguration of the Ophthalmological Society of Australia (B.M.A.) was announced in our issue of July 30. Information has now been received that the first annual meeting will be held on April 3-6, 1939, at Melbourne. Ophthalmologists who are members of the British Medical Association are specially invited to attend. Communications should be addressed to the honorary secretary, Dr. Darcy Williams, 193, Macquarie Street, Sydney, N.S.W. This meeting coincides with the twelfth annual general meeting of the Royal Australasian College of Surgeons, which will discuss peptic ulcer, hydronephrosis, the common bile duct, and fracture of the neck of the femur.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

SULPHONAMIDE CHEMOTHERAPY IN SURGICAL INFECTIONS—I

BY

A. J. COKKINIS, M.B., B.S., F.R.C.S.

Sulphonamide chemotherapy is not a "surgical procedure," but is now being applied to surgical infections. So much has been written upon the subject of the "new chemotherapy" and it is still so "new" that it is impossible to dogmatize about it. It is possible, however, to present briefly the impressions gained from my own experience of some fifteen hundred cases.

Successful application of the new treatment is not easy, and haphazard administration on the "hit or miss principle" is worse than useless. Indeed the more one sees of it the more one is led to regard it as a double-edged weapon, capable of doing great good, but also of inflicting serious damage, not all of which is attributable to the toxic properties of these compounds. These drugs cannot of themselves "cure" any bacterial infection. Their sole action is, under favourable circumstances, to produce a condition of bacteriostasis (arrest of bacterial growth) that lasts no longer than the period during which they are administered. The ultimate result of an infection, therefore, still depends on the immunity reaction of the patient, and unless this can dispose of the organisms temporarily arrested by the chemotherapy either the treatment will prove a failure or a relapse of the infection will occur when it is discontinued. Furthermore, by their very ability to arrest bacterial growth these compounds, if given before immunity has had time to develop, may actually inhibit the anti-bacterial response of the body, thus leaving the patient with a "latent" infection but without the means to combat it or to deal with the "flare-up" which may occur when the treatment is stopped. In my belief this potential and as yet largely unrecognized danger of the new chemotherapy far outweighs the risk of damage by the toxic properties of the drugs. If this danger is to be avoided, and if optimum effects are to be obtained from the chemotherapy, the latter must be "timed" so as to coincide with the development of a fair degree of immunity. Moreover, it has been repeatedly shown that far better end-results are obtained from chemotherapy combined with immunotherapy (for example, vaccines) than from chemotherapy alone.

Selectivity of Action




The anti-bacterial action of sulphonamide compounds is highly selective. Only certain bacteria are susceptible, and it is therefore irrational to treat an infection with such compounds unless it is known in advance that one of these bacteria is responsible. Even susceptible bacteria respond differently to the treatment: some can be inhibited by small doses over a short period, others require larger dosage and a longer administration. Moreover, the response of any one organism is inconstant, some strains being more susceptible than others, and even the susceptibility of an individual strain in the same patient sometimes seems to vary from time to time. Other factors apart from variations in immunity and bacterial sensitivity influence the response to sulphonamide chemotherapy. Thus to obtain optimum results it is necessary to maintain

the concentration of these compounds in the body at an effectively bacteriostatic level throughout their administration. The more potent of these compounds are very diffusible, and are excreted almost as rapidly as they are absorbed. To maintain an effective concentration they must therefore be given in adequate doses, properly "spaced," and the administration must be uninterrupted. Inadequate dosage and too short a period not only fail to do any good but seem to lead to the development of acquired resistance on the part of the organism to the drug ("sulphonamide-fastness"), which may produce complete non-response to subsequent chemotherapy, however intensive this may be.

To attack a bacterial focus the sulphonamide must be brought to it by the blood stream: an adequate blood supply to an infected area is therefore essential to success. I have seen many failures of chemotherapy attributable to the presence of avascular foci, such as infected blood-clot (for example, in thrombosed veins and cardiac vegetations), patches of necrotic tissue, abscesses embedded in fibrous tissue or sclerosed bone, and infected areas with local vascular failure following venous stagnation, thrombosis; or pressure by an inflammatory exudate. In some of these cases success was ultimately obtained by improving the blood supply of the focus with such measures as physiotherapy or surgical relief of tension. Finally, no chemotherapeutic agent can deal with an infection from an unlimited source of bacterial contamination, however sensitive the bacteria may be. Thus, it is futile to treat a general peritonitis with sulphonamide when there is a source of continuous infection, such as a perforated appendix or strangulated loop of intestine, unless this has been previously removed.

The number of bacteria now known to be sensitive to sulphonamide compounds already includes the following: haemolytic streptococci, certain non-haemolytic streptococci (for example, *Strep. viridans* and *Strep. faecalis*), *B. coli* and other members of the coliform group, certain pneumococci, the gonococcus, the meningococcus, and probably certain anaerobes, such as *Cl. welchii*.

Sulphonamide Compounds and their Nomenclature

Thus far I have made a trial of eight sulphonamide-containing substances. Although these do not constitute all the sulphonamide compounds manufactured to date, they are the best known and most thoroughly investigated of them. Much uncertainty exists in the minds of practitioners as to the nature of these compounds, partly on account of their complicated chemical structure but also because of the confusing and unnecessarily involved nomenclature adopted by manufacturers. The essential chemistry of these compounds is not difficult to understand. They all contain at least one benzene group (C_6H_5 , shown usually in the form of the benzene ring , at least one amino group (NH_2), and at least one sulphonamide group (NH_2SO_2). If we start with benzene and add an amino (NH_2) group to it we obtain aminobenzene ( NH_2), which is the chemical name for aniline. By attaching a sulphonamide group (NH_2SO_2) to the side (para) of aminobenzene, we obtain para-aminobenzenesulphonamide (NH_2SO_2  NH_2). A shorter name for this is obviously aniline sulphonamide, which has been further abbreviated

to "sulphanilamide"—and so we arrive at the simplest and best known of all sulphonamide compounds. The other compounds are either modifications of sulphanilamide or substances with a more complicated chemical structure, but they all contain the above three groups.

Sulphanilamide (para-aminobenzenesulphonamide).—This is the compound which until quite recently has shown the greatest bacteriostatic potency and the widest anti-bacterial range. It is mostly manufactured in the form of oral tablets ($7\frac{1}{2}$ grains or 0.5 gramme), but unfortunately under so many different trade names that much confusion has arisen over its nomenclature. "Sulphanilamide" and "para-aminobenzenesulphonamide" are the only chemically correct names for it, but it is sold by various British and foreign firms under the following synonyms: sulphonamide-P, streptocide, prontosil album, colsulanyde, P.A.B.S., and prontylin. All these names refer to the same drug—sulphanilamide. An extremely diffusible substance, it is rapidly excreted in the urine, in which it can be estimated by a simple quantitative test. Sulphanilamide arrests the growth of all sulphonamide-susceptible organisms with the exception of the pneumococcus, but it is apt to cause certain toxic effects. Its effective dosage and period of administration vary with the causative organism, the weight of the patient, the site and nature of the infection; and the degree of immunity. Sulphanilamide has the advantage of being very considerably cheaper than most of the other sulphonamide compounds.

T 693.—Recently a compound of sulphanilamide and pyridine (para-aminobenzenesulphonamido-pyridine) has been introduced by Messrs. May and Baker (at present known as T 693), which shows a bacteriostatic potency at least equal to that of sulphanilamide and a wider anti-bacterial range, since it acts on pneumococci as well as on the other susceptible organisms. Unfortunately, in my hands it has proved even more toxic than sulphanilamide.

The Prontosil Drugs.—Prontosil rubrum (oral tablets) and prontosil soluble (by injection) are the original compounds (Bayer) with which the new chemotherapy started. They are highly complicated chemical substances, their full names being diamino-azo-benzol-sulphonamide (prontosil rubrum) and disodium-acetylaminooxynaphthalenedisulphonate (prontosil soluble). Although their action is similar to that of sulphanilamide (into which they are partly converted in the body), their anti-bacterial range and potency are less extensive. But they have the advantage of being less toxic, and I have found prontosil soluble (in doses of 10 to 30 c.cm. of the 5 per cent. solution daily) particularly useful in major operation cases.

Proseptasine and Soluseptasine.—These drugs (May and Baker) are the least toxic of all the sulphonamide compounds. Unfortunately they also appear to be the least potent and to have the narrowest anti-bacterial range. Proseptasine (oral tablets) is a benzyl derivative of sulphanilamide (para-benzylaminobenzenesulphonamide), while soluseptasine (for injection) has a very complicated structure (disodium-phenylpropylaminobenzenesulphonamido-disulphonate) in some respects similar to that of prontosil soluble.

Uleron.—This compound (Bayer) is given in the form of oral tablets, and is much thought of in Germany; it differs from all the above in having two sulphonamide groups (disulphonamide). I have used it in some 200 cases of gonococcal, streptococcal, and coliform infections, and have found it relatively free from immediate toxic effects. Its anti-bacterial action, however, has proved very capricious, and one cannot help thinking that this may

in part be due to its low solubility in neutral media, and probably, therefore, to its relatively poor diffusibility. Striking clinical improvements have followed its administration, but a rather low proportion of bacteriological cures.

Rubiazol.—At present I am making a trial of this compound (carboxy-sulphonamido-chrysoidine), made by Messrs. Roussel and extensively used in France. It appears to be relatively non-toxic, but I am not yet able to speak authoritatively of its anti-bacterial range or effectiveness.

Toxic Effects of the Compounds

On the whole it seems that the more effective a sulphonamide compound is against bacteria the more toxic it is to man. Thus, sulphanilamide and T 693, the two compounds which have shown the highest potency and widest anti-bacterial range, have also produced the highest incidence of toxic by-effects. These toxic effects may be divided into three groups, according to their severity and importance:

(a) *Mild*—of no significance, and not indicating cessation of the chemotherapy.—These are extremely common, and include headache, giddiness, muscular weakness, loss of energy, and other nervous symptoms; nausea, anorexia, and constipation; slight cyanosis, chilliness, palpitations, slight dyspnoea, and mild urticarial rashes. Fortunately, most of these symptoms tend to pass off after the first few days, owing to the development of tolerance to the drugs. Also, they can be mitigated to some extent by rest and fresh air, by cutting down the ingestion of sulphur, and by giving glucose and free fluids.

(b) *Moderate*—of no serious significance, but usually demanding cessation of the chemotherapy.—These occur in about 10 per cent. of patients taking sulphanilamide, and include vomiting, diarrhoea, prostration, mental changes, fever, extensive skin rashes (morbilliform and scarlatiniform), oedema, and marked cyanosis, pallor, or dyspnoea. The last three symptoms always indicate a complete examination of the blood.

(c) *Serious*—demanding immediate cessation of chemotherapy, repeated blood examinations, and appropriate therapeutic measures, which should include an attempt to get rid of any sulphonamide in the intestine by colonic wash-outs. The serious effects are: (i) destructive blood changes—for example, agranulocytosis and haemolytic anaemia; (ii) extensive purpuric rashes with high fever; (iii) toxic jaundice; (iv) toxic nephritis. In 1,500 cases I have seen only six examples of these serious effects, all of them recovering completely. I have yet to experience a case of agranulocytosis or other serious blood damage.

The other sulphonamide compounds have produced very little in the way of immediate toxic effects, but one of them—ulcron—has the unique property of occasionally causing a peripheral neuritis. This does not occur unless the drug is given continuously over a period of more than seven days.

Gingivitis and Pyorrhoea

This disease is primarily a streptococcal gingivitis, and although there are many predisposing causes the teeth themselves may be quite sound. It starts with redness, swelling, and tenderness of the gums, which become spongy and bleed easily. The disease may be partly arrested at this stage, or it may pass on to suppuration and a genuine pyorrhoea. The infection of the gum becomes associated with a rarefying osteitis of the alveolus, leading to absorption of bone, and so to exposure, loosening, and finally casting off of the teeth. Conservative treatment, thus far, has been very unsatisfactory, as is shown

by the frequent use of such radical procedures as wholesale dental extraction and gingivectomy.

Some eight months ago, through the courtesy of Professor A. Fleming, a number of cases were investigated at St. Mary's Hospital in a research undertaken with Dr. C. W. Morley. It was found that the outstanding organisms were *viridans* streptococci, while haemolytic streptococci and other bacteria were less often discovered. We then started to treat cases with sulphonamide compounds, under full bacteriological control. We have succeeded, after many disappointments, in evolving a technique which yields a high proportion of excellent results, both clinically and bacteriologically, provided the cases are treated before there is loosening of the teeth or serious retraction of the gums.

Smears and cultures are taken at the start of treatment, and weekly afterwards. For the first two or three weeks the patient is given injections (twice weekly) of a parodontal streptococcal vaccine, which are continued for a minimum of six weeks. Sulphonamide chemotherapy is started in the third or fourth week. Relapses are very common after only one course, and it was found that at least three 14 to 21 day courses had to be given (with intervals of two to four weeks) to obtain lasting improvement. Most of the cases have been given sulphanilamide (2 to 4 grammes daily), but we are now using T 693 with equally promising results. No local treatment is employed.

Ulcerative Stomatitis and Pharyngitis

During the work mentioned a number of cases were seen of chronic and relapsing septic ulcers of the mouth, palate, and pharynx, from which *viridans* or haemolytic streptococci were obtained on culture. They all responded to sulphonamide therapy clinically and bacteriologically in a matter of days, but most of them relapsed afterwards. We are now treating them along the same lines as the gingivitis cases—that is, with multiple courses of sulphanilamide and vaccine—and the good results appear to be much more lasting. Quite recently I obtained complete resolution in two days of a large acute streptococcal ulcer of the fauces with severe oedema. Sulphonamide chemotherapy would also seem to be worth trying in cancerum oris.

Acute Tonsillitis

My experience with sulphonamides in this condition is limited to cases of follicular (streptococcal) tonsillitis, Vincent's angina, and quinsy. The Vincent's angina cases failed to respond, but the follicular and suppurative tonsillitis resolved in twenty-four to forty-eight hours, although the actual follicles in follicular cases persisted for several days. Three of the follicular tonsillitis cases relapsed after only two days' treatment, and I now continue the chemotherapy for at least five days. All that the treatment seems to do in these acute cases is to hasten recovery, but one is perhaps justified in hoping that it may also prevent such complications as a septic adenitis or rheumatism. Quite moderate dosage of sulphanilamide (1.5 to 3 grammes daily) appears sufficient to overcome the infection, while the less toxic sulphonamides (for example, ueron or proseptasine) produce an equally striking, if a trifle slower, clinical improvement.

Sinusitis

Thus far I have treated three cases of chronic maxillary sinusitis and one of ethmoiditis with sulphonamides. Two of the maxillary cases were bilateral, of many years'

standing, and had had several operations. Streptococci were obtained on culture, and both patients were ultimately made well, although one required no fewer than five courses of sulphanilamide and the other three courses. The third maxillary case, also very chronic, gave a growth of pneumococci as well as streptococci, and was treated with T 693 after preliminary vaccine. He improved rapidly, but was very intolerant to the drug; subsequently he was given two courses of sulphanilamide, and is now quite free from symptoms. The case of ethmoiditis (streptococcal) showed no response to a longish course of sulphanilamide, but there was extensive necrosis of the skull before the chemotherapy was begun.

The first three cases suggest that chemotherapy can influence even the chronic relapsing type of sinusitis. I do not know how long these patients will remain well, but I believe that repeated chemotherapy combined with vaccine will at least make relapses less frequent. As yet there has been no opportunity of treating primary acute sinusitis, but one has every reason to believe that it would respond more easily and more permanently than the chronic variety.

Otitis and Mastoiditis

Sulphonamide chemotherapy has already established itself as a valuable adjunct in the surgical treatment of these conditions; it has also proved of life-saving value in the streptococcal meningitis which may occur as a complication. But it cannot be stated too strongly that no anti-bacterial remedy should be used as an alternative to operative drainage of a suppurating focus in regions as dangerous as the tympanum and mastoid.

(To be continued)

THE PHYSICAL BASIS OF ALCOHOLIC MENTAL DISORDERS

LECTURE BY PROFESSOR MAPOTHER

The seventeenth Norman Kerr Memorial Lecture was delivered at Friends House, Euston Road, on October 11 by Professor EDWARD MAPOTHER, professor of psychiatry, University of London. The chair was taken by Mr. Arthur Evans, F.R.C.S., president of the Society for the Study of Inebriety, under whose auspices the lecture is instituted.

Professor Mapother, discussing first of all the questionable results of alcohol, said that some findings appeared to support the conclusion that the expectation of life among insured persons was greater for abstainers than for even moderate drinkers. But it was uncertain how far this might be due to the fact that the so-called moderate was in reality immoderate at the time of insurance or became so subsequently. On the other hand, many of the most cherished beliefs of popular medicine as to the value of alcohol had gone, such as that, for instance, it kept out the cold, or formed a suitable ingredient of cooling drinks in summer. There seemed to be no foundation for the belief that it was indispensable to avert tropical infections or to ward off chill. The least justifiable of all kinds of drinking was drinking "by doctor's orders."

On the possible value of alcohol as a food, Sir Frederick Gowland Hopkins, as reported in the *British Medical Journal* of December 11, 1937 (p. 1184), had pointed out that experiment did not indicate that muscular exercise increased the rate of combustion of alcohol, which was the real issue. While alcohol was certainly destroyed

and oxidized in the blood, and thus produced heat, there was no proof that it entered into the metabolism of the muscles in the sense that sugar did. That, if a food at all, alcohol was a bad one could not be doubted.

Alleged Stimulating Effect of Alcohol

Turning to effects which beyond question did originate in the taking of alcohol to excess, Professor Mapother said that it was doubtful whether in man alcohol in any concentration ever really produced a true stimulation. In very low concentrations and in some persons relatively simple automatisms such as typewriting might show a minor degree of improvement, though even here it seemed likely that the apparent activation was in reality reduction of inhibition; but in all higher mental activities involving any degree of discrimination or any type of voluntary action, reduction of efficiency was universal, even with doses which were called moderate. To say that the effect of alcohol was reduction of inhibition was not necessarily to condemn its use in all circumstances. Alcohol, which was, of course, liable to lead to many accidents, also mitigated their shock; it was proverbial that drunken men might perform astonishing feats after sustaining a fracture. Alcohol had its use for operations before more effective anaesthetics were introduced; it not merely dulled the consciousness of the patient, but actually preserved him from the shock, which might have been fatal. None of these apparently beneficial effects constituted any sufficient justification for alcohol, because in every instance there were better ways of achieving the same end.

The initial taking of alcohol in the ordinary way was in the vast majority of cases for the production of pleasure. Addiction might arise by this becoming habitual, and then the motive became less clearly conscious. Later the person became conditioned so that for more and more situations having a few drinks was an automatic response. Even so far as "normal" people were concerned psychological explanations in many cases seemed inadequate, and a more likely theory was the periodic occurrence of a state of discomfort of biochemical origin which the individual had learnt could be allayed by alcohol.

"It is not uncommon in extremely able and well-balanced men living vigorous and useful lives to find that suddenly and out of the blue, without the least plausible explanation of a psychological kind, they are affected with a crisis of anxiety lasting several days. This may occur on the day after having dined not wisely but too well. And they are apt to correct it with a hair of the dog that bit them. The occurrence of a somewhat similar kind of crisis and the discovery of alcohol as the fatal antidote for this recurrent discomfort seems the most plausible explanation of the way in which many men, otherwise of the highest character and greatest efficiency, ruin their lives by a quite occasional bout of drunkenness."

The lecturer thought that this discomfort might be dependent upon the presence of adrenaline in excess, to which alcohol was antagonistic.

The Problem of Addiction

In discussing the addiction of those who eventually developed mental syndromes Professor Mapother distinguished between the cases in which the syndrome was an organic one due to alcohol and those in which it was not. There was little ground for belief in any quite specific craving for alcohol. Moreover, the strictly periodic dipsomania of which one read and heard from patients rarely stood examination. Among convalescent alcoholics while in hospital such crises of aggravated craving or anxiety as must then occur if they were true dipsomaniacs were practically never seen. Perhaps, as had recently been maintained, the periodic craving for alcohol was not a primary but a tertiary condition following upon occasional and then steady drinking.

Several physical explanations of acquired tolerance were conceivable. It might depend upon change in the per-

meability of the cell membranes and neurons; on a varying resistance of the barrier between the blood and the neuron; or upon the development in the blood of an antibody, biologically if not chemically forming an antidote to the action of alcohol. Actually the only demonstrable change was delayed absorption. The effect of alcohol on motor and still more on mental functions was variable, and the distinction between ordinary and pathological drunkenness entirely artificial. Somewhat less than 1 per cent. concentration in the blood was usually fatal. This concentration would be reached by the taking of one pint of absolute alcohol (for example, as two pints of whisky or brandy) within one or two hours.

Alcoholic Neuritis

Of the chronic effects of alcoholism the lecturer dealt in most detail with the nervous lesions of chronic neuritis; the lesions, by the way, in this condition were practically identical with the distribution of the nervous lesions in beriberi. In cases usually seen in this country it was notable that the distal parts of the legs were most affected. In a well-marked case there appeared to be a special affinity of the cause (whatever the cause was) for the lower sensory neurons. Thus appreciation as such of a painful stimulus—for example, a pin-point—was often lost before the awareness of a touch. Somewhat later than afferent changes, affection of the lower motor nerves of the anterior tibial group was usual, with characteristic foot-drop and "steppage" gait. On the other hand, that there might be affection of the lateral columns by chronic alcoholism was shown by the fact that before reflexes were abolished by impairment of proprioceptor or lower motor neurons there was often marked exaggeration of tendon jerks. This persisted throughout in many cases of Korsakow's psychosis without gross neuritis.

Of late years evidence had been steadily accumulating that the proximate cause of alcoholic neuritis was not the contact of the alcohol itself with the neurons. The action of the alcohol was indirect, bringing about shortages similar to those responsible for the nervous conditions in beriberi and other deficiency diseases. It had also been shown that if considerable doses of vitamin B₁ were given recovery from neuritis occurred, although the patient was still taking large amounts of whisky.

The lecturer went on to stress the frequency with which the syndromes which followed the damage done by alcoholism were combined or changed by transition into one another or alternated in different stages of one attack. This suggested that there was fundamental unity in their causation, and that their broader differences were probably anatomical and biochemical.

In alcoholic psychoses the predominant abnormalities were confusion, hallucinations, and amnesia for recent events. As a speculation it might be suggested that in all these conditions the system predominantly affected was a proprioceptor chain of which the lowest links were those neurons subserving sensation from muscles and joints. In Korsakow's psychosis the mood was often euphoric; in all the other syndromes there tended to be predominance of unpleasant feeling. It was a striking fact that in contrast with the euphoria for which drink was taken the mood of the psychosis resulting from chronic alcoholism was usually one of intense anxiety.

Professor Mapother concluded with some remarks on the social aspects of alcoholism, and ventured the opinion that in this country a larger measure of restriction would improve matters. Prohibition in the United States, although it broke down, largely owing to failure of co-operation between the authorities, lowered the incidence of alcoholic consequences to a level never previously approached. Prohibition might score even greater successes here, but it was not likely to come about, because of the respect for individual liberty which for good or ill was the chief contribution of this country to the world.

Nova et Vetera

THE ENGLAND OF LETTSON

In his presidential address to the Medical Society of London on October 10 Dr. C. E. LAKIN suggested that after the tension of recent weeks it might be a relief to turn the thoughts to the placid eighteenth century, the century in which the Society was founded, a period which had been regarded as the most serene and unimpassioned in the history of England. One looked back with longing, he said, to those days of quiet, when everything seemed to have settled down to a stable equilibrium—when the old man saw in his age the things he had seen in his youth. Under the spell of such recollections there seemed to be some excuse for regarding that century as a happier one than our own. How beautiful, for example, were the furniture and trinkets of the period! From these, as well as from the paintings and mezzotints, something of the spirit of the time could be caught. One compared them with our own mass-production to the disadvantage of the latter. In Georgian days the English landscape could be seen in all its beauty, and if a building was observed it enhanced the scene.

Dr. Lakin then proceeded to give an interesting illustrated account of the English countryside in the eighteenth century—its village life, its agriculture, economics, and transport. He also described the town, with its shops and streets, with the gibbets still standing in the Edgware Road, and the "resurrection men" still at work in a burying ground in Tottenham Court Road; also with the coffee-houses, of which there were nearly 3,000 in London at the beginning of the eighteenth century. Child's coffee-house in St. Paul's Churchyard was, along with another in Cornhill, the favourite one for members of the College of Physicians, and there the physicians met the apothecaries. It was at a coffee-house that Radcliffe received the summons to hurry to St. James's to see Queen Anne, and sent a message that lost him his Court appointment, "Tell Queen Anne her distemper is nothing but vapours. She is in as good a state of health as any woman breathing, only she cannot make up her mind to believe it."

Harley Street in the Eighteenth Century

It was in the eighteenth century that Harley Street and the adjacent thoroughfares around Cavendish Square were built. Upper Wimpole Street, Devonshire Street and Place, and Beaumont Street occupied the site of the once famous Marylebone Gardens. Where Welbeck Street now stood there was an old inn where it was customary to examine pistols before setting off for the dangerous journey to Lisson Fields (now Lisson Grove), then a part of the village of Paddington. The pageant of the streets, Dr. Lakin continued, must have been made more vivid by the presence of medical students. Richard Smith, surgeon to Bristol Infirmary, had left a record of minute details of the dress and appearance of many of his medical contemporaries. He gave the following description of a fellow-student of his in the Borough, attending Guy's and St. Thomas's. His hair was pomatumed, powdered and frizzed, and tied behind in a tail. He had a large cravat with a muslin "cascade" in front, in which was a brooch. He wore a fancy figured short waistcoat, a pair of yellow breeches reaching halfway down his calf, blue silk stockings, and brass buckle shoes with false straps. A student in the Borough in 1765 on one occasion went to a confinement wearing a scarlet coat and carrying a sword. He was stopped by Dr. Colin Mackenzie, who pointed out to him the impropriety of a man going armed to bring a being into the world, the sword being generally used to send someone out of it.

Medical London of the Time

Concluding with some references to medical London in the second half of the eighteenth century, Dr. Lakin said that when William Hunter came to the metropolis in 1741 there were six hospitals. His own hospital—Middlesex—which Hunter joined in 1748, was launched by public subscription in 1745. Physicians abounded at that time, but only two surgeons of mark were alive. One was Cheselden, who was quite an old man, and the other was Percival Pott, who was in his prime. Physicians like Sir Hans Sloane were men of great learning, but more at home in literature and philosophical discussion than at the bedside. The greatest among the physicians was Mead, who was carried by a coach and six from his country to his town house. Scientific medicine might be said to date from 1761, a year which was memorable for the publication of two books, one of them Morgagni's great work which made pathological anatomy a science, and the other a work of Leopold Auenbrugger, on "A new device for detecting hidden diseases within the human chest by percussion to the thorax." Of Lettson, the founder with Fothergill of the Medical Society of London, Dr. Lakin said that he was a man not greatly learned as learning counted in those times, but he was the impersonation of that valuable quality in a physician, common sense; and he had a heart of gold.

One hundred years ago George Owen Rees (1813-89) described the occurrence of hyperglycaemia in diabetes ("On Diabetic Blood," *Guy's Hospital Reports*, 1838). Though Matthew Dobson of Liverpool (1776) and the Italian chemist Ambrosiani (1835) had previously noted the presence of sugar in diabetic blood, its existence was doubted or ignored until Rees's demonstration. The first medical officer to Pentonville Prison, and lecturer on materia medica and physician at Guy's, Rees for many years was intimately associated with Alfred Swaine Taylor in some of the most celebrated criminal trials of the day. There is a comically grotesque drawing of Rees in *The Times Report of the Trial of William Palmer* (1856), and his portrait by Sidney Buck hangs in the Royal College of Physicians of London.

FORLANINI INSTITUTE: SCHOLARSHIP

The Privy Council announces that in connexion with the Carlo Forlanini Health Institute of Rome, a clinic for diseases of the respiratory system and tuberculosis, which organizes annually (from January to April) courses of training in phthisiology for foreign medical practitioners, the National Fascist Institute for Social Welfare offers to British medical practitioners:

1. A scholarship consisting of exemption from fees for registration and attendance at the course, free board and lodging at the Institute, and other facilities, including special railway facilities.
2. Three nominations entitling the holders to exemption from fees for registration and attendance at the training course, and other facilities, including special railway facilities.

Candidates must be qualified medical practitioners of at least three years' standing who have rendered effective service in specialized medical clinics or sanatoria or other scientific institutions for the treatment of tuberculosis. Any publications and attendance at other courses specializing in phthisiology can be considered as claims for preference.

With the concurrence of the Privy Council the British Medical Association has undertaken to receive applications from medical practitioners, who should communicate with the Secretary of the Association at B.M.A. House, Tavistock Square, London, W.C.1. not later than November 1, 1938, giving details of age, qualifications, and experience.

OPENING OF THE NEW SESSION GUY'S HOSPITAL

SIR HENRY DALE ON THE FUTURE OF MEDICINE

The annual prize distribution and opening address at Guy's Hospital Medical and Dental Schools took place on October 14, and was presided over by Viscount Nuffield, treasurer of the hospital.

Sir Henry Dale, after distributing the awards to the medalists and prizemen, gave an address on "The Future of Medicine." He began with a few remarks about research, which, he said, had been his own job in life ever since qualification. There was one particular direction in which it seemed to him that the need for research ought to make a special claim on the men qualifying for medicine in this country and in other parts of the Empire. A vast area of the tropical regions of the world lay under British rule, and it could properly be urged that British medicine had a special responsibility with regard to the diseases which still continued in those regions to take a terrible toll of life and health. Here if anywhere in the medical field many nuggets of discovery still lay relatively near the surface, to be won by trained observation, in alliance with some of the courage, enterprise, and resourcefulness which took British explorers into those regions in times before our own.

Revolutionary Changes in Medicine

Coming to his main theme, Sir Henry Dale said that what he had chiefly in view was to attempt to form an idea of the nature and scope of some of the changes to be expected in the medicine which it would be the privilege of those he was addressing to apply. It seemed certain that the future would show an acceleration of the change, already in progress, by which the activities of the individual practitioner in preventive medicine were supplemented, supported, and to some extent directed by the organized use of medical knowledge on behalf of the community. The conception of preventive medicine itself would widen, with a growing recognition that the ultimate aim of medicine was not merely to relieve, to cure, or to prevent diseases which could be recognized and labelled, but to define and then to obtain, so far as insistence could do it, the conditions for a full and healthy development, and for continued health, for every member of the community.

This was a time of exciting and even revolutionary change and progress in which to enter medicine. The beginnings of the change were to be found some sixty or seventy years ago in the extraordinary outburst of activity in what were now called the medical sciences, such as bacteriology and physiology. Owing to this renaissance it would be found that medical knowledge had advanced and practice changed with it more in the past few decades than in several centuries preceding them. As an example he mentioned the tragedy of deaths from diphtheria at a time, in his own early experience, when the suspicion of faulty drains represented the highest flight of medical speculation concerning the aetiology of the disease. Nowadays, to take the Province of Ontario as an instance, the immunization of school children with toxoid had become so well established that a position was in sight in which diphtheria would have ceased to count as a threat to the child life of a progressive community. Was he wrong in foreseeing that an important part of the duty of medical men of the future would be to educate themselves and the public opinion which looked to them for guidance so as to ensure that the benefits of such saving knowledge were secured for those whose health would be in their care?

Again, in his student days a case of diabetes mellitus in the wards was viewed with despair by the physician. The discovery of insulin had changed that picture, but it had done much more than transform the treatment of diabetes: it had given an enormous impetus to researches

on hormones in general. During the last twenty years active hormones had been obtained from the parathyroid glands, from the suprarenal cortex, from the different gonads, and, a whole series of them, from the pituitary anterior lobe. From liver and stomach mucosa materials had been extracted the administration of which restored to the victim of pernicious anaemia the factors missing from his blood-forming system. Insulin had been crystallized, thyroxine had been prepared by complete synthesis, while several of the sex hormones and that of the suprarenal cortex had been obtained as pure crystalline substances, structurally identified, and even prepared artificially by partial synthesis from different sterols. Twenty years ago it was held not to be certain that any of these substances had a real existence.

Further New Resources in Treatment

Recent progress in dietetics told a similar story. At the beginning of the century people talked about proteins, fats, and carbohydrates, and had some knowledge of the energy requirements of the body; but ignorance of qualitative dietetics was a reproach to medical science at that time, and medical advice on diet proved a fair target for the layman's humour. The change in recent years had been almost incredibly rapid. Twenty years ago it was possible to think of accessory factors as intangible traces of substances which might never be accessible to exact chemical study. Yet seven or more vitamins had now been separated in pure form, structurally identified, and prepared artificially by synthesis; and there were others, he believed, in near prospect.

All this illustrated the way in which research was providing new conceptions of aetiology and new resources for treatment based directly upon it. In his own student days one of his strongest impressions was the attitude of cynical scepticism then prevailing concerning the value of medicinal treatment. It was depressing to him at that time how seldom a prescription appeared to be written with any clear confidence in a real effect on the disease.

"Who would have ventured then to predict the day when it would become possible, by the use of natural remedies, to make a whole population resistant to diphtheria infection, or practically to abolish rickets in the children of a modern city, or to restore hormonal defects in the diabetic and the sufferer from pernicious anaemia, so as to enable them to live almost normal lives?"

The same kind of change was perceptible in the therapeutic use of artificial chemicals and substances unnatural to the body. Synthetic chemistry had done real service to medicine. He instanced prontosil and its active moiety sulphanilamide, and the brilliant new prospect thus opened of the successful treatment of conditions due to infections by streptococci, such as puerperal fever and erysipelas. Synthetic substances were coming to hand which dealt radically with the causes of disease, and not merely modified or moderated the resulting symptoms. This was a change only now becoming effective, and seemed to him certain to continue and to be more rapid in the future.

Sir Henry Dale concluded by affirming his faith that, with the disappearance of the earlier separation and critical rivalry between experimental research in laboratories on the one hand and empirical observation at the bedside on the other, and with the formation of a common front of advance in medical science, medicine would move towards the ideal of the creation and maintenance of the conditions of health, and not limit itself to the recognition and treatment of acute or obvious failures and anomalies.

"Sooner or later, in any case, the new weapons of science will come to your hands, and one of the most important developments which I hope that the future will see is the intelligent and enterprising use of the new knowledge by the man in ordinary practice, enabling him to relieve, from the limbo of 'imaginary' ailments, many hormonal and dietary deficiencies, many chronic reactions to latent infection, and

many partial failures in factors of normal function yet unrecognized which future researches may reveal. If we can look forward to the time when the man in ordinary practice will be able to recognize, anticipate, and deal with the causes of vague and chronic ailments which bear no diagnostic labels and seldom reach the hospitals, then, indeed, I believe that the future of medicine is bright with the hope of better service to the health of mankind."

HAEMOLYTIC ANAEMIAS OF CHILDHOOD

LECTURE BY PROFESSOR L. G. PARSONS

The Schorstein Memorial Lecture was delivered on October 13 at the London Hospital Medical College by Professor Leonard G. Parsons. Dr. Robert Hutchison, P.R.C.P., presided. The lecturer took for his subject the haemolytic anaemias of childhood, on the basis of a study by himself and his colleagues of 120 cases.

It used to be stated, said Professor Parsons, that anaemias were divisible into primary and secondary. Such a classification existed for many years but was now obsolete, and it was clear that anaemia was much more a symptom than a disease. The attachment of personal names, whether Teutonic, or American, or even British, like those of Addison or Wits, to certain clinical syndromes was quite futile as a contribution to the classification of anaemias, however excusable on the ground of hero-worship.

Most classifications of anaemias divided them into those due to deficiency or inability to utilize material for the manufacture of red cells and those due to loss of blood; but it was possible for a given anaemia to fall under both heads. Continued loss of blood, as in excessive menstruation or bleeding piles, might lead to a depletion of the iron stores of the body, and unless this was made up by increased intake of iron iron-deficiency anaemia occurred.

The red cell passed through a series of changes from the reticulum in the marrow to the erythrocyte in the blood stream, and in the absence of certain materials in the bone-marrow a particular change might not take place. In the haemolytic group of anaemias reticulocytes formed a conspicuous feature of the blood film, not infrequently accompanied by an increase in the granular cells. The conception of the essential unity of the red cell in the blood stream and its precursors in the haematopoietic "factory" had been one of the great features of the haematological renaissance of the last decade. The word "haemolytic" was now so firmly engrafted in medical literature that it must be accepted, but in so doing Professor Parsons said that he was adopting the reprehensible practice of holding a candle to the devil.

Erythronic Response to Injury

The character of erythronic response was conditioned by (1) the part of the erythron most affected (meaning by erythron the tissue made up of circulating red blood cells and the cells from which they arose), as, for example, periphery or marrow; (2) the severity of the injury and the length of time for which it had lasted; (3) abnormalities of the erythron; and (4) abnormalities of the serum. As a result of the different varieties of erythronic response various forms of haemolytic anaemia were seen, of which he gave a list. Abnormalities of the erythron might give rise to acholuric jaundice, sicklaemia, Cooley's anaemia, or haemoglobinaemia. Abnormalities of the serum included haemolysins, alteration in blood lipoids, toxins of infection, and allergic states.

In discussing erythroblastosis the lecturer gave reasons which made him regard this condition as haemolytic. Erythroblasts occurred in foetal blood, and were therefore apt to occur in the newborn child. They were often found, indeed, in a normal full-term child, and sometimes

to an extent which was almost pathological. Sepsis or syphilis might produce a picture identical with icterus gravis at any time during the first fortnight of life. The degree of erythroblastosis probably depended upon the degree of development of the extramedullary centres, and was in his opinion a response to haemolysis, and not a primary pathological condition.

Von Jaksch's Anaemia

Professor Parsons believed that many children said to be suffering from von Jaksch's anaemia were really victims of haemolytic anaemia. This condition, which usually occurred in a child under 3 years of age, was insidious in onset and the prognosis was good. There was usually at some time during the illness a leucocytosis. Von Jaksch did not give a very clear account of this anaemia. The syndrome occurred during the "deficiency age period" of a child's life—that is to say, the period when infantile scurvy or rickets was likely to occur. The von Jaksch picture might be found during the course of icterus gravis and in young children suffering from sub-acute haemolytic anaemia. He believed von Jaksch's anaemia—which was not an anaemia at all in the sense of a clinical entity—presented, really, the blood picture occurring in erythroblastic anaemia, probably only during the deficiency disease age period. He quoted three cases of supposed von Jaksch's anaemia. In one the duration was four months, and it was significant that a cousin of the child had acholuric jaundice. The second case was of three weeks' duration, and this had been said to be, by another observer, an undifferentiated medullary reticulosis. In both these cases there was erythrophagocytosis. The third case was of two years' duration, with fibril formation, and was ascribed to aplastic marrow.

Sickle-cell and Cooley's Anaemias

Passing to more chronic forms, Professor Parsons discussed certain differences between acholuric jaundice and ordinary haemolytic anaemia. Sicklaemia occurred mainly in negroes; here many of the red cells were sickle- or crescent-shaped. The haemolytic nature of sickle-cell anaemia could not be denied. The bone changes in this condition were very marked and more frequent than in acholuric jaundice. Another interesting point in sickle-cell anaemia was that after puberty the spleen seemed to atrophy.

Cooley had described a form of anaemia which he called erythroblastic. It was almost entirely limited to children of Syrian, Italian, or Greek stock. When the disease was fully developed the changes in the bones of the skull and face produced a mongoloid appearance. The spleen was generally enlarged, and often the liver and lymph glands. In the long bones the cortex was thin and transparent and the medulla showed reticulation. He mentioned a case of a boy aged 4 shown by Smallwood and himself to the British Paediatric Association which had affinities to both sickle-cell and Cooley's anaemias. There were abnormal cells in the blood and characteristic bone changes. The parents denied any possible negro strain in the ancestry, but returned next day rather shamefacedly confessing that one of the child's grandparents was Scotch! An anthropologist who was consulted stated that the child was negroid in feature. A striking part of the case was the great increase of erythroblasts in the blood after splenectomy. The boy had never been jaundiced, although he was slightly yellow in colour. The case was probably one of chronic haemolytic anaemia forming a connecting link between sickle-cell and Cooley's anaemias and other chronic haemolytic anaemias.

The varieties of haemolytic anaemia and certain other allied conditions owed their clinical characters to the permutations and combinations of the response to an injury. Fresh combinations might be expected to occur from time to time, and it was improper to regard the different forms observed by different authors as hard-and-fast types.

INFANTILE PARALYSIS AND CEREBRAL DIPLEGIA CLINIC AT CARSHALTON

The following report has been received for publication from the London County Council.

Anterior poliomyelitis, commonly known as infantile paralysis, is a disease which causes permanent paralysis of one or more limbs in a large proportion of those affected. Of the physically defective children admitted to the special or hospital schools of the London County Council approximately sixty each year owe their disability to this disease. The arrival in England of Miss Elizabeth Kenny, who had done much work on infantile paralysis and allied crippling diseases in Australia, was therefore of great interest. The Council decided that her claims to be able to prevent permanent paralysis and to effect great improvement in these diseases should receive every opportunity for demonstration, and that the fullest scientific investigation should be made. With this end in view the Council agreed to afford Miss Kenny the necessary facilities, and an experimental unit was started at Queen Mary's Hospital for Children, Carshalton. In order to ensure proper assessment of the value of the treatment the Medical Officer of Health invited several prominent specialists in association with the medical staff of the hospital to observe and investigate it; their opinions are given in the subjoined report. Before leaving England in August, 1938, Miss Kenny wrote the following letter to the Clerk of the Council:

August 12, 1938.

DEAR SIR,—On the eve of my departure for Australia I wish to place on record my appreciation of the action of the London County Council in affording me the necessary facilities to demonstrate my method of the treatment of infantile paralysis and spastic paralysis. Prior to my arrival in England no such trial had been arranged. I also appreciate very much the honour of the association in the work of the medical committee arranged by your Council. Also the Council's employees who were associated with me at Queen Mary's Hospital. My stay in this institution shall ever remain as one of the most pleasant experiences of my life.

Again thanking you very much.—Your sincerely,

(Signed) E. KENNY.

REPORT ON THE KENNY METHOD OF TREATMENT

The period of one year has expired since Miss Kenny, with the Council's sanction, began the demonstration of her methods of care and treatment of poliomyelitis and of cerebral spastic paralysis. The work started on July 13, 1937. A ward was evacuated, and was equipped as a clinic with the baths and other apparatus used by Miss Kenny and described in detail by her in her book, *Infantile Paralysis and Cerebral Diplegia* (Angus and Robertson, Sydney, Australia, 1937). Two adjoining wards (twenty-eight beds) and, later, a third ward (eighteen beds) accommodated the in-patients. There were also a small number of out-patients who have attended daily, every other day, or at such periods as were prescribed. The wards were staffed by members of the regular hospital nursing staff, whose numbers were somewhat increased beyond the hospital standard on account of the intensive care required day and night by Miss Kenny.

Miss Kenny brought with her two of her Australian trainees, who have assisted her continuously through the whole period, and to complete the staffing five of the whole-time trained massage staff (with the part-time services of the massage superintendent) were appointed to learn the details of Miss Kenny's methods and work under her direction. From November to April Miss Kenny herself had to return to Australia, and during this period she delegated the supervision of the treatment to Dr. F. H. Mills, M.B., B.S., Sydney, who is familiar with the system, and to her senior trainee (Miss Grant). In this way continuity was preserved. From the hospital side the whole unit was supervised by Mr. G. M. Gray, F.R.C.S., one of the Council's senior resident

assistant medical officers, who has devoted his whole time to this work and to the careful observation of every one of the patients, as well as the detail of the treatment given.

In the first place the agreement with Miss Kenny was that her work should be demonstrated for three months, but at the end of that time it became obvious that this period was too short for any reliable opinion to be formed as to the results of her treatment and, accordingly, it was later agreed to extend the period to twelve months.

In view of the interest which has been aroused and the manifest importance of the whole matter the Medical Officer of Health of the Council invited the assistance of orthopaedic surgeons and neurologists to form an honorary advisory committee to watch the treatment carried on and to be associated with the Council's officers (Dr. H. O. West, M.D., F.R.C.P., D.P.H., medical superintendent of Queen Mary's Hospital, and Mr. G. M. Gray, M.A., M.B., Ch.B., F.R.C.S.Ed., F.R.C.S.Eng.) and the consulting orthopaedic surgeon to the hospital (Mr. C. Lambrinudi, F.R.C.S.) in their conclusions. There were accordingly appointed: Mr. H. A. T. Fairbank, D.S.O., O.B.E., M.S., F.R.C.S., Mr. R. C. Elmslie, O.B.E., M.S., F.R.C.S., Mr. E. I. Lloyd, M.A., M.B., Ch.B., F.R.C.S., Dr. Macdonald Critchley, M.D., F.R.C.P.

In accordance with Miss Kenny's request for the admission to Queen Mary's Hospital of cases of poliomyelitis in the early stage of the disease all such cases coming under the Council's care were admitted to this unit. In addition a number of cases of residual paralysis in poliomyelitis selected by Miss Kenny were transferred to her care, and also a few cases of cerebral spastic paralysis which she considered were suitable for the demonstration. In all, sixty-three patients have been treated, as follows:

Poliomyelitis:

- | | |
|--|----|
| (a) Recent (treatment commencing less than 8 weeks from onset) | 34 |
| (b) Later (treatment commencing over 8 weeks and less than 12 months from onset) | 12 |
| (c) Residual (treatment commencing over 12 months from onset) | 9 |
| | 55 |

Cerebral spastic paralysis

8
63

In general Miss Kenny's treatment has not been interrupted or interfered with in any case except as the result of incidents (such as infectious diseases) which could not be controlled. Even in cases in which infectious diseases occurred interference was avoided as far as possible by one of the trainees going daily to the fever hospital, with the kind co-operation of the medical superintendent (Dr. J. S. Anderson, Grove Hospital).

Miss Kenny claimed in her book that she has obtained complete recovery in all recent cases of poliomyelitis which she has personally treated from the commencement.

"*Infantile Paralysis*.—All recent cases treated at the clinic [Townsville] have been totally and permanently cured. . . . It must be acknowledged that the number of recent cases of infantile paralysis at that time was very few—in fact, four only. During the last two years this number has been increased to twelve, with the same happy results" (p. xxi—author's preface).

Herein lies the importance of the admission of early cases already alluded to. If we correctly understand from this that Miss Kenny claims to be able to cure poliomyelitis completely, then we are of the opinion, as the result of our observations during the past year, that such a claim is in no way substantiated.

Miss Kenny's Five Principles

There remain, therefore, the questions whether Miss Kenny's methods are better than customary methods, whether they yield better or more rapid results, and

whether they should be recommended for general adoption. These methods are enumerated as follows (*ibid.*, p. 3): (1) maintenance of a bright mental outlook; (2) maintenance of impulse; (3) hydrotherapy and remedial exercises; (4) maintenance of circulation; (5) avoidance of the generally accepted methods of immobilization. These may now be considered seriatim.

1. *Maintenance of a Bright Mental Outlook.*—We certainly agree that an optimistic outlook should be adopted both by the patient and by those under whose care he is placed; but in a disease such as poliomyelitis this must be tempered by the judgment of clinical knowledge, otherwise it is liable to become mere deception.

2. *Maintenance of Impulse.*—We understand Miss Kenny to mean by this that the patient must be helped to make the mental effort to carry out a movement even when the muscles are so completely paralysed that no movement and no tightening of them can be perceived. We do not agree that any mental effort to produce muscular contraction can be felt by an attendant's hand unless contraction actually occurs. Miss Kenny's "impulse" is presumably a minimal contraction of the muscle, which may be so slight as to require experience in its detection. On the other hand we agree that the voluntary contraction of muscles that have been paralysed or weakened should be encouraged by every possible means. This is, of course, in accordance with generally accepted views.

3. *Hydrotherapy and Remedial Exercises.*—Miss Kenny's method of hydrotherapy is carried out in individual slipper baths or in a special "arm" bath. A warm bath is used, with a hot and cold douche as a method of stimulation, and in it the limbs are exercised. The principle of under-water exercises is not a new one, but in hospital practice it is more often carried out in communal baths. The use of alternating hot and cold douches appeals to us as useful. Miss Kenny sets out the merits of hydrotherapy: (i) the circulation in the limbs and skeletal muscles is improved; (ii) their nutrition is maintained; (iii) the buoyancy of the saline water assists weak movements; and (iv) hydrotherapy improves the mental outlook (*ibid.*, p. 7). With this view we agree, and we think Miss Kenny's method is of value, but we cannot altogether accept her criticisms of the "communal bathing pool," which are as follows: (i) the proximity of other patients causes distraction; (ii) the effort to keep afloat causes lessening of mental concentration; (iii) it is impossible to obtain the same degree of co-operation between the patient and attendant that the individual bath affords; (iv) a newly acquired movement may not be perceived as soon as it may be by the method of the individual baths, and through this oversight, may be overtaxed and so weakened; and (v) that hygiene is lacking (*ibid.*, p. 7). All these objections can be overcome. Large baths are no doubt to some extent unhygienic, but their use is limited to patients in hospital, and frequent changing of the water and simple hygienic measures are universally practised. Actually we think there are certain objections to the small individual slipper baths: there is not room for certain movements—for example, abduction of the lower limbs—and the use of the principle of buoyancy is limited.

We must now refer to the important question of when remedial exercises (or muscle re-education) are to begin. Miss Kenny strenuously advocates muscle re-education as early as possible in the course of the disease, and is not unwilling to practise this even before the cessation of pain. Her method of re-education consists essentially of passive movements which the child is invited to assist, if possible, by voluntary contraction of the appropriate muscles. It might be expected that such early movements would eliminate the incidence of stiffness so often observed when immobilization by splinting has been unduly prolonged. But we have seen stiffness arising quite early when no splint has been used. It does seem that real progress in passive mobility is only made when the pain has disappeared. Miss Kenny claims that her method of hydrotherapy, fomentations, and passive movements helps to get rid of pain. Our observations upon this point are inconclusive, because the duration of pain in individual cases varies greatly.

4. *Maintenance of Circulation.*—Miss Kenny attaches great importance to this, and we think rightly so. Though it is a matter which is usually attended to with care in individual cases at home, it has to be admitted that it should receive more attention in hospital practice. Among the ill effects Miss Kenny ascribes to failure to maintain a good circulation are the following:

(i) *Loss of Muscle Tone.*—This is well known to the massage profession, whose members find that they cannot get the muscles active until the limb has been warmed up.

(ii) *Wasting.*—This depends mostly on the extent of the damage to the nerve cells, and the influence of peripheral circulatory factors is slight. In the cases under review there certainly is wasting, but there is no doubt that the texture of the skin and subcutaneous tissues is good.

(iii) *Chilblains.*—These also have not occurred, but we should say (a) that chilblains ought not to occur in such children who are in-patients in a hospital, and (b) that they are late manifestations and are not usual in the first year.

5. *Avoidance of the Generally Accepted Methods of Immobilization.*—In this principle Miss Kenny appears to differ fundamentally from what is described as the "orthodox" view. Dr. Mills, describing her method (*British Medical Journal*, 1938, 1, 168), summarizes "orthodox" methods of treatment:

"The accepted or orthodox methods of treatment may be summarized as follows: (a) rest and immobilization of the affected limbs until the stage of pain or irritation is past; (b) maintenance of affected muscles in a position of relaxation; (c) avoidance of contractures and deformities by light retentive apparatus; (d) massage and active and passive movements. Treatment along these lines is based upon the theory that the pain in the limbs is of central or meningeal origin. . . . In opposition to this accepted theory the view is taken that the pain in the extremities is almost completely vascular in origin."

While this summary may be generally accepted it is necessary to point out that "orthodoxy" is not a precise term. Indeed, it is well known that orthopaedic surgeons differ widely in the practical application of the principles of splinting and immobilization; so that when "immobilization" is spoken of and condemned by Miss Kenny as if it were the habit of all orthopaedic surgeons to place children on a retentive frame or in splints without any other treatment for an indefinite period of time, even extending to months, and the production of deformities is ascribed to the splints themselves, her view is inaccurate. While we should agree that "immobilization" may be practised over-long, we are opposed to Miss Kenny's refusal to use any splint at all in the treatment of this disease. All retentive splintage must be employed intelligently and with discretion as a means to an end and not merely as an end in itself. Miss Kenny claims that the initial period of rest and immobilization is unnecessary and adheres to the "theory of natural posture in correct alignment without immobilization," meaning thereby that the body and limbs should be kept in their natural position in the intervals between exercises. This she aims at maintaining by the constant attention of the trainees or nurses and by means of pads and slings and boards at the end of the bed to prevent "footdrop." She thus uses "position" but will not adopt the use of splints to maintain it.

Apart from some degree of contracture of the tendo Achillis in a few cases that was overcome later, we have seen the development of no contractures while the patients were recumbent and well supervised, nor have we found evidence that her refusal to put the paralysed muscles in the position of relaxation has caused delay in the initial return of power. We think, therefore, that it must be admitted that Miss Kenny's method of keeping limbs in a neutral position without splints when in bed is not harmful in the early stages of the disease, and in fact has this to commend it—that it spares the children the irksomeness of splints at that stage. On the other hand we are as definitely of the opinion that, when a muscle is recovering, splints are often useful in preventing over-fatigue and deformity. It follows from this that we think Miss Kenny's prejudice against splints and appliances leads her to keep the children recumbent unnecessarily long, when the judicious use of an appliance might enable them to get about earlier with no harm to the muscles and joints and even with benefit to the muscles and to the child generally.

It is certainly vital to Miss Kenny's system that there should be constant supervision. Such intensive care seems only possible in an institution specially equipped and staffed for the purpose.

Exercises and Other Procedures

With these five "principles" in view Miss Kenny uses "exercises and other procedures for the restoration of functional power to apparently paralysed muscles." It

is not, we think, necessary to describe in detail her methods of "muscle re-education." They are simple, and can be carried out by trainees who have not been as fully instructed in anatomy and physiology as are members of the massage profession. We have seen nothing to suggest that Miss Kenny has designed methods superior to those used by the massage profession. In fact, we consider it is legitimate criticism of her method that it does not include a number of useful measures practised, certainly in this country, by experienced masseuses. As we have already observed, Miss Kenny's system involves that such muscle re-education should be begun in the early stages and should be continued throughout the treatment, and she claims on its behalf that it maintains the dormant normal impulses which she believes wither under immobilization methods and may die beyond the hope of resuscitation. Careful graduation of exercise as practised by her avoids over-fatigue, and in this she follows well-established practice. Treatment by early movements, it must be noticed, is being practised in several other centres abroad. We have seen no evidence that the early movements in the cases we have observed have been harmful, but neither have we reason to think that they have specific value in determining the degree of restoration of useful function. This method has perhaps encouraging psychological effects which may be beneficial. It is noticeable that in some of the severe cases treated from an early stage all the efforts of Miss Kenny and her staff have failed to bring back any movement in the paralysed muscles.

Twelve months is too short a period in which to assess finally the question of residual paralysis. In our view Miss Kenny has not really faced this issue. If we understand her aright, she believes that, under her system, in two—or perhaps three—years' time her patients will not require artificial aids, and, having sufficient useful function, will not require any surgical supervision or after-care. We wish we could believe this to be true. It is of course well known that some patients with poliomyelitis recover to a considerable degree under any system of treatment and that they may continue slowly to improve for a long time, but so far as our twelve months' observation of this very interesting experimental period has gone we have seen nothing whatever to justify Miss Kenny's belief. We have been especially interested in her opinion, expressed late in the year, that she is satisfied if she can get partial recoveries—for example, in an arm case she aims at a "good forearm," and in a leg case at "good gluteal muscles," leaving stabilizing operations to the surgeon. This differs little from the accepted view in this country. In this she seems to abandon her claim to effect a complete cure.

It is necessary, we think, to refer only briefly to Miss Kenny's treatment of cases of cerebral spastic paralysis. By her extreme attention to detail, incessant and intensive application, coupled with most admirable patience and optimistic enthusiasm, Miss Kenny has achieved some amelioration in the cases under treatment. But there is nothing original in the principles of her treatment, and it is very doubtful whether any of the more severely affected patients treated can ever become self-supporting. In our experience of these cases improvement of some sort under any intensive system of training or treatment often occurs. No doubt this is encouraging to the relatives of these patients, but relapses are not infrequent following the cessation of treatment.

General Observations

We may conclude this report by some general observations. We have indicated our view that this system is not the last word in the treatment of poliomyelitis. (We disagree with Dr. Mills's enthusiastic support, and feel bound to record our opinion that it was unfortunate that his article on the subject (*loc. cit.*) was published during the course of this investigation.) At the same time no

one can be complacent about this distressing disease, and we should be ready to adopt any method of proved value and incorporate it in "orthodox" treatment, so called: Miss Kenny herself has consistently expressed her desire to be of service through regular medical channels. We should therefore have no difficulty in recommending—certainly for an extended period—the continuation of Miss Kenny's system of hydrotherapy in the poliomyelitis unit of this hospital. Having expressed the opinion that this is of value, it would seem foolish not to use the apparatus which has been installed. We see no difficulty and no inconsistency in incorporating this part of Miss Kenny's system, for instance, in a major scheme of treatment which would include splintage where this is thought advisable.

We are in no doubt as to the value of the segregation of cases of poliomyelitis in large special units. This was originally suggested to the Council by Mr. Elmslie and resulted in a unit at Queen Mary's Hospital, with a preliminary period at the Western Fever Hospital because of the supposed risk of infection. The present series of cases seems to have shown that no disadvantage has followed the transference of cases to Carshalton at an earlier stage than hitherto, and we should be glad to see the intensive treatment which has resulted from Miss Kenny's visit continued. Though it is incapable of proof we believe there is no appreciable risk of infection—an opinion which agrees with the generally accepted views on the subject.

Certainly we hope that arrangements will be made for the continued observation of these particular cases for reasons already indicated.

Summary

We should therefore sum up our main conclusions as follows:

1. We have seen no reason to admit Miss Kenny's claim that complete cure can be promised in any group of cases of poliomyelitis.

2. We consider that the use of hydrotherapy in the form of hot and cold douches as practised by Miss Kenny is of value.

3. We consider that very early attempts to initiate voluntary movements and also early and frequent passive movements are harmless but of unproved value. We think, however, it is a legitimate criticism of her method generally that it does not include a number of useful measures practised, certainly in this country, by experienced members of the massage profession.

4. We agree with Miss Kenny that under certain conditions, which we have specified, splints can be dispensed with in the treatment of the early stages of the disease. We do not approve, however, of her entire abolition of splints and surgical appliances in treatment. We consider that they are often valuable and sometimes essential parts of treatment, but, on the other hand, we are equally sure that the mechanical methods which she employs in substitution for splints are inadequate. We would add, however, that we disagree with the long periods of continuous mechanical immobilization which are sometimes imposed.

5. We consider that Miss Kenny has not really faced the issue of residual paralysis, for which we believe surgical appliances or surgical methods such as stabilizing operations offer the only eventual hope of amelioration.

6. Some improvement appears to have been achieved in the cases of cerebral spastic paralysis treated, but Miss Kenny's system demonstrates no original principles.

(Signed)

H. A. T. FAIRBANK.
MACDONALD CRITCHLEY.
E. I. LLOYD.
C. LAMBRINUDI.

R. C. ELSLIE.
GEO. M. GRAY.
HENRY O. WEST.

MOTOR CARS FOR 1939

THE EARL'S COURT EXHIBITION*

[FROM OUR MOTORING CORRESPONDENT]

Reference was made last week to the increasing popularity of four-cylinder engines for cars up to 12 or 14 h.p. The annual analysis published by the *Autocar*, however, taking all the models together, shows that vehicles with six-cylinder power units are still in the ascendant, the proportion of such models to the total having advanced from 45.5 to 48.2 per cent.; 35.3 per cent. of the new cars have four-cylinder engines, the rise in this case being from 32.5 per cent. The analysis also reveals that cars with four-speed gears are far and away the most popular, the proportion of four-speed gears being 64.1 per cent. as against only 29.4 per cent. for three-speed gears.

The cars to be seen at the exhibition range in taxable h.p. rating from 8 to 51, and in price, taking those with saloon bodywork as a basis, from £120 to about £3,000. The needs of medical men are so varied that no hard-and-fast rules can be laid down as to the most suitable vehicles for their use. Where low travelling costs are important any of the Tens can be relied upon not only to perform satisfactorily but to have a good appearance—a point of some importance to medical men. The majority, however, will probably make their choice among the Twelves and Fourtens.

Alvis, Armstrong-Siddeley, and Austin

The 12/70 four-cylinder Alvis with a saloon body is listed at £435, and as a drop-head coupé at £445. Only slight mechanical modifications have been found necessary, but the bodywork has been re-designed to give more leg- and head-room and at the same time wider seating. There are two new Armstrong-Siddeley models—a Sixteen made in two styles of saloon body, priced at £380, and a Twenty—for both of which a new slogan, "balanced drive," has been coined to draw attention to the harmonizing of the chassis, suspension, and bodywork to provide "restful motoring." Other features of the Sixteen include a new chassis frame and a fluted steel floor, which prevents any engine fumes passing into the interior of the car. Only vehicles with six-cylinder engines are manufactured by the Armstrong-Siddeley concern, which is continuing the Fourteen and Seventeen saloons with only slight modifications, at £335 and £475 respectively.

The Austin company has as usual a wide range, comprising no fewer than twenty-seven different models of cars and seven distinct chassis types—the Seven, Big Seven, Ten, Twelve, Fourteen, Eighteen, and Twenty-eight, the last-named being an entirely new model replacing the former 20-h.p. Austin. The first four have four-cylinder engines, the other three being "sixes." Although there are no radical departures in the latest models, a great number of detail improvements have been made. Thus, the new design of engine with an aluminium cylinder head, last year used only on the Fourteen, is now applied to the Ten, Twelve, and Eighteen models. Providing a higher compression ratio, this innovation, in combination with larger inlet valves on the Ten and Twelve, is claimed to ensure a higher power output with at the same time a reduced fuel consumption. Among other modifications which may be referred to are the higher and wider doors on the Twelve and Fourteen vehicles, the hinged front seat squabs on the Tens, to allow greater mounting and dismounting space, and sturdier back axles to withstand the increased engine power on the seven and three next following types. An important feature of the Austin 1939 programme is a reduction in prices of from £5 to £15; as one example it may be mentioned that the Ten sunshine-roof saloon is now priced at £185, or £10 less than last year.

B.S.A., Citroën, Chrysler, and Daimler

A car which may appeal to the younger medical men is the 10-h.p. B.S.A. Scout, the range of which now includes

an attractive two-door saloon listed at £196. The chassis, the only one of British construction embodying a front-wheel drive, is provided with a newly designed four-cylinder engine. Among the special features is the location of the change-speed lever just below the centre of the instrument board with the pistol-grip hand-brake lever at its side, so that both these controls are removed from the floor boards. The Citroën company has added two new models to its range of cars—namely, popular saloons on both the Twelve and Light Fifteen chassis at £198 and £208 respectively. Only slight modifications have been made in the Citroën vehicles, which are noteworthy for their independent front-wheel suspension and drive.

For the new season the Chrysler concern has a series of six models ranging in power from 20 to 34 h.p., and in price from £335 to £975. Among the new features are independent front-wheel suspension, an improved form of overdrive in connexion with the change-speed gear, which latter in certain models is controlled by a lever on the steering column, and a new "traffic lights" speedometer dial, which shows a small green light up to 30 m.p.h., amber from 30 to 50 m.p.h., and red at higher speeds. In the latest Daimler Fifteen model the power of the engine has been increased to 18 h.p. to denote which, and also in relation to its progenitor, the name has been altered to the Daimler 2½-litre "15." Except as regards the power unit, the chassis, which has independent front-wheel suspension and, of course, the Daimler fluid flywheel and self-changing gearbox, has not been altered. There is, however, in addition to the saloon, which sells at £485, a new four-door drop-head cabriolet.

Dodge, Fiat, Ford, and Frazer Nash

An interesting car of American design and construction is the Dodge, of which 20-, 24-, and 26-h.p. six-cylinder and 34-h.p. straight-eight models are available. Like the Chryslers, with which they are closely related, the Dodge innovations include independent front-wheel suspension and an improved overdrive to which the name "dual power" has been given, this being designed to come into operation automatically on either top or second gear at speeds as low as 22 m.p.h. A five-seater saloon is available with either a 20- or a 24-h.p. engine at £365. Among the Fiat cars, which are of Italian design, chief interest centres in a new Twelve, which is supplied only with a saloon body at £227; there is, however, a special foursome drop-head coupé body on the 10/12-h.p. chassis at £265.

Although not shown at Earl's Court, it may be mentioned that the Ford Ten car is in future to be known in its improved form as the Ford Prefect. Outwardly it resembles the V-eight model scaled down, with a flat-topped bonnet and streamlined front. The new prices range from £145 for the two-door saloon to £152 10s. for the four-door model. The A.F.N. company has three types of chassis—12-h.p., 14-h.p., and 16-h.p.—bearing the Frazer Nash name, and a series of four six-cylinder models ranging in power from 13 to 25 h.p., known as the Frazer Nash-B.M.W., the name indicating a combination of German chassis with various British modifications. The prices range from £375 upwards, and the body types available include some attractively designed cabriolets and coupés.

Hillman, Humber, and Hudson

The popular 10-h.p. Hillman Minx has been reduced in price for the 1939 season, and, according to the makers' announcements, their latest productions, while remaining basically unchanged, embody no fewer than twenty-five new features, chief among which are the all-synchromesh four-speed gearbox, improved spring suspension, and more space in the front seat compartment. Three models with saloon bodies are available at £163, £166, and £175 respectively, together with an attractive foursome drop-head coupé at £210. A car which should appeal to medical men requiring a more roomy vehicle than the Minx is the Hillman Fourteen, with "evenkeel" independent front-wheel suspension and the synchromesh four-speed gearbox. Two models of saloon cars are available on this chassis—the Safety at £239 and the De Luxe at £255.

* Concluded from page 807.

Various detail improvements have been made in the Humber 16-h.p. and 21-h.p. Snipe cars; the saloons are now listed at £345 and £355. A new departure by the Humber company is the introduction of a Super Snipe car—a British endeavour to provide a big-engined vehicle to compete with American productions. The latest model possesses not only all the usual Humber features, such as the "even-keel" independent front-wheel suspension, but is provided with a 27-h.p. engine, the "flexibility" of running of which is such that, except when starting, there is practically never any need to change down from the direct drive. It is claimed that a speed of 85 m.p.h. can be comfortably attained in the saloon, which is priced at £385.

Two six-cylinder models (17-h.p. and 22-h.p.) and a 29-h.p. "straight-eight" form the 1939 series of Hudson cars, all of which have undergone various changes in outward appearance. A new mechanical feature—the "auto-poise sway eliminator"—is said to make for greater riding comfort. The 17-h.p. and 22-h.p. saloons are offered at £312 and £360, there being also a convertible foursome coupé on the 22-h.p. chassis at £400.

Jowett, Lanchester, M.G., and Morris

The Jowett 8-h.p. and 10-h.p. cars, which continue as the only vehicles on the market with horizontal engines, and which are very popular with many country doctors, have undergone no radical alteration, but for the coming season embody numerous detail improvements. Despite this it has been found possible to reduce the prices slightly, the two-cylinder saloons being listed at £159 10s. for the standard and £169 10s. for the *de luxe* models, while in the 10-h.p. type there are three saloons at from £179 to £195. The Lanchester company is continuing to confine attention to three types of chassis—11-h.p. four-cylinder and two "sixes" of 14 and 20 h.p. respectively, although the latter is known as an "eighteen." The chief feature of these vehicles is that they all embody the Daimler fluid flywheel and pre-selective self-changing speed gear; various detail changes have been made, but otherwise these cars, which have an excellent reputation for reliability and smooth running, continue as last year. The 11-h.p. saloon is priced at £298 and the 14-h.p. Road-rider at £375. Among the cars appealing to young medical men are those bearing the name "M.G.," of which 10-h.p. and 12-h.p. four-cylinder models and 18-h.p. and 20-h.p. "sixes" are available in open tourer, saloon, and drop-head coupé form at prices ranging from £222 to £468; a noteworthy exhibit is a 10-h.p. "Midget" with Tickford folding-head four-seated bodywork at £269 10s.

The Morris cars continue to maintain their popularity. Although the range continues as before—namely, 8-h.p., 10-h.p., and 12-h.p. four-cylinder and 14-h.p. and 25-h.p. "sixes"—the Eight and Ten are entirely new models, the smaller one, indeed, having been kept back as a show surprise. The new car is bigger than the popular car it has displaced and shows a number of improvements, varying from a four-speed synchromesh gearbox to self-cancelling direction indicators. Four types of bodywork are being provided on the chassis—two open ones and two saloons, the latter ranging in price from £128 to £149. The Morris Ten has been reduced in price to £185 for the sunshine-roof saloon, and has also been re-designed, the all-steel saloon bodywork incorporating the chassis as an integral part. Among the points which will commend themselves to Morris car users are the four-speed synchromesh gearbox, the draughtless ventilation, the roomy passenger and luggage accommodation, and the full-width shelf below the instrument board. In the other three models only detail modifications have been found necessary.

Renault, Railton, and Rover

The Renault company is again showing examples of its 8.3-, 12.1-, and 17.9-h.p. four-cylinder and 29-h.p. "six" models. The smallest chassis has a special form of independent front-wheel springing, while on all four types the

rear suspension is by a single transverse spring in place of the usual pair of longitudinal springs. The Renault bodywork is known for its spaciousness, the larger vehicles being able to accommodate three persons on the front seat. Prices range from £140 for the 8.3-h.p. saloon to £295 for the 27-h.p. six-seater.

Included in the range of Railton cars is an attractive 10-h.p. chassis, two examples of which—a two-door three-seater saloon at £299 and a drop-head coupé body for three persons at the same price—are to be seen on the stand of Coachcraft Ltd. The chief new departure in the Rover series of cars—all of which retain an exclusive feature, that of a free-wheel-at-will device—is an entirely re-designed Fourteen six-cylinder model, which is now taxable at 15 h.p. The Rover range comprises 10- and 12-h.p. four-cylinder and 14-, 16-, and 20-h.p. "sixes" at prices ranging from £275 to £478. On each type of chassis the standard bodywork is of saloon type, but on the 10-h.p., 15-h.p., 16-h.p., and 20-h.p. chassis coupé bodies are also available.

Singer, S.S. Jaguar, Standard, and Sunbeam-Talbot

The Singer company is concentrating its energies on three types of four-cylinder cars—9-h.p., 10-h.p., and 12-h.p.—in which only minor modifications have been found necessary. Prices for saloons range from £149 10s. for the Bantam Nine to £249, there being also a special drop-head coupé body on the 12-h.p. chassis at £279. Another concern which is continuing its 1938 Jaguar models with only minor changes is S.S. Cars Ltd. Two "sixes" (20-h.p. and 25-h.p.) and 14-h.p. four-cylinder models are available, with saloon and drop-head coupé bodies constructed on attractive lines at prices ranging from £298 to £465.

The most striking feature of the Standard company's 1939 range of cars is the introduction of three new models—8-h.p., 10-h.p., and 12-h.p.—with independent front-wheel suspension. In other respects the vehicles follow the Standard general practice, and in view of their comparatively low prices are likely to be popular during the coming season. The 9-h.p. and 14-h.p. "fours" and the 20-h.p. "six" are being continued with only minor changes. Standard car prices range from £125 to £325; with the exception of the 8-h.p. open tourer and a 12-h.p. drop-head coupé all bodywork is of saloon type.

As the result of an amalgamation between the two concerns the Talbot cars are now known as the Sunbeam-Talbot. Although 21- and 27-h.p. "sixes" are available, chief interest from the point of view of the medical man centres on the four-cylinder Ten, which is offered at £265 in saloon form and at £285 as a foursome drop-head coupé; the principal modification is the increased bodywork space, resulting from the engine having been moved forward three and a half inches in the frame.

Triumph, Vauxhall, and Wolseley

Another popular car is the Triumph, the range of which comprises 16-h.p. "six" and 14-h.p. four-cylinder models. Chief alterations in the latest models are larger engines, wider radiators, more roomy bodywork, and the addition to the saloons of a 16-h.p. roadster coupé. Externally the Triumph cars have an attractive appearance, and their prices range from £312 to £450. For the 1939 season the four-cylinder Vauxhall Ten with integral chassis and bodywork frame, together with independent front-wheel suspension, is being continued with but slight modifications. The chief feature of the Vauxhall programme is the introduction of a new Twelve-Four; replacing a "six" of the same horsepower, this embodies all the special features of the Ten and is offered at the attractive price of £189 for the standard saloon and £198 for the *de luxe* sliding-roof saloon. The Vauxhall Fourteen six-cylinder model is being continued at £230 with many new features, including a more roomy saloon body, hydraulic brakes, synchromesh gearbox, and adjustable steering wheel. Finally there is a 25-h.p. "six" at £345. A special feature of the Vauxhall series is the attention which has been paid to the matter of economy in fuel consumption.

Concentrating its activities largely on six-cylinder cars, the Wolseley company, in addition to continuing the 12/48-h.p. four-cylinder model and 21-h.p. and 25-h.p. "sixes," has introduced three new chassis with power units rated at 14/60 h.p., 16/65 h.p., and 18/85 h.p. All are fitted with powerful silent-running engines and four-speed gearboxes with synchromesh gears on second as well as third and top speeds; the prices range from £245 for the 12/48-h.p. saloon to £395 for the 25-h.p. chassis with five-seater saloon body.

Special Motor Bodywork

Despite the excellent finish of what may be termed the mass-produced modern vehicle, which fully meets the requirements of the majority of medical men, there is still a section of the motoring public which prefers to make its car purchases in chassis form and have bodywork fitted to meet individual preferences. Because of this a section of the show is still devoted to a display of special coachwork, not necessarily for the high-powered car, but also for such popular makes as Austin, Hillman, Morris, Standard, and Vauxhall. In this section, as being useful for doctors, attention may be drawn to the Tickford (Salmon and Sons) and Redfern-Maltby (Maltbys Motor Works and Garage Ltd.) "all-weather" vehicles, which can be quickly and easily altered from being entirely closed to fully open form and vice versa. Some excellent specimens of British coachbuilding are also to be seen at the stands of Mann, Egerton and Co. Ltd. and Offord and Sons Ltd.

At the stand of the last-named firm there is a 25-h.p. Wolseley seven-seater limousine the Offord body of which has been specially designed for the use of a lame person or invalid. Briefly, the construction is such that half the usual wide rear seat is omitted so that its place can be taken by a comfortably upholstered spring-mounted invalid's wheeled chair. Thus, the passenger for whom it is intended, can take his seat in it either in, or at the door of, the house and then be wheeled up light detachable runners into the car, the chair, with its occupant, being then manoeuvred and securely clamped in position; the runners when not in use are detached and carried in the luggage boot of the vehicle. This arrangement can be embodied in new or old cars provided the doors are of sufficient width. I learned at the exhibition that the demand for conversions is proving much larger than was at first anticipated.

Motoring Accessories

As usual, the galleries at Earl's Court are devoted to an almost bewildering display of motor accessories. At this time of the year, when severe weather conditions may be experienced, attention may be drawn to the display of radiator muffs to keep the engines warm when cars have to be left standing in the street, and to the numerous non-freezing preparations for radiators and garage-heating lamps and stoves, which prevent the freezing-up and possible cracking or bursting of engine cylinders and radiators during frosty weather. There are also several new appliances for warming the interior of cars in cold weather. Among these is the A.C. made by the A.C. Sparking Plug Co. Ltd. Actually the core of this new heater is itself a tiny honeycomb radiator, through which a small quantity of hot water is by-passed from the engine radiator, a miniature electric fan being mounted behind it to drive heated air into the interior of the car. As the quantity of hot air supplied depends upon the spread of the fan it is possible to adjust the temperature within the car over a wide range. The makers state that the ideal position for the heater, which is made to operate in conjunction with 6- or 12-volt batteries, is centrally in front of the change-speed gear lever; it can be fitted to all cars having a pump or impeller in the water-circulating system. Other car heaters include the HaDees exhibited by S. Smith and Sons Ltd., and the Tropic-Aire appliance of S. Guiterman and Co. Ltd.

Medical men, especially those whose practices are located in country districts, would be well advised to have the bulbs of their car lamps overhauled occasionally and possibly renewed. Like those used for house-lighting purposes, car bulbs are regarded as having a useful life of about 1,000 hours, after which their lighting capacity falls and there is a risk of the filament breaking. It is advisable, too, to carry a supply of spare bulbs. Small cases containing spare bulbs are made by Lucas's and the other principal lamp manufacturers, and they can be ordered through any local garage.

C. J. W.

Reports of Societies

NOMENCLATURE OF DISEASES OF THE FUNDUS

In newly taking the chair of the Section of Ophthalmology of the Royal Society of Medicine on October 14, Mr. MALCOLM L. HEPBURN devoted his address to a discussion of nomenclature. He considered that the time had arrived when it was desirable to reconsider the nomenclature of fundus diseases in the light of present pathological knowledge. In the past, when few eyes were subjected to microscopical examination, it was necessary to be content with pictorial descriptions of the condition as seen with the ophthalmoscope. As the details of even the same type of case might vary from time to time the name given to any particular picture often depended on the stage in the pathological processes at which the case was first seen. Sometimes the same name had been applied to entirely different fundus pictures and a different name to the same picture. Mr. Hepburn showed a number of examples, some of them from classic work, though he was careful to preserve the anonymity of all of them. The present position was that several entities were entirely unnecessary and failed to form the basis for reasonable classification, while a number were actually misleading. The phraseology still in common use was not infrequently ambiguous and even devoid of meaning; but until there was universal agreement regarding the names that should be retained and those that should be given up it was impossible to begin any reconstruction of a new nomenclature.

Mr. Hepburn suggested for a new nomenclature that (1) every disease of the fundus should be described in terms of one pathological whole, with reference to choroid or retina or both, and comprising all the details contained in the picture; (2) when the pathology was unknown the resort to a pictorial or a non-committal pathological term was unavoidable; and (3) before coming to a decision on any particular fundus condition the clinical history should always be considered.

BIOCHEMICAL ASPECTS OF GROWTH

At a meeting of the Manchester Medical Society on October 5 Professor H. S. RAPER delivered his presidential address on some biochemical aspects of growth.

Professor Raper said that the problems of growth were in part biochemical, since fundamentally the process involved the synthesis of new living matter. Contributions to the subject had come from very varied quarters during the present century, and had all shed some light on it. Studies of the material basis of growth in animals had shown that new protoplasm could only be produced if certain amino-acids were provided. The presence of these "essential" amino-acids in dietary proteins had been made the basis of important recommendations as to the minimum protein requirements in human nutrition. The use of x rays in the investigation of protein structure had already revealed something of the architecture of the

protein molecule, and as protein seemed to be the essential basis of protoplasm this knowledge was valuable to the biochemist seeking to determine the mechanism of protein synthesis in the living cell. A fascinating field for the study of protein synthesis had been opened by the discovery of crystalline virus proteins. These were able to multiply automatically inside plant tissues and probably represented the most elementary process of growth yet known.

Growth Stimulants

Many substances had now been discovered which might be classified as growth stimulants. Some, like certain of the vitamins, the growth hormone of the anterior pituitary gland, and the growth-promoting substance present in embryonic tissues, had a general effect. So far as could be seen at the present time they played the part of catalysts in promoting the synthesis of new living material, though it was possible that some of them might be essential components of protoplasm. Other growth stimulants were more specific and appeared to act only on certain types of cell. In this category came those sex hormones which were responsible for the development of secondary sex characters and for changes in the sex organs occurring during oestrus and pregnancy. The action of these substances was allied to that which took place in the differentiation of the embryo. It seemed likely that this action was truly catalytic because it could be imitated, in some instances almost exactly, by synthetic chemical agents which were not allied in structure to the naturally occurring hormones.

The fact that many bacteria would grow and multiply in an inorganic medium if a suitable source of carbon was supplied suggested at first sight that growth promoters were not essential to them. What was more likely, however, was that such organisms were able to synthesize all they required from the elementary substances supplied, and these included growth stimulants because it had been shown conclusively that bacteria which would not grow in such media grew well if certain substances were provided in small amount. The addenda required comprised vitamins (particularly of the B group), unknown substances present in animal tissues, and certain amino-acids.

The study of plant growth had also received a new impetus from the discovery of auxins, which might be styled plant growth hormones. These were present at growing points in the plant and were probably growth catalysts, since their action might be largely imitated by synthetic organic compounds of quite a different nature. A survey of the various fields of study in which the biochemical aspects of growth were being investigated gave good grounds for the expectation that in the coming years a much clearer understanding of the process would emerge.

SOME ASPECTS OF HEREDITY

At the opening meeting of the session of the West London Medico-Chirurgical Society, held at the De Vere Hotel, Kensington, on October 7, the new president, Dr. MAURICE SHAW, gave an address from the chair, taking as his subject "Heredity." He gave a careful exposition of the laws of Mendelism, and followed this with an exposition of the work of T. H. Morgan of Columbia University, only second in importance, he said, to that of Mendel in building up the theory of the "gene." Dr. Shaw appealed for greater interest on the part of the medical profession as a whole in the science of eugenics. This was the more important because orthodox medicine tended to be dysgenic in its action. The profession was largely responsible for perpetuating dominant defects which, but for its "misguided efforts," would probably die out. The insulin treatment of diabetes was probably the most obvious example. It was known that diabetes might be hereditary, although its exact mode of inheritance was uncertain. If untreated, a very large number of young diabetics would

never survive to marriageable age. The introduction of insulin had entirely altered the picture, and a majority of this type of diabetic might now be expected to marry, ensuring a steady increase in the incidence of the disease in the next few generations. Tuberculosis was another example if the hereditary predisposition, which was denied by some quite competent observers, were accepted; though inasmuch as tuberculosis required an environmental as well as a hereditary factor, there was more chance that the disease might ultimately be eliminated.

Ought not the medical profession, by interesting themselves in eugenic theory and practice, to try to counteract a little of the harm they inflicted upon the race by their wanton interference with Nature's principle of natural selection? This was scientifically possible, for it merely meant the application of the principles of stockbreeding to human affairs. There were several lines along which the problem could be tackled, one of the most obvious being that of sterilizing all individuals who might distribute a harmful gene among the general population. A difficulty in the approach to eugenics along the path of sterilization, however, was that mutations, whereby all harmful genes must originally have arisen, could not be prevented from occurring. In conclusion, Dr. Shaw discussed some purely medical aspects of heredity, especially the inheritance of blood groups. A vote of thanks to him was accorded on the proposition of Dr. JULIAN BURNFORD, seconded by Mr. A. E. ROCHE.

The 843rd ordinary meeting of the Brighton and Sussex Medico-Chirurgical Society was held at the Royal Pavilion, Brighton, on October 6, when the president for the year, Dr. J. G. Hayes, gave his presidential address, entitled "Thirty Years of General Practice," and several members then related their own experiences during a similar number of years.

Local News

ENGLAND AND WALES

New Laboratories of the Metropolitan Water Board

The new laboratories of the Metropolitan Water Board—a three-story building containing some fifty laboratories and supplementary rooms with the most modern equipment for water examination—were opened by the Minister of Health (Dr. Walter Elliot) on October 17. The building has been erected at Clerkenwell, adjacent to the head offices of the Board, on the very spot where, in 1613, Hugh Myddelton, brought the "sweet waters" of Hertfordshire to what was then the confines of London. The key with which Dr. Elliot performed the opening ceremony was contained in a box made of the oak used by Myddelton in constructing the "round pond" which formed New River Head. The Metropolitan Water Board has had its offices at this site ever since, in 1904, it took over the water undertakings of London, but its laboratories have been in Nottingham Place, Marylebone, in houses built for other uses. There for a third of a century "the watch on the water" has been maintained day after day, a vast routine examination of samples has been carried out together with a great deal of original research. During last year, for example, the number of bacteriological samples taken was over 22,000, of chemical samples nearly 6,000, and of biological samples over 3,000. One remarkable piece of work carried out for many years at Nottingham Place has been the routine photomicrography of the algal content of the water from all the Board's storage systems. Some 22,000 such photographs are now housed in albums. The work of the laboratories, however, has suffered from restricted space in not quite suitable

premises, and now it is to be transferred to Clerkenwell, where the new laboratories are worthy of the leading water authority in the world and the pioneer of purification processes. Unfortunately, neither of the two men whose names will always be associated with this work lived to see its completion. Sir Alexander Houston was for twenty-eight years director of water examination, and on his death in 1933 Lieutenant-Colonel C. H. H. Harold was appointed to succeed him. Harold's sudden death in July last cast a shadow over the new enterprise which owed so much to his initiative and imagination. He had visited more than twenty cities in the United States and Canada to ensure that the choice of services and equipment for the new laboratories was in line with the most modern practice.

The main function of the new laboratories will be to organize mass performance of special water tests supported by highly technical examinations. The tests fall into three sections to which, roughly speaking, the three floors of the laboratory correspond—namely, biological on the ground floor, bacteriological on the first floor, and chemical on the top floor—and the administrative department includes the arrangements for the collection of samples and their interpretation and statistical recording. The laboratories are disposed on a chain principle so that the work proceeds as far as possible from one room to the next. The bacteriological section is of particular interest. It has been so designed that cleansed sterilized receptacles receive their quota of media and are plugged and sterilized before arriving at the media stockroom. From thence they travel to the main general laboratory, and after the samples have been put up they are trolleyed into the controlled temperature rooms, which operate respectively at 22°, 37°, 42°, and 45° C. After incubation the tubes are sorted in the sorting-room, and the positive tubes pass on to the subculture room for further study. A dark counting-room adjoins for the performance of special counts and the reading of agglutination results. One feature to which special attention was drawn was that rooms are being used instead of a number of box incubators, a departure which permits of enormous expansion in the future. The arrangements in the 22° C. room are also of interest, as this is a difficult temperature to maintain. The temperatures of all the rooms are thermostatically controlled and recorded, and the amount of air current regulated in accordance with humidity readings. Special ventilation is also employed to minimize condensation in view of the large amount of fluid being incubated.

London Medical Exhibition

To the London Medical Exhibition, which has been held during the past week at the Royal Horticultural Hall, Westminster, about 120 firms contributed, and the stands as usual were filled with a varied display of products. So varied, indeed, that one visitor at least wished that exhibitors, having learned many of the arts of display, might emulate the economy of the West End milliner who devotes her whole window space to a single bonnet. It was quite refreshing to come upon a stand which concentrated on a single article—rubber gloves and nothing else, or a brand of mustard, or a medicated wadding. When it comes to medicinal and food preparations—and more than half the stands were of that character—the variety almost took one's breath away. Quite a dozen firms showed sulphanimide under some name or other. There was also what Sir Henry Dale at Guy's Hospital the other day described as a "bewildering and redundant profusion of symptomatic remedies." Surgical instruments were less conspicuous, and in view of the place which physical medicine now occupies there did not seem to be quite an adequate representation in that field. On the other hand, there were several exhibits of great interest to the ophthalmologist; hearing aids also were more in evidence than ever before. A number of bookstands, including that of the British Medical Association, gave a pleasant relief. More than one stand was devoted solely to contraceptive appliances, one of them announcing that seven of its products were on the approved list. An instrument to which a good deal of attention was paid

was an electrical stethoscope in which the incorporation of a frequency range selector made it possible for the operator to emphasize sounds of one particular tone; it was also provided with a second set of auricles, enabling two physicians to participate simultaneously in an examination. Another device was a portable resuscitator for respiratory emergencies—drowning, carbon monoxide poisoning, anaesthesia, shock, and war gases. Equipment for oxygen therapy was demonstrated, including the installation of pipe-lines in hospitals and nursing homes for the supply of gas from a central cylinder to various points in the wards.

Central Midwives Board

It was reported at a meeting of the Central Midwives Board for England and Wales on October 6 that, acting on the powers conferred upon him by Minute 40 of the meeting of July 7, 1938, the chairman had approved as lecturers: C. M. Gwillim, M.D., F.R.C.S., A. L. Gunn, M.D., F.R.C.S., W. C. W. Nixon, M.D., F.R.C.S., J. Sakula, M.D., R. Christie Brown, M.S., F.R.C.S., Albert Davis, M.D., F.R.C.S., and R. L. Dodds, M.B., F.R.C.S. Approval as lecturers was also granted to Mary Florence Bignold, M.B., Ch.B., Samuel Davidson, F.R.C.S.Ed., and Robert Newton, M.D. The chairman reported that acting under his vacation powers he had decided to grant applications for the inclusion of Radcliffe Infirmary, Oxford, and the Sussex Maternity and Women's Hospital in the list of institutions approved for the special instruction (required by the Board's ruling on the administration of nitrous oxide and air by midwives) in the essentials of obstetric analgesia and in the use of a recognized apparatus.

IRELAND

Some Vital Statistics for Northern Ireland

The report of the Registrar-General for Northern Ireland, which has just been issued, records an increase in the death rate and a reduction in the marriage and birth rates. The number of births registered was 25,412, a rate of 19.8 per 1,000 of the estimated population; this decline finds a parallel in England and Wales, though in the latter area it is more steep and the rate is lower. The general death rate was 15.1 per 1,000 of the estimated population, being slightly higher than last year, but in common with the experience in England and Wales demonstrating a general downward trend over the past twenty-two years. A severe epidemic of influenza in the first quarter of the year accounted for an unduly large number of deaths, while deaths from diphtheria, scarlet fever, and diarrhoeal diseases in children showed marked decreases. The number of deaths from influenza was 1,148, giving a rate of 0.9 per 1,000 of the population, compared with 0.21 in 1936. The general downward trend in the death rate from tuberculosis continued, the rate being 0.98 per 1,000 of the population, a figure somewhat higher than that for Scotland and England and Wales, but lower than that for Eire. It is noted that almost one-half of the deaths from all forms of tuberculosis during 1937 occurred between the ages of 15 and 35 years. The cancer death rate was 1.3 per 1,000 of the population, maintaining a fairly steady rate. The most frequent sites of fatal cancer among males were: stomach, 216; intestines, 114; rectum, 65; prostate, 47; and liver and gall-bladder, 35. Among females the stomach was affected in 188 cases; intestines in 127; breast in 115; uterus in 108; rectum in 42; and the liver and gall-bladder in 50. The death rate from diseases of pregnancy and childbirth showed a welcome decrease from the figure of 1936, the rate having fallen from 6.06 per 1,000 births to 5, this figure being just a little above the previous lowest figure (that of 4.8 in 1927). Infant mortality continued to take its toll, the figure being 1,969, representing a rate

of 77 per 1,000 births registered, the same as for 1936. The rates during 1937 and 1936 (respectively) were: in England and Wales, 58 and 59 per 1,000 births; Scotland, 80 and 82; and Eire, 73 and 74. The infant mortality for the county borough of Belfast was 94 in 1937, as compared with 109 (1932), 101 (1933), 81 (1934), 112 (1935), and 101 (1936).

Royal Maternity Hospital, Belfast

The Registrar of the Royal Maternity Hospital, Belfast, has issued his annual report, in which is recorded a highly successful year's work in the hospital. Full clinical details of the twenty deaths out of 1,729 admissions (mortality rate of 1.15) are given; in 1936 the rate was 1.24, and in 1935 1.6. Of the total admissions 396 were emergencies, and no fewer than eleven of the twenty deaths occurred among these patients. The maternal morbidity rate was 6.7 per cent., as compared with 8.2 in 1936 and 4.9 in 1935. No maternal deaths occurred in the cases of eclampsia, and there was only one fatality in the thirty-two patients with heart disease, of whom twenty-four were suffering from mitral stenosis. Multiple pregnancy occurred in twenty-one cases; there were eighty-five deliveries as breech and twenty-one as persistent occipito-posterior presentations. Caesarean section was performed on fifty-seven occasions, in the majority of the cases on account of contracted pelvis or disproportion; the lower segment operation was the method chosen in forty-two instances. Other tables give full records of forceps deliveries, accidental haemorrhage, and the induction of abortion or premature labour. Valuable features of this report are the details and tables relating to foetal mortality and premature infants. The information concerning premature infants is not included in all maternity hospital reports, and is a practice which might be more widely adopted.

Dublin Fever Hospital Board

The annual report of the medical superintendent of Cork Street Hospital, Dublin, appears this year as part of the first report of the Dublin Fever Hospital Board since the change from voluntary to municipal control. A brief glance at the statistics given by Dr. McSweeney for the year 1937 reveals a general improvement on the corresponding figures for the previous year. The general mortality rate was 6.66 per cent., as against 8.39 for 1936 and 8.71 for 1935. There was a sharp increase in the incidence of scarlet fever at the end of 1935, which continued through 1936; this incidence fell in 1937, the number of cases treated being 624, as compared with 976 the previous year. While diphtheria continued to be of a high degree of virulence and accounted for some 40 per cent. of the total deaths in the institution, the case mortality of 9.1 per cent. shows an improvement on the 1936 figure of 12.57. Of the fifty-nine fatal cases thirty-five were moribund on admission. Dr. McSweeney comments that "it is a matter for regret that cases do not receive medical aid at an early stage of the disease. . . . It is still not uncommon in Dublin for patients to be admitted to hospital who have been ill with diphtheria nearly a week." Some form of diphtheritic paralysis was exhibited by fifty-eight patients; nine with respiratory paralysis were treated in the Bragg-Paul pulsator and recovered. There were two deaths among these fifty-eight cases. An investigation into the problem of diphtheria in Dublin with particular reference to ascertaining the prevailing types of organism has been in progress in the hospital under the auspices of the Irish Medical Research Council since October, 1937. Fifty-eight cases of meningitis were dealt with during the year, of which thirty-five were of the meningococcal variety. The mortality among these thirty-five cases was 60 per cent., as compared with 78.2 per cent. in 1936. The better results, the report states, were partly due to the use of American sera and to the employment of chemotherapeutic

remedies as an adjuvant to serum. Several unusual forms of meningitis were encountered during the year: one case of paratyphoid B infection of the meninges is believed to be the first to be recorded in the literature. On the subject of chemotherapy Dr. McSweeney says that some cases of puerperal septicæmia, due to the hæmolytic streptococcus, were found to be quite resistant to this form of treatment, but that the sulphanilamide group of preparations was proving a specific remedy for erysipelas and had replaced serum therapy in the practice of the hospital.

Correspondence

R.M.B.F. Christmas Gifts

SIR,—Each year for nearly thirty years Christmas gifts have been sent, in the spirit of good cheer, through the agency of the Royal Medical Benevolent Fund, to members of medical families whose poverty and distress, often coupled with infirmity, illness, and loneliness, have made their ageing days a pitiful existence. Those who have received the gifts are old medical practitioners or their widows and daughters, who are debarred from any luxury or lighter pleasures in life. What luxury or extra pleasure can be enjoyed on an income of £90 a year, which has to meet all the necessities of life?

Will you help us again in making this appeal known to your readers? The Committee has felt that this is a matter which always appeals to the warm and generous hearts of medical men and women, and that no broadcast appeal should ever be made to the general public. "The family" to whom our gifts are sent is a very large one, and we need over £1,000 if each one of our beneficiaries is to receive the customary Christmas gift of 30s. This can be done only if we receive the same generous response as last year. I know that the present days are difficult, but everyone could spare a small contribution to add to the pleasure of those whose lives are sad at Christmas time. Please send donations, large or small, to the honorary treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1.

I thank all for their help and co-operation in past years in our Christmas gift scheme, and shall be deeply grateful for a generous response to this appeal.—I am, etc.,

THOS. BARLOW,
President

Civil Medical Organization in War

SIR,—In common with most, if not indeed all, of your readers, I have been greatly interested in your leading article (October 8, p. 749) and the correspondence arising therefrom in your issue of October 15 (p. 810). Since the year 1930 I have been a member of five committees which have met under the aegis of three Government Departments. Each one of these committees was appointed to consider the provision to be made, by hospital beds, ambulance services, etc., for casualties arising from air raids upon London. The first four of these committees expired without any indication as to why our work was terminated and without having produced any definite scheme. We certainly accumulated an enormous mass of valuable information, but, so far as I am aware, it was not translated into any practicable scheme. Moreover

inasmuch as personnel of each of the four committees, with the exception of myself, was substantially altered in each committee, a good deal of valuable time and energy was inevitably wasted in starting the work of each committee.

The fifth committee was the so-called Wilson Committee, appointed by the Secretary of State for Home Affairs in the spring of this year. This committee, of which again the personnel, with the exception of myself, was entirely new to the work, certainly did some strenuous work and presented an interim report of its findings to the Minister of Health about the middle of July. The interim report dealt almost entirely with certain important principles which required the approval of the Minister before any detailed consideration could be given to their practical application. The committee adjourned after the presentation of its interim report and has not met since. Personally, I think it is just as well that it has not met, as it will be quite obvious to everyone that the unexpectedly rapid development of events in Europe during the months of August and September made it essential that the problems involved in A.R.P. measures were of so urgent a character that at that period they could be dealt with much more expeditiously by the direct executive action of the staff of the Ministry of Health than by the cumbersome procedure associated with *ad hoc* committees. Herein, therefore, lies the explanation for the lack of any carefully-thought-out schemes for hospital casualty services, ambulance services, and first-aid "posts," etc.

The next point to which I should like to refer is that in my judgment far too much attention has been concentrated hitherto upon the provision *within the County of London* of an enormous number of hospital beds for casualties. The minds of nearly all those with whom I have come into contact on this problem seem to me to be obsessed with this idea of providing 50,000 or more beds in London for such casualties, whereas it would seem to me to be infinitely more important to provide the *minimum* of beds for such purposes in London and the *maximum* outside London. A friend of mine discussing this point with me some time ago said quite truly, "When 50,000 beds are required in London to deal with air raid casualties, the war is over." I asked him why, and his answer was: "Such figures could only become necessary because our anti-air defence organization had completely broken down"; and, he added, if that were so, "not even 50,000 beds would be any use at all, as the population of London would be completely at the mercy of the attacking air bombers." Whether my friend is right or wrong, the fact remains that the policy of concentrating large numbers of beds for casualty cases in London is open to many serious objections for other reasons. For example, no serious consideration seems to have been given to the legitimate needs of the sick poor—whether acute medical, surgical, or maternity, etc.—nor to the immense difficulties which might arise in connexion with breakdowns in the supply of electric current, gas, water, and other public services, nor to the difficulties of transport, especially of perishable foods, fuel, etc. One cannot ignore either the enormous additional risk to the lives of a large number of skilled medical, nursing, technical, and other hospital staff, particularly in the cases of the large medical school hospitals, if, in fact, they were concentrated under one roof, as they have to be if such schemes as those outlined in the case of University College Hospital were carried out. There is no particular reason why a medical school hospital should enjoy any less risk from being blown up by a high-explosive bomb than any other building, but if it did happen the loss of skilled staff would be very

serious in a period of emergency. The risk does not appear to me to be justifiable. I would rather advocate the division of the County of London into five regional areas; that in each of those areas the estimated number of beds required should be divided up between twenty or even thirty hospitals, voluntary and municipal; and that the surplus staff of the voluntary hospital medical schools and other voluntary hospitals should be organized to form "mobile units" which would serve not only any of the hospitals in the regional area but also, if possible, the associated hospitals (base hospitals, as they are called) on the outskirts of London. Such a scheme would greatly reduce the risks to patients and staff, and greatly lighten the burden of transport, both for the movement of patients within and without the County of London. Moreover, it would not seriously interfere with the provision of a reasonable amount of hospital accommodation for the "sick poor" or the progress of medical education.

There are two other matters of fundamental importance which have not been properly organized up to the present—namely, ambulance services and first-aid posts. The former is, of course, an essential element in any A.R.P. scheme for dealing with casualties either in hospital beds or at first-aid posts, and its importance needs no elaboration from me, but it is nevertheless a remarkable fact that up to the last moment there was no properly organized ambulance service scheme for London. The position with regard to first-aid posts was even worse. It is not an exaggeration to state that, generally speaking, the scheme was hopelessly inadequate when considered from the point of view of London as a whole. Those who are familiar with the problems involved in the matter of hospital bed accommodation for casualties and ambulance services will, I feel sure, agree with me that unless there is a really first-class organization for first-aid posts, any scheme, however perfect, for hospital beds and ambulance services will completely break down because they would be "flooded" with masses of minor casualties which could and should be dealt with on the spot and sent home afterwards.

Finally, I would add my firm conviction that any efficient scheme for A.R.P. in London must include under "unit control" all hospital beds, ambulance services, and first-aid posts. Any division of authority and control between these three component parts of the scheme will prove in practice to be fatal to success. I need hardly add that I include all voluntary and municipal hospitals in the words under "unit control."—I am, etc.,

London, Oct. 16.

FREDERICK MENZIES.

SIR,—Your leading article and the letters you have published are depressing. It is easy to lose one's temper, almost as easy to impart to a political friend (or one's M.P.) authentic particulars of gross incompetence within one's own knowledge. Any man over fifty knows the utter futility of either reaction. Either one's political friend will do nothing whatever or, more probably, he will use the information simply to help him to score some point in the party game.

We, as a profession, can play a nobler part. We can, building on the facts already assembled, make a complete register of our individual resources and a detailed plan for the utilization of our services. I am interested (for obvious personal reasons) in a minority of our profession. On the *Medical Register* are the names of hundreds of men and women whose *immediate* value for what the public would call medical work is negligible. Probably, even under the present chaotic conditions, a few of them would be utilized in the services for which their special

training and experience have fitted them, but only a few. I am prepared to argue—at almost any length—that, even in war-time, statistical knowledge is of national importance. But I simply cannot conceive of a well-middled professor of medical statistics being entrusted with any national statistical work whatever. The fellow is a *medical* man, and what on earth have “doctors” to do with statistics? The same remark applies to other “doctors” whose normal avocations are even more remote from clinical work.

The objection I so crudely phrased above is sound. A “doctor” is different from other people. As a technician he may have become hopelessly inefficient, but nobody who has been through the mill of a medical curriculum is ever again a “layman.” There must always be a number of duties which any doctor can perform better than a layman. I could make a long list of them. Here is one that leaps to the eyes. If literally millions of children and women are to be evacuated from towns into villages and the open country, emergency sanitary organizations must be devised. The working of these will need much supervision. No doubt elderly sanitary inspectors or retired N.C.O.s of the R.A.M.C. would, from the technical point of view, do such a job as well as doctors, but the real doctor would have a certain prestige with the laity which has a psychological importance. I need not go on with the list. The point I am trying to make is that *all* of us can be fitted into a national scheme, given time and thought. Simply for the pleasure of doing an intellectual job of work well it is worth while carrying on what has been begun. No doubt official contempt, general indifference, and personal vanities will mar the plan. But we shall have done our duty, and although truth seldom prevails it is never quite impotent. —I am, etc.,

Loughton, Oct. 15.

MAJOR GREENWOOD.

SIR,—It is indeed time for plain speaking. No one is likely to hand any bouquets to the Ministry of Health or the Home Office for their handling of the preparations to deal with air raid casualties, but before the stones are hurled would it not be advisable to examine the glass in the B.M.A. windows?

The B.M.A.'s scheme of national medical service is based upon the perpetuation of the individual practitioner as a unit to himself, the utilization of the general voluntary hospitals as a separate unit receiving funds but no control from the local authority, the control of the health services of the country by means of practitioner representatives on the public health committees of the local authorities.

In the face of such proposals, you, Sir, expect the central authorities to prepare comprehensive schemes capable of meeting national emergencies. In a crisis there must be leaders with powers; toes will be trodden upon and someone may suffer the loss of a little prestige, but no proper organization is possible without powers. The preparation of any scheme which is to be of value is dependent upon the local authority having control of all the medical services in its area. The present position is chaotic. That being so, is it not time that the British Medical Association helped the Government, by formulating at once a scheme of national medical service which will give the local authorities the necessary powers to enable them to meet a crisis? That at least would be helpful.—I am, etc.,

Boston, Lincs, Oct. 10.

W. G. BOOTH.

Air Raid Precautions

SIR,—The evacuation of school children in a time of crisis presents difficulties and needs organization. I cannot say that I have been favourably impressed by the methods employed in the recent crisis. I suggest that if time and money permit permanent school camps be established in the country. They should have some permanent buildings, sufficient to house a number of school children transferred from towns to receive the benefits of country life. The camps should be capable of rapid expansion so that their population could be increased with ease. There is no hardship in living under canvas, and canvas should be used if there are not enough huts. The water supply, sanitation, sick-room accommodation, and medical service should be arranged for quiet times and to meet times of crisis. Non-perishable food could be in store.

Such a scheme would have many advantages both in peace and war. It would be better than a hurried evacuation to country places that have not received notice and can only with difficulty provide accommodation, and that of an unsuitable character. Many cottages in the country have a scanty and barely adequate water supply for the usual inhabitants; an influx of town children would be beyond their capacity. Town children are used to turning on taps, pressing electric switches, and pulling plugs. It would take time for them to assimilate cottage ways without doing damage to their hosts and themselves. Town children recently were evacuated with two days' rations. Unless there was a better organization than was set up recently there would be a shortage of food for the next two days, and what then? Charity would have to step in.

—I am, etc.,

London, W.1, Oct. 13.

CHARLES M. MURPHY

SIR,—The appalling carnage caused by modern explosives in densely populated districts is well known. In Shanghai, we read, caused 200 deaths during a bombardment. The total number of casualties from this shell must, of course, have been very much higher. It does not need much imagination to realize that if London or any other city was ever subjected to bombardment on a large scale the casualties would be greater than could be dealt with even by the most efficient medical service.

Apart from evacuation, which takes time, and could not be carried out quickly enough in the event of the outbreak of hostilities, there is one plan which could reduce the number of casualties to a reasonable level, and this is the provision of adequate shelters. In a recent bombardment of Madrid 205 shells were fired into the city with a loss of only four persons killed and but thirty injured. Such an extraordinarily low casualty list is due mainly to the fact that adequate shelters, proof against anything but a direct hit from a large shell or bomb, were provided in Madrid.

Either there is a risk of war or there is not, and as long as this risk remains in Europe it is essential in my opinion that adequate shelters should be provided in British cities if we wish to keep civilian casualties in bombed areas to a sufficiently low limit so that each casualty can obtain proper medical and surgical attention. I feel convinced that the time for providing these shelters is now, and I believe that the majority of doctors, and in particular those with war experience, will agree with me. My observations are based on a careful consideration of what modern warfare means. It is useless to provide the most efficient medical service conceivable if the number of casualties is going to be tens of thousands all occurring in the space of a few minutes.—I am, etc.,

London, W.1, Oct. 16.

CLEMENT FRANCIS, M.B.

Decline of Breast-feeding

SIR.—I hope that Dr. J. C. Spence's admirable paper on breast-feeding will lead to some practical results. He points out, and it is very important, that the handling of the problem lies with the woman, and tells of what a sagacious woman can do. But in this case matters are worse than in the parable of the ten virgins; for one wise virgin there are nine foolish ones. Improvement of the position can only come with a real education and training of pupil-midwives, health-visitors, and nurses. It is not enough for the nurse to say, with the solemn emphasis of an article in the creed, "Breast-feeding is best," and then, as soon as some trivial difficulty occurs, advise weaning.

The place for such training is in the paediatric service of a teaching maternity hospital, which includes a follow-up baby clinic. In Edinburgh at the Royal Maternity Hospital we have such a service, and theoretical and practical training in breast-feeding and infant hygiene is given to the pupil-midwives. But such training should be standardized by regulation and checked by examination. And it is essential that health-visitors should receive similar training. It is only by teaching that we can obtain a national service of "sagacious women" trained in the art of breast-feeding. The key to the problem is the utilization of our maternity hospitals for this training.

Meantime, the propaganda value of Dr. Spence's clear, wise, and witty paper is very great. I suggest the Ministry of Health should place a copy in the hands of every midwife and health-visitor throughout the land.—I am, etc.,
CHARLES MCNEIL.
Edinburgh, Oct. 16.

SIR.—As a fanatic on breast-feeding I was much interested in the article by Dr. J. C. Spence. I agree with him that the vast majority of failures are due to mismanagement, and for this the medical and nursing professions are largely to blame. There are still far too many doctors who take no interest in the baby's food and far too many nurses who fly to a bottle at the first difficulty. Even adequate supervision during the first fortnight of the puerperium the average mother finds most difficulty when she starts to take up her multitudinous household duties. It is then that the vicious circle starts: insufficient milk → crying hungry child → sleepless mother, mother and neighbours → anxious tired mother → further decrease of breast milk. If expert advice is not obtained immediately artificial feeding is started. It is at this time that the advice of the family doctor should be most helpful. The mother is often not sufficiently fit to push the pram to a welfare centre, and by the time she does the breast milk may be completely lost. Once lost, it is difficult to get it back without complete hospitalization, which is nearly always impracticable. A little helpful advice and encouragement during the second fortnight of the puerperium will often reverse the vicious circle, and the milk supply increases rapidly.

Ten years ago I avoided resorting to bottles at all costs, but now I find that the results are better if a little judicious complementary feeding is allowed. The psychological effect of a contented and well-satisfied baby has an almost miraculous result on the supply of milk, which increases by leaps and bounds, so that the bottle is soon abandoned. The intense fatigue felt by the lactating mother at this stage can be successfully moved by large doses of iron.

I agree with Dr. Spence that it is a mistake to be too debound about times of feeding. An occasional night feed is better than a sleepless household, but if the child's sense of psychological security is not disturbed by maternal anxiety regular feeding soon becomes automatic.

I do not consider test-feeding as over-mechanization if used with common sense. I have several complete records of test-feeds from birth to 9 months, and many for shorter periods. Intelligent mothers tell me, and I know from personal experience, that regular test-feeding often saves time, trouble, and anxiety. Calculating caloric values and ounces per pound is also useful as a general working basis, but it must be remembered that all these rules are made to be broken in individual cases. Highly trained maternity nurses often do not realize this, and impose far too rigid a routine. In looking through 100 consecutive cases from my records I find that 82 per cent. of mothers breast-feed their babies for over three months and 70 per cent. for over six months, when extra foods are gradually introduced, and complete weaning takes place at nine to ten months.

I am convinced that if only a more active interest were taken in the subject by the medical profession the percentage of breast-fed babies would greatly increase.—I am, etc.,

Chippenham, Wilts, Oct. 10.

JOAN F. HICKSON.

SIR.—Commenting on the very stimulating paper by Dr. J. C. Spence on the modern decline in breast-feeding, may I make one or two suggestions.

New Zealand, I think, is still far ahead of this country in the advocacy of breast-feeding. Twenty-five years ago or more the Plunket Society (now known as the Royal N.Z. Society for the Health of Women and Children) taught the fundamental importance of breast-feeding to the well-being of both infant and mother. The late Sir Frederick Truby King, founder and director of that organization, emphasized that breast-feeding, at any rate during the earlier post-partum period, stimulated the physiological contraction of the uterus. May it not be that failure to maintain breast-feeding is one of the causes of subinvolution and subsequent malposition of a flabby uterus? It is at least logical to expect that it has some reflex relationship to the involutionary changes in the pelvis that follow on the termination of pregnancy.

Again, Truby King also taught with great success that one of the most potent factors in maintaining an adequate supply of breast milk was the complete emptying of the breast at each feed; and for this reason he advocated feeding the baby at one breast only at one feed, and at the other breast at the next feed. It was the complete emptying rather than frequent suckling that was the effective factor; and to ensure complete emptying of the breast the infant must not be fed too often. King also taught the importance of sufficient fluid being taken by the mother.

May I pay a tribute here to Sir Frederick Truby King, who worked most of his life in New Zealand for the better health of women and children, often against bitter opposition and apathy. Nothing would have better pleased him than to read Dr. Spence's paper in the *B.M.J.*—I am, etc.,

Birmingham, Oct. 12.

E. H. WILKINS, M.B., D.P.H.

"Ether Convulsions"

SIR.—We have read the case reports of Dr. S. Taylor and Dr. V. Goldman and the interpretation they place on them (*Journal*, October 8, p. 744). We are of the opinion that the factor of CO₂ accumulation, which they have not considered, is a vital one.

Very little attention has been paid to the valuable observations of Dr. K. B. Pinson, who has reported the largest series of these cases, and we believe it well worth while to bring to light again some extracts from his original paper (*British Medical Journal*, 1927, 1, 956).

"... I have come to regard the convulsion as largely the outcome of the extensive action of the CO_2 in patients who are sensitive to this naturally, or by reason of toxæmia, pyrexia, and so on. . . . Treatment based on this assumption has so far been successful. It is directed to the riddance of excess CO_2 , and must be prompt. Luckily some moments' warning is given of the impending seizure by twitching of the eyelids and mouth, jerkiness of the breathing, especially inspiration, or some strange movement or sound, and so the essential thing can be accomplished—the immediate removal of all coverings from the face before the convulsions have set in. . . . Any obstruction must be completely relieved. . . . In this way the CO_2 will diminish as much as possible by natural means."

It is also a little disappointing to realize that the experiment in which one of us (M. D. N.) was half killed by the other was made to no purpose. In this experiment (*British Medical Journal*, 1937, 2, 995) the subject inhaled an 80/20 per cent. helium-oxygen mixture to which CO_2 and oxygen were continuously added (the helium being used to diminish exhaustion caused by the hyperpnoea). Muscular twitchings were first noticed about the eyes, and these passed on to generalized convulsions, which subsided after a few breaths of air.

In fit normal subjects low concentrations of CO_2 have a stimulating action, and it may not be until a 10 per cent. concentration is exceeded that toxic effects become obvious. The susceptibility of different people to CO_2 , however, varies considerably, and a concentration which is stimulating for a time to one person may be toxic to another—as shown by respiratory and circulatory depression as well as by muscular spasms.

We now suggest that the following sequence of events occurs in the vast majority of cases of convulsions during anaesthesia. The usual type of patient is a toxic individual who is already acidotic. Then follows some further increase in CO_2 , caused by the addition of that gas, by the use of rebreathing, by the presence of respiratory obstruction, or by the decreased pulmonary ventilation of deep anaesthesia or other abnormal condition. No matter by what means the CO_2 is raised, a toxic concentration is reached in that particular individual, and this precipitates the convulsions. Respiratory obstruction, if evident in such a case, has in our experience been followed by shallow jerky breathing and not by the hyperpnoea postulated by Drs. Taylor and Goldman.

The anti-convulsant properties of the barbiturates are well known, but our aim should be to prevent the onset of convulsions. Some factors, such as the type of patient, are obviously beyond our control, but every effort should be made to eliminate the one factor which is under our control—namely, a CO_2 pile-up. If in spite of all precautions muscular twitchings are observed, Dr. Pinson's advice should be followed and every effort made to lower the alveolar CO_2 before injecting a barbiturate.

We feel that the term "ether" convulsions is a misnomer; if Drs. Taylor and Goldman still doubt that excess CO_2 is an aetiological factor, we will do our best to produce convulsions by means of CO_2 in either of them, while the other acts as observer. As presumably neither of them is acidotic, a relatively high concentration will probably be necessary, and we can offer no guarantee that more than one of them will live to tell the tale.

M. D. NOSWORTHY.

R. F. WOOLMER.

London, Oct. 11.

SIR,—The "provisional theory" offered by Drs. S. Taylor and V. Goldman in the *Journal* of October 8 (p. 744) is an over-simplification not justified by the

facts. These authors suggest that an essential element in the production of ether convulsions is alkalaemia resulting from the loss of CO_2 . This is not a new suggestion, and it has less to commend it than its opposite—namely, that ether convulsions are caused or precipitated, other factors being appropriate, or by the accumulation of CO_2 .

At a recent "anaesthesia staff meeting" at Wisconsin Waters¹ stated that "convulsions during anaesthesia have been, in well over 90 per cent. of the cases, connected with an excess of CO_2 in the respired atmosphere." The same meeting discussed two cases of ether convulsions occurring in patients in whom acidosis had been produced by the administration of ammonium mandelate. They were successfully treated by intravenous injection of alkali. It may be significant that the majority of cases occur under conditions in which there may be defective removal of CO_2 from the respired gases, whilst the concentration of oxygen is maintained at a high level. Campbell² showed in 1925 that the CO_2 content of the tissues is greatly increased by breathing an atmosphere containing as little as 40 per cent. oxygen.

According to Campbell,³ the respiring of oxygen at several atmospheres' pressure may lead to convulsions because oxyhaemoglobin is not reduced, sufficient oxygen for the needs of the tissues being carried in the plasma under these conditions. Oxyhaemoglobin assists the removal of CO_2 from the tissues less efficiently than does reduced haemoglobin; the CO_2 pressure within the cells rises and convulsions follow. In view of the strong correlation between CO_2 excess and ether convulsions it is possible that some rather similar mechanism will account for the occurrence of this grave emergency. Any combination of factors leading to a disturbance of the acid-base balance of the blood towards the acid side may prepare conditions for what Waters refers to as the "so-called trigger effect of CO_2 " in inducing a convulsive seizure.

It should be remembered, however, that though strongly suggested by clinical observations, the " CO_2 -excess hypothesis" has very little more exact experimental evidence than the " CO_2 -lack hypothesis." Lundy⁴ gives a list of thirty-three aetiological factors which have been invoked in the literature, some of them mutually exclusive. The only prospect of disentangling the confusion which has arisen lies not in the championing of rival hypotheses but in the provision of a body of experimental data which can be analysed in the usual inductive manner.—I am, etc.,

C. L. G. PRATT.

Oxford, Oct. 11.

REFERENCES

- ¹ *Curr. Res. Anaesth. & Analges.*, 1938, 17, 277.
- ² *J. Physiol.*, 1925, 60, 20.
- ³ *Ibid.*, 1929, 68, 7.
- ⁴ *Surgery*, 1937, 1, 666.

A Strict Vegetarian Diet

SIR,—May I repeat the statement made in my paper (August 20, p. 417) that the determinations of total nitrogen and urea were made for me by a chemical pathologist of distinction, that two samples were collected at intervals of some weeks and the results closely agreed and that the pathologist, in his own experience, had never come across a lower total nitrogen value.

The oxygen consumption of the boy indicated a caloric value of the diet bigger than that reported, and I have told the father that his diet records are not believed. I have not been able to shake the evidences either of the boy or of his father, a man of high character, who welcomes further scientific observation at his home.—I am, etc.,

St. John Clinic, S.W.1, Oct. 10.

LEONARD HILL.

Adult Scurvy

SIR.—I should like to make a brief comment on a case of adult scurvy described by Dr. G. H. Jennings and Surgeon Lieutenant A. J. Glazebrook in the *Journal* of October 15 (p. 784), since I feel the impression given is slightly misleading. The report on the bone marrow quoted is that sent to the ward at the time of the patient's admission; since then I have had the opportunity of examining marrow films from a large number of cases of Addisonian pernicious anaemia. The primary erythroblasts in the case described are much more mature than those seen characteristically in pernicious anaemia. I would no longer say that the film was compatible with such a diagnosis. In fact it is now used for teaching purposes as an example of megalocytic anaemia where the marrow picture should have enabled us to state that the case was definitely not one of the Addisonian type.

I can only regret that my ignorance in the first place may have confused the issue.—I am, etc.,

London, W., Oct. 17.

JANET M. VAUGHAN.

Aperients and Sulphanilamide

SIR.—In your issue of June 25 (p. 1392) a letter from Dr. Harry Roberts appears concerning the administration of sulphanilamide with saline aperients. As it is generally believed that the concomitant administration of sulphur-containing purgative drugs, such as magnesium sulphate, with the drugs of the sulphonamide group is not devoid of danger, I feel that the following case would be of particular interest as magnesium sulphate was given continuously with maximum doses of carboxy-sulphonamide-chrysoidine (rubiazol) over a period of ten days without any toxic manifestations occurring.

A boy of 8 years was admitted to Wimbledon Hospital on September 7, 1938, his mother having noticed discoloration of the urine and oedema of the face for four days.

On examination the child was found to have enlarged tonsils (he had suffered from an attack of tonsillitis three weeks previously); there was slight oedema of the face; and his blood pressure was 150/90. The physical signs in the chest were diffuse tubular breathing, rhonchi, and crepitations. Pathological findings were as follows: The urine was acid and contained 6 per cent. of albumin (Esbach), many pus cells and red cells, and casts. Culture gave a strong growth of *B. coli* and enterococci. A throat swab showed a mixed culture of *Strep. viridans* and *Staph. aureus*. The blood culture was sterile. The blood urea was 46 mg. per cent.

He was nursed on the balcony during the day-time, sitting up in bed. Fluids were restricted to 1½ pints of glucose and orangeade per day. An electric pad was applied to his loins and the following drugs were given: pot. cit., 20 grains four-hourly; mag. sulph., 1 drachm; mane; linctus sedativus, 1 drachm, nocte; mist. ammon. carb., 1 drachm three times daily. On the second night he was very restless and "chesty," and his temperature rose to 103.6° F. and his respirations to 40 a minute. At 10 p.m. he had a rigor. Two tablets of rubiazol were given at once and he was put on one tablet (3 grains) four-hourly. The next evening his temperature was 102° F., but his respiration rate rose to 60 a minute. Continuous nasal oxygen was given throughout the night. The following evening, although his temperature was still up to 103° F., he was very much better and respirations were quite easy—30 a minute. His temperature became normal within five days. The oedema of face had disappeared. Each day his urine was tested and the percentage of albumin steadily diminished, as also did the pus cells and red cells. The volume passed was about 13 ounces in twenty-four hours. All this time his skin was acting well and his bowels opened regularly each day with half a drachm of magnesium sulphate in the mornings.

On the tenth day there was a faint trace of albumin in the urine, but no red cells or pus cells. Culture was sterile. There was no oedema, and the signs in the chest were very slight. All drugs were stopped, including rubiazol. He was started on a light diet (excluding meat, eggs, and cheese) with as much fluids as he could drink. A good diuresis was produced. Fluid intake was measured against the urinary output for a few days—for example:

| | | | | |
|------------|--------------|------------|----------------|-----------|
| 11th day : | fluid intake | 50 ounces, | urinary output | 14 ounces |
| 12th " | " | 35 " | " | 17 " |
| 13th " | " | 40 " | " | 34 " |
| 14th " | " | 37 " | " | 29 " |

He was allowed up on the fifteenth day of his illness and made an uneventful recovery.

It is clear that in the above case a considerable amount of magnesium sulphate was administered at the same time as full doses of carboxy-sulphonamide-chrysoidine, resulting in complete recovery without any signs of toxicity occurring at any time. Although the mechanism of the action of the drugs of the sulphonamide group is not at present fully explained, it would appear that the action of the red compounds (such as carboxy-sulphonamide-chrysoidine) in the organism is quite different from the white substances (para-amino-benzenesulphonamide). It has previously been shown by Young, Snodgrass, and Anderson that the red substances are less toxic than the white, but so far as I am aware this is the first case reported where a sulphur-containing compound has been administered with a sulphanilamide product without any toxic signs being observed.

It would be interesting to hear of any similar cases, as clearly one case of this nature proves nothing in itself. I have to thank Dr. E. B. Rayner for permission to publish this report.—I am, etc.,

London, S.E.1, Oct. 7.

PHILIP GRIMALDI.

Overdosage of Prominal

SIR.—In view of the absence of clinical reports concerning prominal poisoning I have thought it advisable to record the following case. (Prominal is *N*-methylethylphenylmalonylurea.)

The patient, a married woman of 29 who had suffered from epilepsy since the age of 18, had been taking three or four prominal tablets a day for some years, the fits on this dosage occurring once or twice weekly. On September 5, 1938, after obtaining possession of a box containing fifty 3-grain tablets, she settled down in bed with a novel and swallowed the tablets one after the other until the box was emptied. Although it was certain that she had swallowed this number I was not called to see her until September 10, five days later; she was then in a semi-stuporous condition. When spoken to sharply in a loud voice she replied in a vague way; her breathing was very shallow, her colour was good, and her pulse and temperature normal. Her pupils were rather large and reacted slowly to light. This condition slowly disappeared, and by September 16—that is, eleven days after the ingestion of the drug—the patient was normal. Her relatives assured me that she had missed no meals, and that her hours of sleeping and waking had not been altered. In addition she had been given her usual aperient each night, and had been sufficiently conscious to be supported to the bathroom daily, although she had been unable to attend to her toilet. An interesting point in connexion with this case is that the patient developed a slight attack on the morning of the eleventh day, and that during that period she would have taken almost as many tablets as she consumed in the single dose. On the twelfth day she had two attacks; she then resumed her usual dose, and twenty-four days after recommencing the prominal she had not had an attack.

I have been unable to find a report of a similar case of overdosage with prominal, but it is of interest to compare this with the case of luminal poisoning reported

by J. P. Stewart and W. Willcox (*Lancet*, 1934, 1, 502), in which recovery occurred after the ingestion of 100 grains of luminal, although the symptoms were much more severe than those displayed by my patient. The toxicity of prominal is stated by the makers to be 30 per cent. lower than that of luminal. This case illustrates very clearly the strong sedative effect without the hypnotic action.—I am, etc.,

Blackburn, Lancs, Oct. 9.

D. KELLEHER.

Palpation of the Trachea

SIR,—Although it is obvious that determination of the position of the trachea in the lower part of the neck only justifies a surmise as to the position of the upper mediastinum, more and more attention has been paid to this physical sign in recent years. Hence I make bold to describe the following method, which I have found very useful in eliciting the physical sign and in demonstrating it to students.

The observer's thumb is placed on the patient's neck as low down as possible between the sternal head of the right sterno-cleido-mastoid muscle and the trachea, while the fingers are placed on the belly of the clavicular head of the left sterno-cleido-mastoid just above the clavicle. An attempt is then made to grasp the trachea between the finger and thumb without displacing the structures of the neck. The same thing is then attempted on the other side, this time with the fingers on the trachea between it and the left sterno-cleido-mastoid and the thumb on the belly of the right sterno-cleido-mastoid. If, as is usual, the trachea lies in the midline, then it is impossible to grasp this organ without grossly displacing the structures of the neck by either grip, but the slightest displacement to either side brings the trachea under the belly of the sterno-cleido-mastoid on that side and allows the former to be easily felt by the grip described above.

—I am, etc.,

G. JOLY DIXON,

Medical Registrar, Charing Cross Hospital.

London, W.C.2, Oct. 6.

Treatment of Infections of the Hand

SIR,—I have read with interest Mr. Norman Lake's three articles on infections of the hand in your issues of October 1, October 8, and October 15, and must confess to some sense of disappointment as each succeeding instalment failed to reveal a rational treatment. Some reference was made to arm baths; I had hoped it would be a condemnatory reference, but it seems that soakage in aqueous solutions is still to be tolerated, with its sequelae of unhealthy, swollen, drainage-damming granulations; secondary infection; and subsequent stiffness.

No mention is made of the virtue of infrequent dressing on the Winnet-Orr principle: that is, after adequate incision a large quantity of vaseline is applied on gauze and the dressing left for five to seven days. With this treatment artificial drainage, which Mr. Lake rightly condemns, is unnecessary. The advantages of this method are numerous:

1. The dressing can be painlessly removed without disturbing healthy granulations.

2. Vaseline is, biologically speaking, non-nutrient to bacteria, as it cannot be broken down and does not form a suitable medium for their growth; it also forms a physical barrier to their entry; any bacteria in the wound can be dealt with by tissue defence.

3. Movement short of pain is always encouraged. This promotes a flow of discharge into the vaseline which prevents crust formation, and return to normal is accelerated. Rigid splints are unnecessary.

4. The hospitals whose out-patient departments favour the vaseline treatment of hand sepsis can show a nil return for such cases admitted to the wards; the reverse is the rule in "arm-bath" clinics.

5. Economy of out-patient staff time and hospital material.

6. Patient returned to work with a useful hand in minimum time.

7. Re-education in physical treatment departments is hardly ever necessary.

8. And greatest of all—an economy in pain.

—I am, etc.,

Longtown, Cumberland, Oct. 15.

R. RUTHERFORD.

Diagnosis of Whooping-cough

SIR,—In reply to Dr. A. Gordon Moore's letter (*Journal*, October 1, p. 722), in which he regrets that I was only able to devote a few lines to agglutination tests as a diagnostic aid in whooping-cough, may I enlarge on my findings:

Agglutinins were first demonstrated by Bordet and Gengou in 1907, but they were very guarded in their conclusions and stated that the power of agglutination in convalescent sera was very weak, having found that many sera giving a strong complement-fixation test had practically no agglutinating power; and they believed that the bacilli become so modified when grown on artificial medium that they are incapable of reacting with convalescent sera. In view of this all strains used in my tests were grown for twenty-four or forty-eight hours on Bordet medium containing 50 per cent. horse blood, which maintains the *Haemophilus pertussis* in its smooth phase.

An effort was made to demonstrate agglutinins in the blood of cases of whooping-cough from the second week onwards, but with one exception all were completely negative. The one successful case agglutinated to a titre of 1/128 in two hours' time in two series of dilutions, one of which was placed in a water-bath at 36°C. and the other in the incubator at 37°C. This serum was from a patient in the eighth week of illness, and the complement-fixation test was strongly positive. Various other sera giving positive complement-fixation tests were put up at the same time in duplicate, as above, using the same strain of bacillus, but results were completely negative. The dilution of organisms in all cases was approximately 2,000 million per c.cm. In all, fifty different sera were tested, most of which gave strongly positive complement-fixation tests, and as they all failed to show agglutination at any time during twenty-four hours the conclusion came to was that the agglutination test was unreliable and useless as a method of diagnosis.

—I am, etc.,

Edinburgh, Oct. 10.

A. B. DONALD.

Tomography in the Vertical Position

SIR,—Drs. J. B. McDougall and J. H. Crawford, who in their paper on tomography (*Journal*, October 15, p. 782) were kind enough to refer to my work, stated that it is claimed (my italics) that by vertical tomography the upper limit of a pleural effusion or the line of a fluid level in a cavity is not obliterated. It would have been more correct to have said that by working in the vertical position fluid levels can unquestionably be shown when ever fluid is present. Such has been my experience in every case of this type that I have examined. Surely the limitation of the original apparatus devised was the excuse for departing from the more usual practice of

radiographing the chest and other air-containing cavities such as the nasal sinuses in the upright position. "The obvious advantages of the vertical technique hold for tomography no less than for simple radiography.—I am, etc.,

Croydon, Oct. 17.

CHARLES COLYER.

Admission of Foreign Doctors

SIR.—In the debate on Government foreign policy last night Mr. Richard Acland, member for Barnstaple, made the following pronouncement (*Hansard*, October 5, col. 389):

"I would ask the doctors of this country, who were rather forward in pressing hon. members of this House to forbid the influx even of as few as fifty alien doctors per year, to remember that while they can pursue their practice in peace many of their fellow combatants in the battle of humanity against disease will be driven into bankruptcy and into suicide in Prague, and I invite them or the Government to suggest a scheme whereby this country might take in 500 doctors a year from Czechoslovakia; not necessarily to enter private practice, but to try to find some research work which they can do here for the sake of humanity."

It being the last night of the special session dealing with the international crisis the House was crowded beyond precedent and I could find a seat only behind the bar, which while actually within the Chamber is technically outside for purposes of debate; consequently I was unable to make any protest, and the proposition passed unchallenged.

The specious pretext that a large number of foreign doctors could be advantageously admitted to this country, "not necessarily to enter private practice but to try to find some research work," has been used again and again and ought, I think, to be definitely debunked. The great majority of the proposed annual entry of 500 Czech doctors would be persons of middle or mature age without any previous experience of research, and to claim that they could forthwith embark upon that most difficult branch of medical work in an alien country with an alien language in a peculiarly alien atmosphere is surely the purest claptrap. Mr. Acland is a barrister, and in the earlier part of his speech he mentioned that lawyers as well as doctors are being persecuted in Prague, but there was no suggestion in his speech that the legal profession in this country should open their doors to their harassed colleagues in Prague.

In an answer to a Parliamentary question (*Hansard*, March 7, 1938) it was stated that "during the year 1937 extensions of stay in this country were granted in 813 cases of professional men and women who had arrived during the last three or four years," of whom 181 were doctors, 66 dentists, and only 12 lawyers! Nearly "300 research workers," whose occupation was not otherwise specified, were retained. The medical profession ought not to be, and in fact is not, indifferent to the ghastly sufferings of so many of our professional brethren in Central Europe, but serious thought should be given to the practicability of the remedies proposed to relieve them. Some two months ago I asked a question in the House (*Hansard*, July 25, cols. 2734 and 2745) worded as follows:

"Whether the Secretary of State for the Colonies is aware that, whereas the number of persons per qualified doctor in Great Britain is approximately 1,000, in some parts of the British Colonies (to be carefully distinguished from the Dominions) the proportion is as high as 100,000; and whether, in these circumstances, he has under consideration any plans or increasing the personnel of the Colonial Medical Service." And I suggested that it was in this field that medical refugees from Central Europe might find sanctuary.

For some years now I have been interested in the medical conditions prevailing in East Africa, and I have

received a large mass of information, based upon authoritative local knowledge, which indicates that there is a crying need for qualified medical practitioners in that vast area of the British rule. The refugees would be called upon to practise medicine, for which their experience would obviously fit them better than to undertake research. The Colonial Secretary's answer was entirely discouraging, but surely mine is a more promising solution than that proposed by Mr. Acland.—I am, etc.,

House of Commons, Oct. 6.

E. GRAHAM-LITTLE.

Obituary

JOSEPH POWER, M.B.

Late Chairman of the Irish Medical Committee

The death of Dr. Joseph Power, formerly medical officer of the Ardfinnan dispensary district, Co. Tipperary, occurred after a long and painful illness at his residence, Knockaun House, Cappagh, Co. Waterford, on September 25. He was 69 years of age. Born near Dungarvan, Co. Waterford, and educated at Rockwell College, Cashel, and Trinity College, Dublin, Power qualified as M.B., B.Ch., and B.A.O. of Dublin University in 1893. During his course in Trinity College he won a Stewart Scholarship in Anatomy and Institutes of Medicine, and he also gained reputation as an athlete. He practised for a short time in Dungarvan, and in the East End of London, before being appointed to the dispensary district of Ardfinnan, where the rest of his professional life was spent. He retired from practice on account of ill-health some five years ago, and devoted his time to farming, in which he had always been much interested.

Power was a capable and conscientious country doctor, but his interests were never bounded by his purely professional duties. In particular he was interested in medico-political affairs, and was an active worker in the British Medical Association, of which he had been a member for thirty years. He was chosen as one of its representatives on the Conjoint Committee of the British Medical Association and the Irish Medical Association, which was formed in 1911 to deal with problems connected with national health insurance. In the business of that committee and of its successor, the Irish Medical Committee, he made his mark as one of the most practical and clear-minded members. In 1915 he was elected vice-chairman of the Irish Medical Committee, and in 1922, on the separation of Northern Ireland from the Irish Free State, he became chairman. He retained this position until the dissolution of the committee some three years ago. As chairman he conducted the business briskly, fairly, and firmly. He kept the essential points before a meeting, and was stern in preventing any wandering into non-essentials. He showed the same qualities when acting as spokesman for the profession in interviews with Ministers or Government Departments, and while he was uncompromising on matters of principle his sense of fairness rendered him accommodating in matters of detail. It was mainly due to his activities in association with those of the late Dr. Thomas Hennessy, Irish Medical Secretary of the British Medical Association, that the present system of certification of insured persons was agreed on with the Insurance Commissioners. He was president of the South-Eastern of Ireland Branch of the British Medical Association in 1912, deputy representative in the Representative Body

from 1913 to 1918, and representative in 1919, 1920, and 1921. He was a member of the Irish Committee from 1923 to 1934.

Dr. Power had a great love of country life and its occupations and pastimes—farming, shooting, fishing—and his knowledge of botany and the wild life of the fields made him a delightful companion on a country walk. He was widely read in general literature, and his comments on men and affairs were shrewd and entertaining. An upright and honourable man, and a good friend, he was trusted and respected both by his fellow-practitioners and by his patients, and to both he performed his duty in full measure. He is survived by his wife, three daughters, and two sons, of whom one is a member of the medical profession.

J. STODDART BARR, M.B., F.R.A.C.S.

Dr. John Stoddart Barr, who had only comparatively recently returned to Scotland after long residence in Hobart, Tasmania, died suddenly at Troon, Ayrshire, on September 14. He was born in Glasgow in 1878, the second son of the eminent aurist, Dr. Thomas Barr—a former lecturer in otology at the University—and began his medical studies at Glasgow University in 1896. In 1901 he graduated M.B., Ch.B., and became house-physician to Dr. James Finlayson, and, later, house-surgeon to Sir Hector C. Cameron in the Western Infirmary, Glasgow. He had decided, early in his career, to devote himself to the practice of diseases of the ear, nose, and throat, and with that end in view spent a year in postgraduate work in Vienna, afterwards studying in Zürich and London, and with Sir William Milligan in Manchester. In 1905 he was appointed assistant surgeon to the Glasgow Ear, Nose, and Throat Hospital, and in 1908 assistant dispensary surgeon for diseases of the ear to the Western Infirmary, Glasgow. In 1912 he developed a grave illness, which resulted in the following year in the loss of a lower limb and subsequent minor operations. His long convalescence was spent in the South of France and Cornwall. Finally, he decided for health's sake to make his home in Hobart.

Before leaving for Tasmania a high medical authority had strongly counselled him never again to engage in practice. Barr, however, was built in heroic mould and was not one to yield to the buffetings of fate without a struggle; soon after settling in Hobart he resumed his work and built up a considerable practice. In 1927 he became a Fellow of the Royal Australasian College of Surgeons. At the Annual Meeting of the British Medical Association in Belfast in 1909 he was Secretary of the Section of Laryngology, and a Vice-President of that Section at the Annual Meeting in Melbourne in 1935. When on a visit to this country he was the bearer of the mallet from the Tasmanian Branch when the new B.M.A. House, Tavistock Square, was opened in 1925. He was joint-author of the sections on diseases of the ear and throat in Choyce's *System of Surgery* (1913), and of the *Manual of Diseases of the Ear* (fourth edition, 1909). For a short time he held the rank of captain in the R.A.M.C.T. His death came as a surprise and great shock to his family and friends; indeed, he had intended to leave shortly for Cyprus, with the possibility of residing there.

A former colleague writes:

Barr's tragic ordeal, occurring in his early and such vital years, cruelly restricted his career. He was a skilful and confident operator, the outcome of natural endowments of a high order coupled with careful and assiduous

training. Investigation appealed to him. I well remember associating with him at the outset of his career when he made certain experimental researches on the cadaver. It is not improbable that he would have engaged in further research but for the incidence of his grave illness. For one of Barr's athletic tendency—he had been a golfer, tennis-player, swimmer, and skater—his affliction must have been extremely hard to bear, yet I never once heard him complain. He was a man of fine feelings, eminently sympathetic to the poor and oppressed, a whole-hearted champion of liberty, a staunch and loyal friend; possessed of a singular charm of manner with a keen sense of humour, he radiated good fellowship and shone in the social circle. Barr did not neglect the cultural side of life; he was interested in zoology, and was a lover of pictures, exceptionally fond of verse, and the possessor of a well-trained baritone voice. To his intimate circle he has left a heroic example of unshakable optimism, stout endurance, and persistent endeavour in the face of a tragic happening which none but one possessed of the finest qualities of heart and mind could hope to bequeath.

THE LATE ALEXANDER MACPHAIL

Sir Weldon Dalrymple-Champneys, Bt., writes:

May I be permitted as an old friend and colleague of the late Professor Alexander Macphail to add a short appreciation to the obituary notice in your issue of September 10. I first met Macphail in 1912, when he had just become lecturer in anatomy at St. Bartholomew's Hospital and I had not yet begun studying medicine, but it was not until 1929 that I came to know him well. In that year I began to share a room with him in the Ministry of Health, and continued to do so until his death. A more delightful colleague and companion cannot be imagined. In him I found that rare combination of refinement and gentleness with moral courage and on occasion righteous indignation, the whole illumined by a strong sense of humour. His religion was real and deep but never obtrusive, and it was impossible to imagine him doing anything which savoured in the least of meanness or self-seeking. From his father, the well-known Gaelic poet of Mull, he had inherited a love of nature and artistic talents, which showed themselves chiefly in the delightful watercolours, some of which he showed every year at the Ministry of Health's Art Exhibition. For some years he had suffered greatly from attacks of bronchitis, which became more and more frequent, necessitating weary periods in bed, but he was always cheerful and uncomplaining and far more interested in other people's troubles than in his own. His death leaves a real gap in the lives of all who knew him well and to whom he was the personification of a Christian gentleman.

Universities and Colleges

UNIVERSITY OF OXFORD

The following medical degrees were conferred at a Congregation held on October 13:

D.M.—H. S. Brodribb.
B.M.—A. W. Frankland.

The Nuffield Foundation

A year ago Lord Nuffield, in addition to his previous endowment of two millions for the widening of the scope of the medical school at Oxford, gave a further £200,000 for the erection of buildings at hospitals associated with the medical research scheme. In his oration (which was a valedictory

after three years of office) in Convocation on October 5 the retiring Vice-Chancellor, Mr. A. D. Lindsay, stated that out of this fund there had so far been expended some £75,000 on buildings completed or in construction—principally new surgical and gynaecological wards at Radcliffe Infirmary and maternity home extensions, which absorbed over £60,000, also on an extension of the pay-bed block and x-ray theatre.

The last of the four basic clinical professorships in the Nuffield medical school, as already announced, has been filled by the appointment of Professor L. J. Witts as professor of clinical medicine, and the Vice-Chancellor stated that all the clinical professors are now working full time in their departments. He warned any who might cherish such an expectation that it must not be supposed that sensational discoveries would rapidly ensue or, indeed, should be sought. The vast machine of research must first be welded into a unity. This process, he said, was going apace, and had been helped during the year by the creation of a fluid research fund from which would be financed those promising research projects which emerged from time to time, now in one department and now in another. Such projects, born of happy inspiration or lucky accident, could not be foreseen or provided for in the routine departmental budgets, and so the fund would be open equally to all departments of the school.

Another Oxford development, again made possible by Lord Nuffield, is the foundation of three clinical assistantships tenable in the clinical departments of the medical school and three demonstratorships in the pre-clinical departments by graduates of universities in Australia, New Zealand, and South Africa. The tenure of each post is three years, after which the holders will be expected to return to teaching or research posts in the Dominions. The idea is that Dominions remote from the great centres of research will be enabled to participate in the work of the Oxford school. Provision is also made for the appointment at frequent intervals of a visiting professor to tour the Dominions with a view to giving and receiving information.

A tribute was paid by the Vice-Chancellor to Dr. Simon Flexner, whose appointment as George Eastman Visiting Professor has just terminated. His presence in Oxford, said Mr. Lindsay, had been of incalculable advantage to the medical school. His accessibility and his powers of lucid exposition endowed the new school at its birth with the benefits of the experience of a lifetime devoted to similar research.

New Physiology Laboratory

Among other developments at Oxford mentioned by the Vice-Chancellor is the planning of a new physiology-laboratory to replace the present building, which was erected more than fifty years ago. Hitherto the state of overcrowding in a building intended to accommodate forty students and having to provide for four or five times that number has entailed the repetition of many lectures and demonstrations. The new laboratory will include library and common rooms to be shared by the department of biochemistry, and will cost £120,000.

A second May readership in medicine has been established on a temporary basis for three years, and has been filled by the appointment of a reader who will help to bridge the gap in the teaching of physiology and clinical medicine by conducting an extended course in general pathology. The tenure of Dr. A. M. Cooke, who was appointed May reader in 1933, has been extended for a similar period, and, when the two readerships become vacant simultaneously in 1941 the whole position will be reconsidered.

UNIVERSITY OF CAMBRIDGE

At a Congregation on October 15 the following medical degrees were conferred:

M.D.—C. G. Parsons, *H. Smith.
M.B., B.Chir.—C. W. Hutt, *K. W. Donald, T. A. W. Edwards, W. E. D. Moore, J. S. Heller, G. M. Little, J. P. Henry, E. A. Evans, A. G. Marshall.
M.B.—J. A. Falk.
B.Chir.—C. H. M. Gimlette.

* By proxy.

Pinsent-Darwin Studentship in Mental Pathology

The managers give notice that an election to the above studentship will be made in January, 1939. The studentship is of the annual value of not less than £225, and is tenable for three years. The student must engage in original research into any problem having a bearing on mental defects, diseases, or disorders, but may carry on educational or other work concurrently. Applications for appointment to the studentship should be sent before December 1 to the secretary, Pinsent-Darwin Studentship, Psychological Laboratory, Cam-

bridge. Applicants should state their age and qualifications and the general nature of the research that they wish to undertake. No testimonials are required, but applicants should give the names of not more than three referees.

The following candidates have been approved at the examination indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—Part II: G. Q. Chance, W. J. Craig, T. Fichardt, R. L. Mansi, A. M. Mansour, C. G. Talwalkar.

UNIVERSITY OF SHEFFIELD

The following candidates have been approved at the examination indicated:

FINAL M.B., Ch.B.—Parts II and III: J. Beech, E. G. Crookes, N. W. Jones, J. S. Lindsay, W. J. Wilson.

UNIVERSITY OF GLASGOW

At a Congregation held on October 15 the following degrees were conferred:

M.D.—J. I. Russell, †C. Glen, †I. MacKay.
M.B., Ch.B.—J. Walker, †N. G. B. McLeitchie, †A. Brown, †Elizabeth B. S. Scobbie, †T. Gibson, †Janet R. Mowat, †R. T. S. Gunn, †A. Macfarlane, W. C. Alford, H. M. Archibald, G. W. Armour, W. Auld, W. Bain, Margaret R. Barr, G. D. S. Beechey, A. M. Brannan, J. Brown, Margaret A. F. Burton, D. C. Caldwell, C. Cameron, D. Christison, J. Y. Clark, Marion A. Crawford, R. C. Cunningham, Margaret M. B. Curley, Ellen Cush, I. MacK. Davidson, J. S. Dawson, E. C. Easson, Jay Farweather, W. Ferguson, J. D. Frame, J. R. Gallie, J. Garden, J. L. Gilleran, J. Glen, M. Goldio, R. Good, T. T. Graham, A. Granat, Helen W. Greenices, G. A. Guthrie, A. J. Haddow, A. R. Harper, L. G. Harper, A. W. Harrington, T. Hart, F. J. Hebbert, I. B. Hopkins, F. Iskander, A. S. Johnston, E. de C. Kite, Mary MacT. Leitch, J. B. McCaullum, I. M. McCull, D. Macdonald, A. McDougall, J. D. McFadyen, Jean M. McGill, A. W. McHaffie, I. McIndewar, J. R. Macintyre, I. C. K. Mackenzie, H. McKeown, W. MacK. McLennan, Julia M. Middleton, W. Mullen, R. L. Orchardson, G. D. Park, Mary R. Paterson, D. Paton, R. Provan, A. J. G. Pullar, D. Purdie, C. McK. Ramage, R. Rankin, I. Rannie, A. G. Reid, J. Reid, R. V. Rhoda, J. H. Rosengard, Margaret C. G. Russell, G. H. Scouler, M. Shaw, D. R. Sloan, James Smith, John Smith, L. Steingold, J. H. Stirrat, W. B. Summers, Anna J. Sutherland, J. A. Sutherland, A. M. Tait, R. D. Taylor, Barbara S. Thomson, K. R. Thornton, W. V. Wallace, N. Watters, J. Wishart, Shanna B. Wright, D. Yellowlees, A. Young, I. M. Young.
B.Sc. (Pure Science)—Etheldreda Cadas, M.B., Ch.B.

* With high commendation. † With commendation. ‡ With honours.

James Walker gained the Brunton Memorial Prize, awarded to the most distinguished graduate in medicine for the year 1938.

The West of Scotland R.A.M.C. Memorial Prize was awarded to Janet R. Mowat and John F. B. Wyper (equal) as the candidates who obtained the highest aggregate marks in surgery, medicine, and midwifery in the final M.B., Ch.B. examinations held during 1938.

The Macewen Medal in Surgery was awarded to Alexander Macfarlane as the candidate who obtained the highest aggregate marks in surgery at the final M.B., Ch.B. examinations held during 1938.

The Stockman Medal was awarded to Elizabeth B. S. Scobbie as the candidate who obtained the highest aggregate of marks in the professional examinations in materia medica and therapeutics and medicine (written, oral, and clinical), excluding paediatrics, in 1938.

The Captain H. S. Ranken, V.C., Memorial Prize was awarded to James W. Chambers as the candidate who obtained the highest marks in pathology in the professional examinations in 1938.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Professor J. B. S. Haldane, F.R.S., will deliver the 1938 Lloyd Roberts Lecture, on "Some Problems of Human Congenital Disease," at the College, Pall Mall East, S.W., on Thursday, November 17, at 5 p.m.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Council of the Royal College of Surgeons of England was held on October 13 with the President, Mr. Hugh Lett, in the chair.

Mr. Frank Batley was admitted as a Macloghlin Scholar. Sir Alfred Webb-Johnson stated that he had been asked by an anonymous donor to offer the College a gift of five hundred guineas for the completion of some special work. The Council accepted this munificent gift with very grateful thanks.

The Council stated that it was prepared to hold a Primary Examination for the Fellowship in Australasia every three years, the next examination to be in February, 1941.

The general annual report and the scientific report of the Council were approved.

It was reported that the office and secretarial of the Imperial Cancer Research Fund were now established at the College.

Counsel's opinion stating that the existing charters do not give the College power to grant a higher diploma in dental surgery was before the Council.

The Council accepted with grateful thanks a bust of John Whitaker Hulke, President in 1893 and 1894, presented by the Middlesex Hospital, and a bust of Thomas Wormald, President in 1865, presented by the Wormald family.

Diplomas

A Diploma of Fellowship was granted to Robert Officer.

Diplomas of Membership were granted to Phoebe Charlton, Abraham Caplin, and Hugh Stott.

Diplomas in Child Health were granted, jointly with the Royal College of Physicians of London, to the following candidates:

Khairunnisa B. Ahmed, A. M. Clark, J. H. Colebatch, S. D. M. Court, A. G. Denison, M. L. Edwards, Irene K. Falk, Mima M. Gemmell, S. M. Ghosal, K. N. Gour, Alice M. Headwards, R. S. Illingworth, F. D. M. Livingstone, S. Mackenzie, N. S. Mair, Queenie I. E. May, A. B. Milligan, Anasuya Mundle, Margaret I. Neal, M. N. Pai, Helen J. L. Robertson, A. T. Roden, A. V. S. Sarma, S. S. Sawaf, M. Seraj-ul-Haque, Florence Stephen, Shirley M. Taylor, Ahamma Thomas, Mary A. Thomas, M. Trivedi, F. Wall, C. B. M. Warren, R. G. Wilbond, Elsa P. Woodrow.

The following hospital was recognized for the six months' surgical practice required for the Final Fellowship:

Harrogate and District General Hospital, house-surgeon, till July 31, 1939.

EPIDEMIOLOGICAL NOTES*

Acute Poliomyelitis

The progressive reduction in the incidence of acute poliomyelitis observed during the previous three weeks in England and Wales has not been maintained during the week under review, the notifications having risen from 56 to 65, and in London from 3 to 6. In Scotland notifications rose from 5 to 8. The counties mainly affected were: Essex 9 (4), Carmarthen 6 (4), Lancashire 5 (0), and 3 each in Kent (1), Sussex East (0), Sussex (4), Warwickshire (2), and Yorkshire East Riding (3). More than one case was reported from the following centres: London 6 (3)—in Battersea, Chelsea, Fulham, Greenwich, Kensington, and Stepney—Llandilo 4 (0), Tendring (Essex) 3 (0), and 2 each in Marple (0), Halstead (0), Lanbrook (0), Tamworth Urban (0), Tamworth Rural (0), Cuckfield (0), Llanelly (1), Swansea (0). In the two counties chiefly affected, Essex and Carmarthen, cases were notified in: Tendring 3, Halstead 2, and 1 each in Barking, Harwich, Ilford, and Dunmow; and in Carmarthen—Llandilo 4 and Llanelly 2. In the week under review, 1 (4) case was notified at Horsham.

The epidemic of acute poliomyelitis in Germany continues to decline: for the week ended September 24, 275 cases were recorded in the whole country, as against 386 in the previous week; the areas chiefly affected were: Cologne district 44 (88), Wiesbaden 23 (27), Düsseldorf 18 (19), Bavaria 55 (50), Württemberg 58 (55), Baden 17 (16), Saxony 33 (33), Austria 21 (18). On the other hand, an increase was noted in Holland for the week ended October 1, the notifications having risen to 44 (30). In the Province of South Holland there were 18 (8) cases, and 6 cases in the Province of North Holland. In Sweden during the first fortnight of September the numbers reported increased from 167 to 230, of which 85 were non-paralytic; the districts chiefly affected were: Jämtlands Rural 94, Jämtlands Urban 25, Kristianstads Province 23. During the same period there were 84 cases of acute poliomyelitis in Finland, of which 18 occurred at Helsinki.

Primary and Influenzal Pneumonia

Slight increases in the notifications of primary and influenzal pneumonia were observed in England and Wales and in London; an increased number of deaths were recorded for the same period—22 (16) and 2 (0) respectively. The counties with the greatest increases were: Derby 12 (8), Leicester 12 (8),

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

London 47 (33), Staffordshire 33 (24), Warwickshire 35 (21). At the time of going to press reports have been received of an increasing spread, especially of influenzal pneumonia, in Durham and Birmingham districts.

Diphtheria and Scarlet Fever

There was a drop in the notifications of diphtheria in England and Wales during the week—1,166, compared with 1,209 in the previous week—and in London—125, compared with 129. In Scotland an increase was recorded: Glasgow 71 (70), Aberdeen 9 (6), Fife County 15 (3), Perth 5 (0). Of the 28 deaths in the 126 Great Towns of England and Wales 3 occurred in Birmingham, and 2 each in London, Bradford, Liverpool, South Shields, Wallasey, Stoke-on-Trent, Newport. Four deaths from diphtheria were recorded in Glasgow and 1 each in Ayr and Paisley.

Notifications of scarlet fever in England and Wales fell during the week under review—1,734, compared with 1,776 in the previous week; but in London there was an increase—180 (155)—and in Scotland, where 389 (380) cases were notified. The areas chiefly affected were: Aberdeen 13 (11), Ayr 7 (2), Fife 30 (22), Dunfermline 9 (4), Glasgow 97 (82), Paisley 14 (11). There were no deaths from scarlet fever recorded in the British Isles during the week.

Measles and Whooping-cough

There was only one death from measles (at Rhondda) in the 126 Great Towns of England and Wales during the week. The first notifications of measles and whooping-cough since these diseases were made notifiable in the administrative county of London are available for publication in this week's issue. As stated in these columns on October 8, page 770, all cases of measles and whooping-cough occurring in a household at an interval of two months from any previous cases must be notified to the borough medical officer of health. Of the 24 cases of measles notified the chief were in Southwark 5, Stepney 4, and Battersea and Wandsworth 3 each. In Scotland the notifications rose from 13 to 17 in the week under review, the centres affected being Glasgow 13 (6), and 1 each in Dunfermline (0), Lanark County (2), Greenock (1), and Paisley (1). Of the 8 deaths from whooping-cough in the 126 Great Towns 2 occurred in Walthamstow and 1 each in Herndon, Twickenham, Luton, Portsmouth, Leeds, Salford. In London 43 cases were notified, distributed mainly as follows: 5 each in Islington, Bethnal Green, and Lambeth, 4 each in Bermondsey and Stepney, and 3 each in Hackney, Southwark, Wandsworth, and Lewisham. In Scotland there was a decided increase in the notifications of whooping-cough during the week—109 (94)—chiefly in: Glasgow 84 (79), Paisley 12 (2), Edinburgh 6 (2). Two deaths were recorded, both in Glasgow.

Cholera: Plague

During the week under review there were 280 (237) cases of cholera and 135 (122) deaths in the United Provinces of India and 1,670 (3,463) cases and 743 (1,526) deaths in the Central Provinces. During the four weeks ended October 8 the incidence of cholera declined in most of the provinces, with the exception of those of the lower Ganges valley (Bihar and Bengal), and Assam. In the Central Provinces the number of cases declined during the four weeks ended September 10 from 30,948 to 15,048; in the same period the number fell in the United Provinces from 1,410 to 999, and in Bombay Presidency from 2,062 to 1,147. In Assam 1,102 cases were notified in the four-week period September 4 to October 1, compared with 522 during the previous four-week period. During the week ended October 8, 95 (113) cases and 33 (38) deaths were recorded in Shanghai, and in Hong Kong 9 (7) cases and 6 (5) deaths. From the reports of the two anti-epidemic units of the League of Nations in China, it appears that the cholera situation in the provinces of Central China is well in hand and the spread of the disease westwards has been checked.

In India during the week under review there were 46 (166) cases of plague reported in the Central Provinces and 4 (7) deaths, 37 (37) cases and 31 (27) deaths in Burma, 23 (35) cases and 12 (15) deaths in Madras Presidency, and 12 (21) cases and 8 (20) deaths in Bombay Presidency.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 8, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 14 | 1 | 4 | | — | 11 | — | 8 | | 1 | | |
| Deaths | | 1 | 1 | | | | 1 | 2 | | | | |
| Diphtheria | 1,166 | 125 | 202 | 53 | 32 | 1,451 | 209 | 224 | 35 | 42 | 1,232 | 217 |
| Deaths | 28 | 2 | 6 | 3 | — | 25 | 3 | 6 | — | — | | |
| Dysentery | 45 | 12 | 16 | | 1 | 40 | 22 | 15 | | — | | |
| Deaths | | | | — | — | | | | — | — | | |
| Encephalitis lethargica, acute | 5 | — | 2 | | — | 3 | — | — | | — | | |
| Deaths | | — | | | | | 3 | | | | | |
| Enteric (typhoid and paratyphoid) fever | 24 | 5 | 12 | 5 | 1 | 45 | 7 | 4 | 8 | 6 | 50 | |
| Deaths | 1 | — | — | 1 | — | — | — | — | — | 1 | | |
| Erysipelas | | | 63 | 6 | 5 | | | 81 | 7 | 4 | | |
| Deaths | | 1 | | | | | — | | | | | |
| Infective enteritis or diarrhoea under 2 years | 57 | 7 | 13 | 16 | 3 | 68 | 21 | 21 | 7 | 4 | | |
| Deaths | | | | | | | | | | | | |
| Measles | | 24 | 17 | | 3 | | | 52 | | 9 | | |
| Deaths | 1 | — | — | — | — | 7 | 1 | 1 | — | — | | |
| Ophthalmia neonatorum | 94 | 10 | 28 | | 1 | 105 | 9 | 35 | | — | | |
| Deaths | | | | | | | | | | | | |
| Pneumonia, influenza; | 453 | 47 | 5 | 1 | 12 | 679 | 45 | 6 | 1 | 4 | 638 | 52 |
| Deaths (from Influenza) | 22 | 2 | — | 1 | — | 32 | 10 | 6 | — | 1 | | |
| Pneumonia, primary | | | 152 | 6 | | | | 168 | 4 | | | |
| Deaths | | 8 | | 7 | 2 | | 7 | | 8 | 1 | | |
| Polio-encephalitis, acute | 3 | 1 | | | | 2 | — | | | | | |
| Deaths | | | | | | | | | | | | |
| Poliomyelitis, acute | 65 | 6 | 8 | 1 | 1 | 39 | 5 | 3 | — | — | | |
| Deaths | | 1 | | | | | 1 | | | | | |
| Puerperal fever | 7* | 7 | 13 | 1 | 1 | 3* | 3 | 15 | 2 | 1 | | |
| Deaths | | 1† | | | | | 1† | | | | | |
| Puerperal pyrexia | 176 | 16 | 16 | | 3 | 170 | 23 | 18 | | 3 | | |
| Deaths | | | | | | | | | | | | |
| Relapsing fever | — | — | | | — | — | — | — | | — | | |
| Deaths | | | | | | | | | | | | |
| Scarlet fever | 1,734 | 180 | 389 | 56 | 89 | 2,379 | 201 | 400 | 120 | 88 | 2,384 | 346 |
| Deaths | — | — | — | — | — | 3 | 1 | 2 | — | — | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Whooping-cough | | 43 | 109 | | 6 | | | 24 | | 5 | | |
| Deaths | 8 | — | 2 | 1 | — | 4 | 1 | — | — | 1 | | |
| Deaths (0-1 year) | 288 | 43 | 55 | 36 | 15 | 294 | 44 | 63 | 27 | 11 | | |
| Infant mortality rate (per 1,000 live births) | 48 | 35 | | | | 50 | 36 | | | | | |
| Deaths (excluding stillbirths) | 4,062 | 745 | 541 | 163 | 125 | 3,910 | 756 | 568 | 148 | 109 | | |
| Annual death rate (per 1,000 persons living) | 10.0 | 9.5 | 11.0 | 11.0 | 11.1 | 9.7 | 9.5 | 11.6 | 10.1 | 9.7 | | |
| Live births | 5,981 | 1,180 | 852 | 330 | 199 | 6,445 | 1,242 | 887 | 323 | 225 | | |
| Annual rate per 1,000 persons living | 14.7 | 15.0 | 17.4 | 22.3 | 17.6 | 15.9 | 15.6 | 18.1 | 22.0 | 19.9 | | |
| Stillbirths | 225 | 30 | | | | 277 | 42 | | | | | |
| Rate per 1,000 total births (including stillborn) | 36 | 25 | | | | 41 | 33 | | | | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

† Death from puerperal sepsis.

‡ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

The Services

DEATHS IN THE SERVICES

Lieutenant-Colonel ERNEST EDWIN WATERS, Bengal Medical Service (ret.), died at Camberley on September 20, aged 66. He was born on July 21, 1872, and was educated at St. Bartholomew's Hospital and at Edinburgh University, where he graduated M.B., C.M. in 1893, proceeded M.D. in 1903, and subsequently took the M.R.C.P.Lond. in 1911. He gained the Maclean Prize in Military Medicine at Netley, and entered the Indian Medical Service as surgeon lieutenant on July 29, 1895, became lieutenant-colonel on January 29, 1915, and retired on July 19, 1927. He served in the Tirah campaign on the North-West Frontier of India in 1897-8, where he took part in the actions on the Malakand and also those of Dargai, the Sampagha and Arhanga passes, and the Bazar Valley, receiving the frontier medal with two clasps. Most of his service was spent in Bengal in civil employ, which he entered in May, 1899, serving as superintendent of the Presidency General Hospital, Calcutta, as deputy sanitary commissioner, and as resident physician of the Medical College Hospital. Later in his service he held several of the most important medical appointments in Bengal, the civil surgeoncies of Cuttack, Murshidabad, and Howrah successively, and the post of surgeon-superintendent of the Presidency European General Hospital, Calcutta. He was the author of a work on *Diabetes, its Causation and Treatment, with Special Reference to the Tropics* (1927). He had been for many years a member of the British Medical Association, was a representative at the Annual Meetings, 1934-8, and chairman of the Guildford Division, 1935-7.

Lieutenant-Colonel JOHN GREGORY JORDAN, Bengal Medical Service (ret.), died in London on October 5, aged 78. He was born on December 6, 1859, and was educated at Edinburgh University, where he graduated M.B., C.M. in 1883. He entered the Indian Medical Service as surgeon on September 30, 1886, became lieutenant-colonel after twenty years' service, and retired on April 18, 1918. He served on the North-West Frontier of India in the Mirazai campaign of 1891, receiving the frontier medal with a clasp. Most of his service was passed in Bengal in civil employ, which he entered in 1892. On the partition of Bengal in 1911 he was elected for service in Bihar and Orissa. During the war he reverted to military duty in April, 1916, and remained on military duty in India until his retirement.

Medical News

The William Blair-Bell Memorial Lecture will be given by Mr. T. N. A. Jeffcoate, M.D., F.R.C.S.Ed., M.C.O.G., on "Uterine Inertia," at the British College of Obstetricians and Gynaecologists, 58, Queen Anne Street, W., on Friday, October 28, at 2.30 p.m. All medical practitioners are invited to attend.

Dr. G. Jessel will deliver his presidential address on "Serial Skiagraphy in Pulmonary Disease" before the North-Western Tuberculosis Society at the Tuberculosis Offices, 352, Oxford Road, Manchester, on Thursday, October 27, at 3.15 p.m.

At the Royal Society of Arts on Wednesday, November 2, at 8.30 p.m., Lord Amulree will give an address on "Industrial Holidays." Tickets may be had from the secretary of the society, John Street, Adelphi, W.C.2.

Viscount Samuel will give the fourth Clarke Hall Lecture, "Is the Criminal to be Blamed—or Society?" in the Hall of Gray's Inn on Thursday, October 27, at 4.30 p.m., with the Home Secretary, Sir Samuel Hoare, in the chair.

The Kensington Division of the British Medical Association has arranged a meeting, to which all members of the medical profession are invited, at B.M.A. House, Tavistock Square, W.C., on Wednesday, November 16, at 9 p.m., when addresses on "The Place of the Doctor in Air Raid Precautions" will be given by Wing Commander E. J. Hodsoll, Inspector-General of Air Raid Precautions, and Dr. Norman Hammer, Medical Adviser to the Home Office Air Raid Department.

Professor Henry Cohen will deliver his presidential address on "The Medical Knowledge of William Shakespeare" before the London Jewish Hospital Medical Society at the Anglo-Palestinian Club, 43, Great Windmill Street, W., on Sunday, October 23, at 8.30 p.m.

A special meeting of the Institution of Heating and Ventilating Engineers will be held at the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W., on Wednesday, November 2, at 7 p.m., when Mr. L. W. J. Henton will give an address on "Air-conditioning Requirements of Cinemas."

A meeting of the Association of Industrial Medical Officers will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Friday, October 28. At 5 p.m. there will be a business meeting, and at 6 p.m. Professor E. P. Cathcart will open a discussion on "The Feet of the Industrial Worker." Mr. C. Lambrinudi will show a film on "The Action of the Muscles of the Foot." Other speakers will include Mr. W. S. Creer, Dr. W. Blood, and Mr. Eric Gill. On Saturday, October 29, there will be a visit to Messrs. J. Lyons and Co., Ltd., Cadby Hall, W.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, October 27, at 8.30 p.m., when a paper will be read by Sir Bernard Spilsbury on "The Medico-Legal Significance of Wounds."

A further wing of the Manor House Hospital, Golders Green, N.W., will be opened by Queen Mary on Monday, October 24, at 3 p.m. Invitations to the ceremony have been sent out by the president, chairman, and trustees of the Industrial Orthopaedic Society.

The 1938-9 programme of the West Kent Medico-Chirurgical Society is as follows: November 11, Dr. Macdonald Critchley, "Migraine." December 9, Purvis Oration by Sir Crisp English, "On Taking Stock." January 13, Clinical evening. February 10, Mr. Alistair L. Gunn, "Some Recent Advances in Midwifery." March 10, Mr. John G. Sandrey, "Genito-urinary Emergencies." April 14, Debate: "That Voluntary Euthanasia should be Legalized." Proposer, Dr. C. Killick Millard; seconder, Dr. Wm. A. MacIlraith; mover of negative, Dr. C. O. Hawthorne; seconder of negative, Mr. Stephen Power. May 12, President's address. Meetings are held at the Miller General Hospital, Greenwich, S.E., on Fridays at 8.45 p.m.

The North London Medical and Chirurgical Society has arranged the following programme for 1938-9: November 16, Medical clinical evening. December 14, Demonstration by Dr. Yeo and members of the staff of the x-ray department of the Royal Northern Hospital. January 18, Mr. W. B. Gabriel, "The Diagnosis and Treatment of Some Common Rectal Diseases." February 15, Surgical clinical evening. March 15, Mr. T. Anthony Green, "Treatment of Disease by Radiotherapy." April 19, Medical clinical evening. May 17, President's address and annual general meeting. All the meetings will be held at the Royal Northern Hospital, Holloway Road, N., on Wednesdays at 9 p.m.

The twenty-sixth French Congress of Medicine, which was to have been held at Marseilles on September 26, has been postponed until November 10 to 13. The following congresses which were to have been held this month have been indefinitely postponed: the twenty-fifth French Congress of Hygiene, the fourth annual Congress of French-speaking Electroradiologists, and the Franco-Yugoslav Medical Congress. The next congress of the Latin Medical Press, which was to have been held at Lisbon this year, has been postponed until the end of next summer.

L'Union Internationale contre le Cancer is arranging an "International Cancer Week" from November 23 to 30, which is to include an international conference to commemorate the discovery of radium, electrons, x-rays, and Hertzian waves; papers will be read by experts of various nationalities. The opening meeting will take place at the Sorbonne on November 23, when the President of the French Republic and other distinguished people will be present. Further information can be obtained from the secretary-general, 18, Rue Soufflot, Paris Ve.

The August issue of the *Bulletin de l'Office International d'Hygiène Publique* contains articles on small-pox, post-vaccinal encephalitis in the Punjab, typhus in Poland, scarlet fever, diphtheria, dysentery in Calcutta, Canada, Great Britain, Bulgaria, and the United States, and dengue in Cairo.

The publishing firm of Theodor Steinkopff of Dresden and Leipzig have founded a journal for research into old age, *Zeitschrift für Altersforschung*, the first volume of which appeared in July this year.

At the recent International Congress of Obstetrics and Gynaecology held in Amsterdam, where the principal subjects for discussion were eclampsia, thrombosis and embolism, and hormones, it was decided that the next congress should take place in Rome in 1942.

Yorkshire film exhibitors at a recent meeting in Leeds decided to proceed with their proposal to provide an "iron lung" for the General Infirmary at Leeds for use by all the hospitals in Yorkshire. They also agreed to form a committee to raise the necessary funds, probably by promoting a Sunday concert at one of the large cinemas in the city.

Up to April 1 of this year 983 pilots and other members of the staff of the Pan-American air traffic for the United States, Mexico, and Guatemala have been inoculated against yellow fever. The vaccine is supplied by the Rockefeller Foundation.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are

EDITOR OF THE BRITISH MEDICAL JOURNAL, Antology Westcent, London.

SECRETARY, Medisecra Westcent, London.

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: Associate, Edinburgh; telephone 24361 Edinburgh), and of the Office of the Cumann Doctúirí na h-Eireann (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: Bacillus, Dublin; telephone 62550 Dublin).

QUERIES AND ANSWERS

Education in Switzerland

"AGRESTIS" will be grateful for information regarding schooling in Switzerland for two children, a boy of 12 and a girl of 13, whose father died three years ago of lung tuberculosis. Both react very strongly to the Mantoux test, and both have been treated on rest lines for symptoms which were considered to be due to the tuberculous infection. Both are now active and well, but the mother is anxious to take the children to Switzerland for two years. She proposes to live with them and to send them to school as day pupils. Schooling would have to be in one of the altitude zones, and ordinary schools (not schools for sickly children) are desired. They would probably have to go to separate schools.

Treatment of Psoriasis

"C. N." would be grateful for suggestions of any known remedy for psoriasis and for any new details of its pathology.

Origin of the Laryngoscope

R. S. S. writes: Your account (*Journal*, September 10, p. 604) of the origin of the laryngoscope, though accurate so far as it goes, does not go quite far enough. According to Morell MacKenzie (*Diseases of the Throat and Nose*, 1880, vol. i, p. 213) the first trace of the laryngoscope appears in 1743, when M. Levet, a distinguished French accoucheur, employed a speculum, which differed from the various *specula oris* then in use and consisted mainly of a plate of polished metal, for examining the throat. The laryngeal speculum of Bozzini (of Frankfurt-on-Main) is well known, and is illustrated in Morell MacKenzie's first volume (p. 213); it was first shown about 1804, and his publication on the subject appeared in 1807. Babington's (1829) and Liston's (1840) laryngoscopes were mentioned by you, but Avery's (1844), which resembled Bozzini's, was much more useful. It is true, however, that the use of the modern laryngoscope dates from Manuel Garcia (1855), Türk (summer, 1857), and Czermak (November, 1857). The first book in English on the use of the laryngoscope was written by James Yearsley, founder of the Metropolitan Ear, Nose, and Throat Hospital (*Introduction to the Art of Laryngoscopy*, London, 1862). Morell MacKenzie's book, *The Use of the Laryngoscope*, was published in London in 1865. MacKenzie, "the father of English laryngology," was assistant physician to the London Hospital, and became acquainted with laryngoscopy when he visited the clinic of Professor Czermak at Pesth in 1859. Türk of Vienna had read Garcia's paper, and tried unsuccessfully to employ the laryngeal mirror in the General Hospital of Vienna. Czermak borrowed the mirrors which Türk had laid aside, and, "being possessed of a most capacious pharynx, small tonsils and uvula, and a large laryngeal aperture," his investigations on his own larynx proved most successful. Türk afterwards claimed priority, but the general employment of the laryngoscope in medicine must be attributed to the enthusiastic teaching and brilliant demonstrations of Czermak.

Treatment of Pruritus Ani

Dr. SYLVIA ASHTON (London, E.18) writes in reply to "J. M." (October 1, p. 728): I have a patient who had pruritus ani, of no known cause, which cleared completely in two or three days after the application of calomel (hydrarg. subchlor.) used as a dusting powder and applied night and morning. Various cocaine ointments had had no effect.

Dr. CHARLES NYHAN (Co. Cork) also writes: "J. M." should first look carefully for any local lesion—fissure, haemorrhoids, worms, inflammatory conditions of the rectum or colon, effects of previous dysentery, etc.—each or any of which must receive its own specific treatment. A tablespoonful or more of sodium sulphate dissolved in a little over a wineglassful of boiling water should be taken warm first thing each morning. After evacuation an enema of strong saline solution (1 to 1½ pints) should be given. After this has been passed an iodoform suppository should be inserted deeply into the anal canal. Another enema should be given at bedtime, followed again by the insertion of a suppository. Relief of symptoms should be noted after two days, but the treatment should be continued for ten days and repeated if the symptoms return. I would be glad to hear from "J. M." the result of this treatment.

"R. A." also writes: I suffered from pruritus ani for nearly fifty years. I got into the habit of washing with soap and water after every evacuation. This gave considerable relief, but what gave me most relief during an attack—usually at night—was swabbing with surgical spirit. Three years ago I had my appendix removed, and since then I have had no recurrence of the pruritus. The only attack of appendicitis I had had previously was fifty-eight years before.

Income Tax

Proportion of Expenses

"XXX" is a partner in a large seaside town. He was unable to acquire his predecessor's residence, and in his present house has to give up both his sitting-rooms at surgery hours and other times. The inspector of taxes has written saying that he considers one-third of the whole expenses to be a reasonable proportion to set against the practice. "XXX" says he understands that two-thirds has generally been allowed.

** In our experience two-thirds is allowed only in exceptional circumstances; normally it does not leave enough to

cover private use. For example, one-third of £150 rent would usually be less than the private part of such a house would cost to rent. But in the circumstances mentioned a one-third allowance seems clearly inadequate, and we advise our correspondent to claim one-half, and carry his point to personal appeal to the local or Special Commissioners if necessary. Judging from the inspector's letter he seems to have overlooked two material points: first, that the ground floor is in terms of rent worth more than the others, and, second, that the garage is almost entirely "professional."

The Cash Basis

W. H." has hitherto been assessed on the cash basis, but "a new inspector" says this method is wrong, and is asking for information as to the amount of debts outstanding at April, 1937 and 1938, and for an estimate of bad debts so as to recalculate the profits on the earnings basis. Is this usual?

* * It has to be admitted that in strict law the "bookings" basis is correct; the cash basis is obviously more convenient, and for that reason is accepted by the Revenue authorities where the circumstances do not make it unfair. For example, it would not work equitably in the case of an increasing practice or in the early years of a new one, because the whole of the expenses are being charged but some of the earnings therefrom are not being credited. If the gross bookings of our correspondent's practice are steady we think the inspector should—and will on reconsideration—withdraw his request for the specified particulars, which he evidently proposes to use to adjust the "cash" figures to a "bookings" basis.

Motor Car Expenses

C. M. O." holds some appointments which necessitate a good deal of travelling. He has kept accurate records for some years and finds that they are "fairly uniform." He has therefore suggested to the inspector of taxes that he need not continue to keep the records for the future, but he declines to agree.

* * It is probably difficult for the inspector to agree, seeing that such records are officially desirable, and it may be that if "C. M. O." discontinued the records and next year made a definite statement that he was sure that his official mileage was not less than in the previous year, the inspector might then accept the statement. But unless the records are really troublesome we should advise our correspondent to go on with them.

Increase in Partnership Share

S. D." bought a one-third share in a partnership in January, 1935, and increased it to a half share in April, 1937. The firm's accounts are made up to December 31. He has paid both instalments of tax for 1937-8 on the one-third basis but is now told that he will have to make an additional payment to bring the tax up to one-half basis. Is that correct?

* * Yes. The "previous year basis" applies to the calculation of the firm's profits, so that if £x was the amount of the firm's earnings for the year to December 31, 1936, then £x is taken as the firm's income, for income tax assessment purposes, for the year to April, 1938. That assessment has to be divided between the partners in the ratio in which the profits are shared for the year of assessment, and therefore "S. D." will have to account for tax on half the assessment. ("S. D." refers to payment on the receipts of 1937, but there seems no reason why the 1936 basis of calculation of the firm's assessment should be set aside for the 1937 profits.)

Deduction for Assistant's House

M. H." has an assistant who lives at the branch surgery and pays 30s. a week rent. The house and surgery were originally semi-detached houses and were bought and adapted by "M. H." What should he deduct as an expense in this connexion?

* * He has two alternatives: (a) to exclude the 30s. rent from his professional receipts and to deduct only the expenses relating to the surgery, or (b) to include the rent and deduct the expenses incurred on the whole premises. The latter is frequently more convenient. The expenses deductible cannot be based on the capital cost of the premises or on what they previously produced in rent, but

on the facts as they exist now. They would include rates, repairs, and the amount of the net Schedule A assessment on the property.

LETTERS, NOTES, ETC.

Stolen Instruments

"M.D., F.C.O.G." writes: It is with some alarm that I hear of widespread thefts of surgical instruments from doctors' and consultants' cars, and quite recently I had a complete set of gynaecological instruments stolen from my car. If these stolen instruments had no market they would obviously be dumped somewhere by the thieves and in many cases would be recovered by the police, but in several cases I know of neither the thieves nor the instruments have been discovered. It seems not impossible that widespread dealing may be going on in stolen surgical instruments.

John Shaw Billings

Dr. MAZYCK P. RAVENEL writes from the University of Missouri: In your issue of August 27, 1938, p. 458, you give a review of the April number of the *Bulletin of the Johns Hopkins Hospital* which contains a series of papers, on John Shaw Billings. The statement that he volunteered for medical service with the Confederate Army is not correct. He was attached to the Army of the Potomac under General Hooker. Dr. Billings was a Northerner, and had no sympathy with Secession so far as the evidence goes, though he was very friendly to many Southerners after the war was over.

A Collection of Journals

Dr. CLAUD F. DRUITT (Springfield, The Avenue, Walton-by-Clevedon) has a complete collection of the *British Medical Journal* for the past thirty years, which he thinks might form the nucleus for a newly started medical library, and is willing to present them to anyone interested if packing and transit expenses were found. The volumes are carefully sewn together, with the indexes at the beginning of each, the whole being finished with a brown-paper cover and date label. Dr. Druit has the volumes arranged on open shelving, which is built in sections and could easily be removed with the volumes. A photograph of the volumes on the shelving can be seen on application to the Librarian of the British Medical Association. Dr. Druit also has a complete collection of the *Practitioner* since 1918. These are unbound, but arranged in order, and would be sent on the same terms to any medical library, or will be disposed of privately if desired.

Percaine Handbook

Percaine was first introduced by Ciba Limited (48, Southwark Street, S.E.1) in 1929; since that time some 2,000 papers have been published recording the results of clinical and pharmacological investigations of its properties. The *Percaine Handbook* is a review based on eighty-nine of these articles, to which detailed references are given. A brief account of the chemical, physical, and pharmacological characters of percaine is followed by a comprehensive survey of its clinical applications. Of particular interest is a detailed comparison of the techniques of spinal anaesthesia elaborated by Howard Jones, Etherington Wilson, Sebrechts, and other workers. The booklet will be sent on request to any medical practitioner.

Disclaimer

Mr. IVOR LEWIS writes: My attention has been drawn to sensational and inaccurate reports in the lay press of an operation recently performed at the North Middlesex Hospital. I need hardly say that these appeared without my consent or knowledge. The survival of a patient after a Trendelenburg operation for pulmonary embolism doubtless has the makings of a "good story," but one feels that the newshawks might at least allow it to be dealt with in the professional press in the first place!

Correction

In Fig. 5 illustrating Mr. Lake's article on "Infections of the Hand and Fingers" in the *Journal* of October 1, p. 717, there was a mistake in the legend. After (f) should have appeared "flexor longus pollicis" and not "extensor longus pollicis."

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Bulletin of the Johns Hopkins Hospital

Baltimore vol. 63 August, 1938

- Clinical and Pathological Findings in Interauricular Septal Defects. H. B. Taussig, A. McG. Harvey, and R. H. Fellis.—p. 61.
Metabolism of Isolated Liver. E. Lundsgaard.—p. 90.
Use of Electrocardiogram in Diagnosis of Adhesive Pericardio-mediastinitis. R. France.—p. 104.
Influence of Tonsillectomy upon Course of Rheumatic Fever and Rheumatic Heart Disease. W. B. Allan and J. W. Baylor.—p. 111.

Tonsillectomy and Rheumatic Fever.—One hundred and eight patients subjected to tonsillectomy and adenoidectomy because of rheumatic fever, between 1910 and 1924, were re-investigated in 1935. Since rheumatic heart disease developed in only six of the forty-nine rheumatic patients not having cardiac involvement at the time of operation it is concluded that these operations are to be recommended in the treatment of rheumatic fever.

Deutsche Medizinische Wochenschrift

Berlin vol. 64 August 5, 1938

- *Epidemiological and Clinical Studies of Undulant Fever. F. H. Horstmann and F. P. Leuven.—p. 1133.
Investigations of Vitamin B₁₂ Metabolism of Healthy and Polyneuritic Women during Pregnancy and Puerperium. F. Stahler.—p. 1137.
Clinical Contribution to Problem of Hormone-determined Anaemia. W. Gonnermann.—p. 1140.
Evaluation of Scarlet-fever Antitoxin from Standpoint of Teachings of Immunity. E. Strömer.—p. 1142.
Changes in Number of Erythrocytes in Course of Hyperthyroidism. G. Kleiner and F. Remy-Vamos.—p. 1144.
Treatment of Diarrhoea in Infancy with Raw Human Milk. H. J. Hartenstein.—p. 1145.
Lead and High Blood Pressure. G. W. Günther.—p. 1146.
Abortive Treatment of Undulant Fever with Penicillin. M. D. Petzetakis.—p. 1147.
Injuries to Oesophagus by Foreign Bodies, with Special Reference to Nitroglycerin Treatment. H. Barth.—p. 1148.
Liability to Reinfection of Contents of Sterilized Drums. L. Stutz.—p. 1151.

Undulant Fever.—These studies, undertaken at the Hygiene Institute of the University of Kiel, show among other things that since 1933 the yearly incidence of undulant fever in the area under review has remained very constant.

Edinburgh Medical Journal

Edinburgh vol. 45 August, 1938

- Primary Toxic Goitre. J. Eason.—p. 529.
Treatment of Minor Foot Disabilities. T. M. Millar.—p. 540.
*Neuro-psychiatric Aspects of Bromide Intoxication. H. Tod and H. Stalker.—p. 561.
Modern Developments in Organization of Treatment of Fractures. W. A. Cochrane.—p. 596.
*Can we "Breed Out" Cancer in Human Race? M. T. Macklin.—p. 567.
Significance of Cardiac Venous Congestion. J. McMichael.—p. 161.
Oestradiol Benzoate Therapy in Senile Vaginitis. T. N. MacGregor.—p. 113.
Notes on Four Cases of Post-partum Collapse. J. K. Sutherland.—p. 124.

Bromide Intoxication.—The possible dangers of bromide treatment are stressed and a description of the physical and mental effects of intoxication is given. The view is put forward that bromide intoxication can cause impairment of kidney function, many cases showing a raised blood urea, which falls when the intoxication disappears. The clinical picture is not protean, but is of an organic reaction type. Several cases are reported.

Can we "Breed Out" Cancer?—The answer is in the negative; not because of its mode of inheritance but because of the lateness of onset. To prevent from reproducing all who have cancerous ancestry is to discard most of the race. Knowledge of inheritance of cancer will not help us to breed it out, but may help us to treat earlier than we otherwise would some cases in which there is a family history of cancer.

Journal of the American Medical Association

Chicago vol. 3 August 6, 1938

- Treatment of Carcinoma of Breast. H. Troul.—p. 459.
Infantile Cerebral Palsy. C. Heyman.—p. 493.
*Treatment of Lobar Pneumonia with Rabbit Anti-pneumococcus Serum. E. Loughlin, R. Bennett, and S. Spitz.—p. 497.
Fungal Infections of External Ear. E. Whalen.—p. 502.
Antidotal Treatment of Barbiturate Intoxication. W. Bleckwenn and M. Masten.—p. 504.
Unusual Hypertensive Renal Disease. L. Leiter.—p. 507.
Cysticercus Cellulose of Brain. C. Hare.—p. 510.
Carcinoma of Lung producing Symptoms of "Superior Pulmonary Sulcus Tumour." E. Barton.—p. 515.
Recurrent Hypertension due to Solitary Tuberculoma of Liver. W. Herrell and W. Simpson.—p. 517.
Corpus Luteum Hormone in Early Pregnancy. H. Jone and P. Weil.—p. 519.
Diphtheria Mortality in Large Cities of United States in 1937.—p. 524.
Determination and Sources of Vitamin D. E. Nelson.—p. 528.

Rabbit Anti-pneumococcus Serum.—Loughlin *et al.* describe in detail sixty-nine cases of pneumonia of various types treated with rabbit anti-pneumococcus serum. Three patients with injections of Type I and two of Type II succumbed, but in all five serum treatment was begun late in the disease and bacteraemia was present. In all other cases the blood stream was sterilized after the administration of the projected dose. A single dose cured forty patients. No severe untoward reactions were noted after the injection of unconcentrated refined rabbit serum, and the incidence of serum sickness was lower with rabbit serum than with horse serum.

Klinische Wochenschrift

Berlin vol. 17 August 6, 1938

- Behaviour of Healthy and Diseased Body during Work. H. W. Knipping.—p. 1097.
Antithyroid Substances. E. Keiser.—p. 1100.
Colorimetric and Chemical Methods of Determination of Sexual Hormones. W. Zimmermann.—p. 1103.
*Concentration of Vitamin A in Blood in Diseases of Liver. F. Lasch.—p. 1107.
Quantitative Determination of Main Pigments of Urine by Means of Pulfrich Photometer. A. Sato.—p. 1108.
Lack of Vitamin C. A. Meyer.—p. 1111.
Place of Origin of Extraventricular Extrastyles. L. v. Ungvársky.—p. 1115.
Rare Occurrence of Carcinoma of Cervix in Patients suffering from Graves' Disease. B. Belonoshkin.—p. 1117.
Bittering Test of Male and Female Sexual Hormones. E. Glaser and F. Ranft.—p. 1120.
Another Property of Blood Plasma Gel: "Transfluidity" R. Bucher.—p. 1124.
Gas-containing Gallstones. B. Kommerell and C. Wolgers.—p. 1124.

Vitamin A in Blood in Diseases of Liver.—In diseases of the hepatic parenchyma with or without jaundice (cirrhosis, catarrhal jaundice) the concentration of vitamin A in the serum is lowered. In jaundice due to occlusion of the bile ducts (stone, carcinoma) the concentration of vitamin A is normal. The test may be used for the differential diagnosis between the two types of diseases of the liver.

Lancet

London vol. 2 August 6, 1938

- *Approach to Gastric Surgery: II, Ulcer of Stomach. W. H. Ogilvie.—p. 295.
Intermittent Fever of Three and a Half Years' Duration. J. W. Scott and A. Kirshner.—p. 299.
Faulty Detoxication in Schizophrenia. J. H. Quastel and W. T. Wales.—p. 301.
Purpura Haemorrhagica (Werthof) after taking Sedormid. T. Jockes.—p. 305.
Hyperplasia of Male Breast accompanying Malignant Disease of Testis treated by X Rays. C. W. B. Woodham.—p. 307.
Treatment of Marasmus by Injection of Extract of Adrenal Cortex. W. A. Hislop.—p. 308.
Sulphanilamide and M. & B. 693 in Experimental Pertussis in Mice. J. C. Cruickshank.—p. 310.
Bile Peritonitis of Unusual Causation. K. L. James.—p. 311.

Gastric Surgery.—The scope of various operative treatments is discussed. The "physiological gastrectomy" (with preservation of the pyloric portion), advocated by Ogilvie in 1936, is now rejected, later jejunal ulceration having been found common. Medical treatment, faithfully followed, cures duodenal ulcer: operation is called for (1) in organic stenosis, and (2) in non-stenosing cases when there has been major haemorrhage (gastrectomy). In gastric ulcer, owing to the low acid level, the type of operation is less important, but gastrectomy is generally preferable.

Medizinische Klinik

Berlin vol. 34 August 5, 1938

- Pain in Cardiovascular Affections. R. Schmidt.—p. 1021.
 Nature Cures of Rheumatic Diseases. A. Brauchle.—p. 1026.
 Clinical Picture of Poisoning through Inhalation of Some Poison Gases. I. G. Budelmann.—p. 1029.
 Observations on Epidemic of Psittacosis in Family. E. Woenkhaus.—p. 1032.
 Treatment of Arterial Hypertension by Means of Chénolin Preparation ("Dermadyl") applied through Skin. H. Rühl.—p. 1034.
 Comparative Investigations on Action of "Brojocin" in High Blood Pressure. F. Nettesheim and E. Manz.—p. 1035.
 Treatment of Lochiometra with Quinine-Calcium. A. Richard.—p. 1036.
 Recent Advances in Medicine. H. Deicher.—p. 1038.
 Surgical Treatment of Cholelithiasis: Indications and Therapeutic Results. Bimler.—p. 1039.

Medizinische Welt

Berlin vol. 12 August 6, 1938.

- Pathology of Ductless Glands and their Relation to Diseases of Circulation. F. Bülchner.—p. 1126.
 Blood Platelets. A. Hittmair.—p. 1128.
 Diagnosis and Treatment of Epidermophytis. P. W. Schmidt.—p. 1131.
 Modern Treatment of Schizophrenia. K. Koppers.—p. 1133.
 Poisonous Snakes and Serum Treatment. R. Ganz.—p. 1139.

Münchener Medizinische Wochenschrift

Munich vol. 85 August 5, 1938

- Epidemics in World War. J. Kaup.—p. 1177.
 Urticaria Bullosa after Use of "Veramon". R. Model.—p. 1180.
 Short-wave Hyperthermia. E. Raab.—p. 1181.
 "Aplona" Diet in Practice. E. Schmitz.—p. 1183.
 Neurology and Neurosurgery of Angina Pectoris. H. Jessen.—p. 1187.
 X-ray Diagnosis of Antral Disease. L. Stehr.—p. 1189.
 Limits of Internal Treatment of Peptic Ulcer. H. Müller.—p. 1195.
 Senile Osteomalacia. W. Droese.—p. 1199.

New England Journal of Medicine

Boston vol. 219 August 4, 1938

- Pressor-receptive Mechanisms for Regulation of Heart Rate, Vasomotor Tone, Blood Pressure, and Blood Supply. C. Heymans.—p. 147.
 Experimental Arterial Hypertension. C. Heymans.—p. 154.
 Role of Cardio-aortic and Carotid-sinus Nerves in Reflex Control of Respiratory Centre. C. Heymans.—p. 157.
 Regional Enteritis. C. D. Harvey, J. S. Sprague, and G. Clapperton.—p. 159.
 Prevention and Control of Tuberculosis in Massachusetts. F. T. Lord.—p. 163.

Presse Médicale

Paris vol. 46 August 3, 1938

- *Acute Disseminated Sclerosis. M. Riser, J. Geraud, and S. Lavitry.—p. 1193.
 Minor Anaesthetic Accidents with Closed Ether Method. J. Berger and G. Delahaye.—p. 1196.

Acute Disseminated Sclerosis.—The authors describe three fatal cases of acute disseminated sclerosis in women aged 17, 23, and 35 respectively. They all died within a few weeks of the onset of the disease. The authors attach great importance to these cases as lending support to the theory of the specific infective nature of the disease.

Paris vol. 45 August 6, 1938

- *Effects of "Water Diet" on Course of Typhoid Fever. L. Ambard, P. Barthelme, and P. Mandel.—p. 1209.
 *Stovarsol Therapy in General Paralysis. L. Marchand.—p. 1211.

"Water Diet" in Typhoid.—The authors show by means of charts from a number of cases of typhoid fever that a

diet consisting only of water (or at most weak tea or herbal infusions with a little saccharose, but no milk or any other fluid which may possibly serve as a nutritive medium for *B. typhosus*) will cure the subfebrile type of the disease, in which the temperature tends to remain more or less indefinitely a little above normal, in three or four days. Loss of blood, provided it be not excessive, has a similar, and perhaps also an immunizing, effect.

Stovarsol.—The author has treated 111 cases of general paralysis of the insane with stovarsol injections. Of these, seventy-one, or 64 per cent., made a "social recovery," ten (9 per cent.) were improved, fifteen (13.5 per cent.) were not improved, and fifteen died—nine of intercurrent diseases and six of general paralysis of the insane. By "social recovery" the author means that though the patients could not be regarded as organically cured they were sufficiently recovered to be able to resume their usual occupations and showed no mental symptoms.

Schweizerische Medizinische Wochenschrift

Basle vol. 68 August 6, 1938

- *"Silvatic" Plague. K. F. Meyer.—p. 925.
 Non-bacterial Meningitis. G. Fanconi.—p. 929.
 Anterior Pituitary and Fat Metabolism. J. H. Burn.—p. 932.
 Diagnosis of Gonorrhoea and Atypical Gonococci. P. Asch.—p. 934.
 Short-wave or Diathermy Treatment in Peri-uterine Inflammatory Affections. T. Koller.—p. 937.

"Silvatic" Plague.—After a historical account of plague infection in California and the part played therein by ground squirrels, five Californian cases so infected are described. The importance of bacteriological investigation of blood, lymph-gland juice, or pus in suspicious cases is emphasized: as also that of care in dealing with ground squirrels, dead or alive. Twelve species of rodents are listed which have been found infected in the U.S.A. Rodents may show no anatomical lesions while their fleas are infective to guinea-pigs. North America must certainly be regarded as an infected zone; the dangers of a somewhat similar state of affairs arising in South Africa are discussed.

Ugeskrift for Læger

Copenhagen vol. 100 August 4, 1938

- *Failure of Tetanus Prophylaxis. J. Hertz.—p. 871.
 Acute Porphyria. R. Hammen.—p. 878.
 Three Cases of Confinement with Double Vagina and Double Uterus. P. Freudenthal.—p. 883.
 Linitis Plastica Ventriculi with Intestinal Metastases causing Stenosis. H. Gormsen.—p. 886.
 Cases of Bronchial Asthma Treated with "Torantil." H. Kolbye.—p. 890.
 Case of Massive Collapse of Lung. E. A. Christensen.—p. 891.

Tetanus Prophylaxis.—Three cases which Hertz records of tetanus prophylaxis failure are intended to serve as an attack not on the principle of tetanus prophylaxis but on its faulty execution.

Wiener Klinische Wochenschrift

Vienna vol. 51 August 5, 1938

- Bone Diseases and Internal Secretions. H. Chiari.—p. 821.
 Administration of Vitamin B₁ as Prophylactic against Poliomyelitis. F. Hamburger.—p. 825.
 Surgical Indications in Doubtful Cases of Appendicitis and Cases of Appendicitis associated with Other Conditions. F. Demmer.—p. 826.
 Pathology, Physiology, and Therapy of Muscle Diseases. E. Pichler.—p. 832.
 Chemotherapy in Tuberculosis of Urogenital System. J. Förster.—p. 835.
 Silver Impregnation caused by Surgical Stitching. F. Lieb.—p. 837.

Wiener Medizinische Wochenschrift

Vienna vol. 88 August 8, 1938

- Clinical and Therapeutic Considerations in Diseases of Adrenal Gland. O. Satke.—p. 859.
 Use of Tuberculin in Practice. K. Dietl.—p. 863.
 Some Remarks on Importance of Sympathetic Nervous System. C. Bardek.—p. 866.
 Ileus and Cancer of Rectum. P. Friedrich.—p. 868.

SPECIAL JOURNALS

Acta Medica Scandinavica

Stockholm vol. 95 June 11, 1938 Fasc. 6

- *Exophthalmos in Graves's Disease (Eng.) L. P. Daniels—p. 539.
 Icteric Form of Glandular Fever (Eng.) S. J. de Vries—p. 552.
 Normal Values for Haemoglobin, Erythrocytes, and Cell Volume and Corpuscular Constants Derived Therefrom in Children aged 8 to 14 Years (Eng.) P. Faersman—p. 566.
 Bact. *discreta* in Infections of Urinary Tract and its Relation to Dysentery Bacilli (Eng.) E. Neter—p. 597.

Exophthalmos in Graves's Disease.—Injection of acid extracts of the anterior lobe of the pituitary gland in guinea-pigs produces exophthalmos without dilatation of the pupils. This is probably due to the thyrotropic effect of these extracts. Clinical and experimental observations thus confirm that the exophthalmos is produced via the hypophysis as the result of stimulation of the centres in the diencephalon.

Acta Pathologica et Microbiologica Scandinavica

Copenhagen vol. 15 1938 Fasc. 3

- Hypertelorism (Greiz) (Eng.) K. Bøjler and T. Brems—p. 217.
 Studies on Thyroid Gland: IX, Further Studies on Interaction between Thyroxine and Thyroid (Eng.) E. Andreassen—p. 219.
 Studies on Thyroid Gland: X, Pancreas, Hypophysis, and Thyroid in Children of Diabetic Mothers (Eng.) H. Okkels and E. Brandstrup—p. 264.
 Experimental Studies on Transmissible Aleukaemic Myelomatosis in White Rats (Eng.) R. Rask-Nielsen—p. 285.
 Endocrinological Studies in Rats with Severed Pituitary Stalks: IV, Changes in Genital Organs of Male Rats (Ger.) A. Weismann and D. Jacobsohn—p. 301.
 Diffuse Cerebral Changes in Case of Sudden Death after Plastic Operation on Neck under Local Anesthesia (Ger.) J. Commeriemeyer—p. 307.

American Journal of Roentgenology and Radium Therapy

Springfield, Ill. vol. 43 August, 1938

- Roentgen Kymographic Studies of Aneurysms and Mediastinal Tumours. W. G. Scott and S. Moore—p. 165.
 Roentgen Kymography of Normal Colon: Defaecation in Man. R. A. Rendich and L. A. Harrington—p. 173.
 Malignant Bronchial Stenosis: Bronchographic Aspect. P. L. Farinas—p. 169.
 Significance of Left Auricular Dilatation in Auricular Fibrillation. M. L. Sussman and M. T. Woodruff—p. 184.
 Roentgenologic Examination of Normal Breast: Its Evaluation in demonstrating Early Neoplastic Changes. J. Gershon-Cohen and A. Strickler—p. 189.
 Resolving Lobar Pneumonia in Adults simulating Tuberculosis in Roentgenogram. S. Cohen—p. 202.
 Roentgenological Manifestations in Bone Syphilis. D. M. Stewart—p. 215.
 Leucic Osteitis simulating Malignant Disease. A. H. Ungerman, W. H. Vicary, and W. W. Eldridge—p. 224.
 Roentgen Findings in Morvan's Type of Syringomyelia. F. B. Mandeville—p. 230.
 Congenital Absence of Middle of Oesophagus. A. S. Unger and M. H. Poppel—p. 240.
 Effect of Roentgen Rays on Stomach in Rabbits. R. B. Engelstad—p. 243.
 Results Obtained in Radiation Treatment of Inoperable Collum Carcinoma. I. De Buben—p. 264.
 Factors influencing Quantitative Measurement of Roentgen-ray Absorption of Tooth Slabs: X, Tissue Factors. H. C. Hodges, G. Van Huysen, and S. L. Warren—p. 269.
 *Advantages of Non-screen Roentgenography. H. H. Duerr—p. 283.

Non-screen Radiography.—Radiography without intensifying screens has been made possible through the introduction of a new non-screen film, which is five to six times faster than the ordinary film. The advantages of the non-screen technique are: maximum detail, better definition, wider exposure latitude, and greater diagnostic value. The technique can also be used for most of the heavier parts of the body.

American Review of Tuberculosis

Baltimore vol. 38 August, 1938

- Re-induced Pneumothorax. J. N. Hayes and L. Brown—p. 143.
 Results of Collapse Therapy in Pulmonary Tuberculosis. F. R. Harper—p. 151.
 *Isolated Form of Pulmonary Tuberculosis. Chien-Lang Hsu—p. 162.
 Pathogenesis of Tuberculous Cavities. P. M. Andrus—p. 174.
 Early Primary Pulmonary Tuberculosis. W. E. Carroll—p. 190.

- Environmental Factor in Relation to High Negro Tuberculosis Rates. R. B. Roth—p. 197.
 Attenuation by X Rays of Virulence of Human Tubercle Bacilli. W. F. Drea—p. 205.
 Bromsulphalein Test and Blood Cholesterol in Pulmonary Tuberculosis. S. A. Levinson and H. A. Siegel—p. 229.
 Levinson Test in Tuberculous Meningitis. M. Gleich—p. 239.
 Quantitative Method for Estimating Number of Tubercle Bacilli in Sputum. E. F. Jordan—p. 241.
 Chronic Nickel Poisoning and Miliary Tuberculosis. R. Pomeranz—p. 252.
 Cystic Disease of Lungs. I. L. Dubrow and W. R. Wynne—p. 262.
 Pulmonary Gangrene complicating Pulmonary Tuberculosis. E. K. Geer—p. 266.
 Mantoux Tests with Gottschall-Bunney Diluent for Tuberculin. E. Clarke—p. 270.

Isolated Form of Pulmonary Tuberculosis.—The author constantly produced in rabbits lesions showing many of the characters of the isolated form of pulmonary tuberculosis in man by injecting a small blood clot containing tubercle bacilli through the jugular vein.

Annales d'Hygiène Publique, Industrielle et Sociale

Paris No. 9 September, 1938

- *Remarks on Decree of May 24, 1938, Relative to Unhealthy Premises. P. Jeannon—p. 351.
 *Two Realizations within Scope of Departmental Office of Hygiene. G. Grenellieu—p. 406.

Unhealthy Premises.—This article describes the purport and effect of recent amendments to "Article 12" dealing with unhealthy premises, whether buildings or not. The former and the revised texts are set out in parallel columns and appropriate comment is made upon the changes in legal powers and procedure thereby effected.

Two Realizations.—The author pleads for the establishment of two adjuncts (realizations) to the Health Department—namely, a "serum centre" and an "organization of donors"—on the grounds that such would effect better co-operation between curative and preventive medicine, and that better control would be exercised over the preparation of convalescent sera—for example, scarlet fever and measles convalescent sera—as well as over the donors from whose blood the sera are obtained.

Annals of Surgery

Philadelphia vol. 103 July, 1938

- Invincible Loss in Surgical Patients. W. W. Fuge and B. M. Hogg—p. 1.
 *Excision of Axillary Vein in Radical Operation for Carcinoma of Breast. H. Neuhof—p. 15.
 *Post-operative Roentgenotherapy in Cancer of Breast. W. C. White—p. 21.
 *Peptic Ulcer. A. J. Present—p. 52.
 Changing Methods in Surgical Treatment of Peptic Ulcer. C. W. Cutler, jun.—p. 63.
 Gastro-entrostomy. C. Ezgers—p. 84.
 Post-operative Jejunal Ulcer. A. Grossman—p. 105.
 Fusion in Charcot's Disease of Knee. R. Soto-Hall—p. 124.
 Intramedullary Pressures with Particular Reference to Massive Diaphyseal Bone Necrosis. R. M. Larsen—p. 127.
 Effect of Cod-liver Oil upon Healing of Ulcers of Feet in Diabetic Patients. H. Brandaleone—p. 141.

Axillary Vein Excision.—This step is suggested in a deliberate attempt to increase the clearance of the axilla in operating on cases of carcinoma of the breast. In four out of eleven patients only slight oedema has resulted from this step, the remainder being free from this complication.

Post-operative Irradiation in Breast Cancer.—In cases with axillary metastasis, post-operative irradiation gives a 10 per cent. increase in the five-year survival rate, but does not increase the five-year prognosis in cases without axillary metastasis.

Peptic Ulcer.—This is a full statistical analysis of the symptomatology, site, complications, and distribution of 520 cases of peptic ulcer.

Archives of Internal Medicine

Chicago vol. 62 August, 1938

- Culture of Human Marrow: Comparative Study of Effects of Sulphanilamide and Anti-pneumococcus Serum on Course of Experimental Pneumococcal Infections. E. E. Osgood and I. E. Brownlee.—p. 181.
- Hyperparathyroidism due to Idiopathic Hypertrophy (Hyperplasia?) of Parathyroid Tissue: Follow-up Report of Six Cases. F. Albright, H. W. Siskowitch, and E. Bloomberg.—p. 199.
- *Removal of Intravenously Injected Bromsulphalein from Blood Stream of Dog: Comparison of Removal of Intravenously Injected Bilirubin and that of Bromsulphalein. M. A. Mills and C. A. Dragstedt.—p. 216.
- Excretion of Bile Pigment and Hepatic Function in Diseases of Blood. W. H. Barker.—p. 222.
- *Experimental Streptococcal Endocarditis. R. A. Kinsella and R. O. Muether.—p. 247.
- Lesions of Peripheral Nerves in Thrombo-angiitis Obliterans: Clinicopathological Study. N. W. Barker.—p. 271.
- *Boeck's Sarcoid: Case Report with Clinical Diagnosis confirmed at Necropsy. J. Spencer and S. Warren.—p. 285.
- Oral Ragweed Pollen Therapy: Clinical Results of Experiments on Gastro-intestinal Absorption. T. B. Bernstein and S. M. Feinberg.—p. 297.
- Infectious Diseases: Review of Current Literature. H. A. Reimann.—p. 305.

Bromsulphalein and Bilirubin Tests of Liver Function.—The rate of removal from the blood of injected bromsulphalein and of bilirubin was compared in normal and anaesthetized dogs after blockage of the reticulo-endothelial system, after ligation of the bile ducts, and after the injection of decholin. The two tests did not correspond, and it is tentatively suggested that diminished removal of bromsulphalein indicates impairment of the reticulo-endothelial system, while diminished removal of bilirubin indicates impairment of hepatic function.

Experimental Streptococcal Endocarditis.—Endocarditis was produced in dogs by traumatizing the cardiac valves and then administering a culture of *Str. viridans* either by injection or by mouth. Cure of the septicaemia and healing of the valves followed the administration of either sulphanilamide or merthiolate.

Boeck's Sarcoid.—A case of Boeck's sarcoid observed for two years is reported. Enlarged hilar glands first attracted attention. These disappeared after one year, but reappeared before death. At necropsy lesions were found in the lung, liver, spleen, myocardium, lymph glands, thyroid, and kidney. Marked oedema of the lymph glands was present, and it is suggested that the variation in size of the glands can be accounted for by the variation in their degree of oedema.

Archives of Neurology and Psychiatry

Chicago vol. 39 June, 1938

- Descending Connections from Hypothalamus. H. W. Magoun, S. W. Ranson, and A. Hetherington.—p. 1127.
- Vascular Pattern in Various Lesions of Human Central Nervous System: Studies with Benzidine Stain. A. C. P. Campbell, L. Alexander, and T. J. Putnam.—p. 1150.
- Psychiatric Aspects of Artificial Fever Therapy. F. G. Ebaugh, C. H. Barnacle, and J. R. Ewaly.—p. 1203.
- Convulsions produced by Electrical Stimulation of Cerebral Cortex of Unanaesthetized Cats. J. W. Ward and S. L. Clark.—p. 1213.
- *Sweat Secretion in Man: I. Sweating Responses in Normal Persons. C. F. List and M. M. Peet.—p. 1228.
- *Autonomic Innervation of Face: II. Experimental Study. F. H. Lewy, R. A. Groff, and F. C. Grant.—p. 1238.
- Destruction of Hypothalamus in Cats: Effects on Activity of Central Nervous System and its Reaction to Sodium Amytal. J. H. Maserman.—p. 1250.
- Primary Ventricular Haemorrhage. A. Gordon.—p. 1272.
- *Reduction of Increased Intracranial Pressure by Concentrated Solutions of Human Lymph Serum. J. Hughes, S. Mudd, and E. A. Strecker.—p. 1277.
- Symptomatic Psychosis in Case of Secondary Anaemia. J. Romano and J. W. Evans.—p. 1294.
- Meningeal Tumour in Foramen Magnum. W. J. Gardner, L. J. Carnosh, and J. C. McNeerney.—p. 1302.
- Direct Visualization of Dorsal Nerve Roots of Cauda Equina by Means of Nyscope. J. L. Pool.—p. 1308.

Sweat Secretion.—Using the Minor sweating test the authors have observed and described normal sweating responses to heat and emotional and gustatory stimuli, and also after the subcutaneous injection of pilocarpine and mecholyl. Sweating depends on an intact nerve supply, and its observation

furnishes the most direct method of studying lesions of cutaneous sympathetic innervation.

Autonomic Innervation of Face.—Studying the Vulpian-Heidenhain-Sherrington phenomenon experimentally in cats, the authors conclude that it can be produced in the eyelid, lip, and tongue by stimulation of autonomic efferent fibres in the sensory divisions of the fifth nerve originating in the mesencephalic nucleus. These fibres normally initiate impulses for vasoconstriction, lacrimation, and salivation.

Reduction of Increased Intracranial Pressure.—Normal human blood serum concentrated four times by drying (lyophile serum) and redissolving in water has been used intravenously in doses of up to 200 c.cm. in cases of increased intracranial pressure and also in normal subjects. It was found more effective in reducing the cerebrospinal fluid pressure over a prolonged period than similar amounts of 50 per cent. sucrose. No untoward reactions were observed, but the possibility that these may occur was not excluded.

Chicago vol. 40 July, 1938

- Structure of Filum Terminale. I. M. Tartlov.—p. 1.
- Encephalographic Findings in Cases of Athetosis and Related Disorders. T. J. Putnam and T. J. C. von Storch.—p. 18.
- Sweat Secretion in Man: II. Anatomical Distribution of Disturbances in Sweating associated with Lesions of Sympathetic Nervous System. C. F. List and M. M. Peet.—p. 27.
- Vesical Abnormalities associated with Parkinsonian Syndrome. O. R. Langworthy.—p. 44.
- *Ascorbic Acid Content of Blood Plasma in Alcoholic Psychoses. L. Alexander, M. Pijoan, P. G. Schube, and M. Moore.—p. 58.
- Variations in Magnesium and Potassium associated with Essential Epilepsy. A. D. Hirschfelder and V. G. Haury.—p. 66.
- Method of Testing Cortical Function and Sensitivity of the Skin: Aid in Differentiating Organogenic and Psychogenic Disturbances. W. H. Gantt.—p. 79.
- *Dangerous Effects of Thorotrast Used Intracranially, with Special Reference to Experimental Production of Hydrocephalus. R. M. Stuck and D. L. Reeves.—p. 86.
- Metabolic Studies during Insulin Hypoglycaemia Therapy of Psychoses. M. M. Harris, J. R. Blalock, and W. A. Horwitz.—p. 116.
- Special Article: Effects of Hypoglycaemia and Anoxia on Central Nervous System: Basis for Rational Therapy of Schizophrenia. E. Gellhorn.—p. 125.
- Clinical Results with Eisberg's Olfactory Test. A. Adler and K. H. Finley.—p. 147.
- Hypertrophic Interstitial Neuritis with Papilloedema. A. W. Diddle and R. L. Stephens.—p. 151.
- New Modifications of Benzidine Stain for Study of Vascular Pattern of Central Nervous System. M. M. Doherty, T. H. Suh, and L. Alexander.—p. 158.

Ascorbic Acid in Alcoholic Psychoses.—The authors have studied this substance in the plasma in 106 patients with alcoholic psychosis and fifty-eight patients who were used as controls. Their results indicate that patients with chronic alcoholism have a diminished ascorbic acid content in the plasma, which in some cases may reach a level as low as that in subclinical scurvy.

Thorotrast.—The effects of this drug have been very fully studied in animals, and it has been concluded that the clinical application of thorotrast for encephalography and ventriculography is dangerous because of its permanence, its radio-active destructive effect, and its ability to obstruct the flow of cerebrospinal fluid and lead to hydrocephalus.

Archives of Surgery

Chicago vol. 37 July, 1938

- *Stereomicroscopic Study of Surface of Lung: I. Description of Method used; II. Anatomical and Physiological Structure of Normal Lung: Résumé of Observations Based Largely on Stereomicroscopical Study of Surface of Lungs Fixed and in Living State. M. Joannides.—p. 1.
- Chronic Appendicitis: Is it a Clinical Entity? H. J. Shelley.—p. 17.
- Subacute Infections of Bone: Osteoperiostitis Albuminosa Ollier. J. R. Kuth.—p. 46.
- *Tie Douloureux: Partial Section of Root of Fifth Cranial Nerve: Comparison of Subtemporal and Cerebellar Approaches from Surgical and Physiological Standpoints. O. R. Hyndman.—p. 74.
- *Thrombosis of Left Internal Carotid Artery. W. H. Chao, S. T. Kwan, R. S. Lyman, and H. H. Loucks.—p. 100.
- Pituitary Sinus: Sclerosing Method of Treatment. L. H. Block and B. L. Greene.—p. 112.

New Apparatus for Maintaining Hot Compresses at Constant Temperature. K. L. Cooley.—p 123.
Bilateral Collapsing-Therapy in Treatment of Pulmonary Tuberculosis B. P. Potter.—p. 132.
Duodeno-gastric Intussusception: Its Clinical Application and Results J. K. Berman —p 139
Origin of Carcinoma in Chronic Gastric Ulcer. S. H. Klein—p 155

Stereomicroscopic Study.—A report of the technique and a description of the normal appearances of the bronchi and alveoli in animal and human lungs are given.

Tic Douloureux.—This is a comparison of the surgical and physiological results of partial section of the fifth sensory root performed by the subtemporal and cerebellar approaches.

Thrombosis of Left Internal Carotid Artery.—Two cases are described in which extracranial excision of a segment of the thrombosed vessel produced improvement in subjective findings and mental and motor reactions. It is suggested that the syndrome of signs of vascular disturbance in the middle cerebral distribution, together with unilateral reduction of pulsation in the common carotid artery and abnormal reactions of the carotid sinus on that side, is an adequate indication for exploration of the carotid system.

Beiträge zur Klinik der Tuberkulose

Berlin vol. 92 July 21, 1935 (Hef 1)

Findings in Bronchographic Investigations. E. H. Meyer and O. H. Rolfs —

*Clinical Experiences with New Chemotherapeutic Remedy "Thymophagen" (Sodium Mono-4-chlorothymylacidphosphate) in Tuberculosis. Hschi.—p. 52.

*Treatment of Bronchial Asthma and Dyspnoeic Conditions of Different Aetiology with Insulin Shock. A. Hoffmann.—p. 58.

Significance of Culture of Laryngeal Swabs by Method of Schramek and Heredes in Detection of Open Pulmonary Tuberculosis. F. Behm and A. Ekstein.—p. 77.

Disinfection of Linen Infected by Expectoration. E. Haider.—p. 81.

Pulmonary Tuberculosis and Pregnancy.—This is a study of a small series of cases. In nine patients labour had a harmful influence on the disease. On the other hand, one patient with chronic miliary tuberculosis was not harmed by the pregnancy, and in three patients infiltrations actually disappeared after spontaneous labour. In other patients pregnancy did not influence the tuberculous lesion in any way. In most cases the fatal termination of an exacerbation was not prevented by spontaneous or induced abortion.

Thymophagen and Tuberculosis.—The author claims that his clinical trials show this drug to be a specific chemotherapeutic remedy for all forms of tuberculosis. Several references to papers by other Japanese on experimental findings are given.

Dyspnoeic Conditions and Insulin Shock.—Mild hypoglycaemic shocks favourably influence asthmatic attacks, and when repeated such shocks may cause a lasting improvement in the condition. Other dyspnoeic conditions, such as emphysema, are also favourably influenced by this therapy.

Bulletin of the Neurological Institute of New York

New York vol. 7 March, 1938

Hippocampus and its Relations to Corpus Callosum. F. Tifney.—p. 1

*Relative Refractory Period of Olfaction and Vision. H. Spornitz and C. A. Elsberg.—p. 78.

Relative Refractory Period.—The temporary lack of ability to perceive and recognize the nature of a weak stimulus following strong excitation is called the relative refractory state, is measured by its duration, and in all probability is primarily determined by the centrally situated neurones. The relative refractory periods of olfaction and of vision are often prolonged in the presence of supratentorial intracerebral growths, and there is some evidence suggesting that the duration of this state is a measure of the number and degree of deterioration of the central neurones involved.

Journal of Neurology and Psychiatry

London vol 1 July, 1938

Further Observations on Neurological Abnormalities in Mental Defectives.
R. G. Gordon and R. M. Norman—p. 73.

*Electro-encephalogram in Convulsions induced by Cardiazol. L. C. Cook and W. G. Walter —p. 160

*Relationship between Blood Pressure and Tonic Regulation of Pial Arteries.
M. Fog.—p. 187.

Relationship in Man of Cerebral Activity to Blood Flow and to Blood Constituents. W. G. LENOX, F. A. GIBBS, and E. L. GIBBS . . . 211.

*Observations on Cerebrospinal Fluid Pressure on Simultaneous Ventricular and Lumbar Puncture. G. E. Smyth and W. R. Henderson.—p. 226.
Critical Review: Twin Research in Psychiatry. E. I. O. Slater.—p. 239.

Electro-encephalogram in Cardiazol Convulsions.—The cortical electrical changes accompanying cardiazol convulsions produced therapeutically in cases of schizophrenia are described. These appear two seconds after the injection as small waves at the rate of six per second over wide areas. After fifteen seconds there is an abrupt increase in the size and drop in the frequency of the waves in the superior frontal gyrus on one or both sides. This corresponds with the onset of the tonic stage of the fit. It spreads over the cortex, becomes more staccato in rhythm during the clonic stage, and ceases one to one and a half minutes after the injection. A similar electrical focus is found in idiopathic epilepsy, and its significance is not understood.

Pial Arteries.—The effects of changes in systemic blood pressure on the pial vessels were studied in cats. They contracted with a rise of pressure and dilated with a fall. The exact nature of the mechanism is not clear. It appears to be a vasomotor regulatory mechanism within the limits of the cerebral vascular tree, and it assists in keeping the blood flow to the brain constant during various conditions of the general circulation.

Cerebrospinal Fluid Pressure.—The relationship between the lumbar and ventricular cerebrospinal fluid pressure was studied in thirty-three cases of cerebral tumour. In five the pressures were normal; in twenty the pressure was raised equally in the lumbar sac and in the ventricles, and there was no block on jugular compression. In eight the ventricular pressure was higher than the lumbar. This difference was accentuated by withdrawal of lumbar fluid, and these cases were associated with a high early operative mortality, herniation of the temporal lobe, and brain stem haemorrhage.

Journal of Physiology

London vol. 93 September 16, 1935

Relation of Contracture to Increment in Resting Heat Production of Muscle under Influence of Potassium C G Smith and D Y Solandt.
—p 305

Synchronized Impulse Discharges from Receptors in Deep Tissues in Response to Vibrating Stimulus. F. Echlin and A. Fessard—p. 312.

*On Absorption of Ultra-violet Radiation by Human Sweat. W. H. Crew and C. H. Whittle.—p. 335.

Study of Source of Liver Fat using Deuterium as Indicator, H. M.

On Accuracy of Thermostomuhr Method for measuring Blood Flow H. Bar-

Experiments on Relation between Thyroid Gland and Lactation in Rat.

Maximum Growth Rate of Cypon Comb. C. W. Emmens.—p. 413.

Some Effects of Compounds of Androsterone-testosterone Series on Ovariectomized Mice C. W. Emmens.—p. 416.

Effect of Subarachnoid Administration of Histamine on Rate of Absorption of Isotonic Saline Solution in Dog. T. H. B. Bedford.—p. 423.

Effect of Hypertonic Solutions on Gastric Secretion and Intra-ocular Pressure.
R. L. Noble and J. D. Robertson.—p. 430.

Ultra-violet Radiation and Human Sweat.—Crew and Whittle have shown that the interposition of a film of human sweat partially screens the skin against erythema-producing radiation. They have computed that a sweat film of 1 mm. thickness transmits only about 27 per cent. of solar radiation effective in producing sunburn. The average thickness of

sweat on the forehead of a person profusely perspiring is about 0.07 mm., and under these circumstances roughly 30 per cent. of the surface of the skin will receive only about 75 per cent. of effective solar radiation.

Monatsschrift für Kinderheilkunde

Berlin vol. 75 September 9, 1938 Helt 1-3

- Cramps in Childhood. Birk.—p. 2.
Cramps in Childhood. W. Scholz.—p. 5.
Problem of Epilepsy. G. Schaltenbrand.—p. 31.
Influence of X Rays on Infantile Cramps. E. Wittermann.—p. 44.
Examination of Children with and without Birth Haemorrhages. S. Liebe.—p. 47.
Examination of Tolerance to Hypnotics in Childhood. U. Grüniger.—p. 50.
Recurrent Intestinal Diseases in Childhood. K. Hassmann.—p. 67.
Vermun Bites and Skin Reactions. Dietrich.—p. 70.
Examination of Respiration following Fresh Air Treatment. J. Joehims.—p. 73.
Centres for Respiration and Suckling. A. Peiper.—p. 78.
Adolescence and Social Class. C. Bennholdt-Thomsen.—p. 85.
Hereditary and Infectious Diseases of Central Nervous System. K. Hofmeier.—p. 89.
Rational Tuberculosis Prophylaxis in Childhood. v. Gröber.—p. 93.
Tendency to Tuberculosis in Rheumatic Conditions. O. Chiari.—p. 97.
Demonstration of Virus in Measles, Epidemic Parotitis, and Aphthous Stomatitis. H. Steinmauer.—p. 98.
Formation of Antitoxin following Administration of "Ditoxid Asid" and "Behring's A.F.T." Hassler.—p. 102.
Results with "Anti-measles Extract SS Dresden" H. Huber and M. Kurz.—p. 106.
Formation of Agglutinins in Pertussis. Hansen.—p. 123.
Prevention of Rickets in Premature with Vitamin D. S. Windorfer.—p. 124.
Development of Wrist in Rickets. E. Graser.—p. 127.
Tetany Problem. H. Meyer.—p. 141.
Hypocalcaemia in Breast-fed Infant with Hypercalcaemia in Mother. C. Friderichsen.—p. 146.
Pathogenesis of Disturbances of Renal Growth. Loeschke.—p. 152.
Hypophyseal Dwarfism. K. Schwartz.—p. 155.
Influence of Carriage on Constituents of Urine in Healthy, Adipose, and Cardiac Children. H. Hungerland.—p. 159.
Early Treatment of Pylorospasm with Urine Enemata. M. Krebs.—p. 166.
Report of Four Cases of Defecis in Clavicle. St. Simon.—p. 170.
New Apparatus aiding Radiological Examination of Infant in Sitting Position. St. Simon.—p. 171.
Purpura Cerebri in Infancy. L. Doxiades.—p. 173.

Nourrisson

Paris vol. 5 September, 1938

- Clinical Observations on Use of Acidified Milk in Wasting Infants. M. Maillot.—p. 277.
*Capillary Bronchitis Treated by Bleeding and Blood Transfusion. B. Tasso-vatz.—p. 288.

Capillary Bronchitis.—Infants with capillary bronchitis often arrive at the stage of asphyxia when the ordinary methods of treatment are of no avail. Recovery, however, may be brought about in some cases by withdrawal of blood from the infant followed by a blood transfusion. The longitudinal sinus is used, and 60 to 100 c.cm. of blood are withdrawn, followed by a transfusion of blood of an equal amount.

Policlinico

Rome vol. 45 August 15, 1938 (Sez. Chir.)

- Two Cases of Duodenal Diverticulum, and Note on Treatment by Double Anastomosis. O. Betto.—p. 345.
Therapeutic Action of Cod-liver Oil on Superficial Wounds and Viscera. G. Gentile.—p. 354.
Experimental Researches concerning Sterilization and Union of Compound Infected Fractures. C. Mastrosimone.—p. 368.
Embolectomy. F. Seneca.—p. 374.

Public Health Reports of the U.S.A.

Washington vol. 53 July 22, 1938

- Absorption and Excretion of Lead Arsenate in Man. L. T. Fairhall and P. A. Neal.—p. 1231.
*Persistence of Viruses of Endemic (Murine) Typhus, Rocky Mountain Spotted Fever, and Boutonneuse Fever in Tissues of Experimental Animals. C. B. Philip and R. R. Parker.—p. 1246.
Endemic Typhus Virus in Mice. G. D. Brigham.—p. 1251.

- Rapid Method for Drying Thick Blood Films. M. D. Young.—p. 1256.
Deaths during Week Ended July 2, 1938: Deaths in Group of Large Cities in United States; Death Claims Reported by Insurance Companies.—p. 1257.
Infectious Disease Returns: United States, Foreign, and Insular.—p. 1258.

Persistence of Typhus and Spotted Fever Virus.—Of the tissues tested—blood, spleen, brain, etc.—of the experimental animals (white rats, white mice, guinea-pigs) the brain was the most favoured site, and in the rats the viruses were found after a longer period and more consistently than in the mice or guinea-pigs. The periods were from 147 to 370 days after inoculation in different series, in guinea-pigs 60 to 120 days. It is suggested that this differential persistence may be used to distinguish endemic (murine) typhus from other rickettsial infections. Endemic typhus virus was maintained in native field mice for sixteen to thirty-six generations and persisted from 76 to 141 days. With Rocky Mountain spotted fever virus only one definitely positive result was obtained with the brain of a white rat thirty days after inoculation.

Washington vol. 53 July 29, 1938

- *Frequency and Duration of Disabilities Causing Absence from Work among Employees of a Public Utility, 1933-7. W. M. Galater and E. S. Frasier.—p. 1273.
*Antagonism between Species of Malaria Parasites in Induced Mixed Infections. B. Mayne and M. D. Young.—p. 1289.
Toxicology of Phenylchlorarsine: II. Response of Man to Phenylchlorarsine Oil Mixtures. R. R. Sayers and H. C. Dudley.—p. 1292.
Diphtheria Immunization made Compulsory in France.—p. 1301.
Poliomyelitis in Personnel of Los Angeles County General Hospital in 1934.—p. 1302.
Acts Establishing National Cancer Institute and Expanding Venereal Disease Control Activities.—p. 1302.
Public Health Publications, List of, January to June, 1938.—p. 1307.
Deaths during Week Ended July 9, 1938: Deaths in Group of Large Cities in United States; Death Claims Reported by Insurance Companies.—p. 1311.
Infectious Disease Returns: United States, Foreign, and Insular.—p. 1312.

Disabilities among Employees.—This is an analysis of the disabilities causing absence from work among the employees of the Boston Edison Company, during the five-year period 1933 to 1937 inclusive. The average number of days absent annually for males was 8.4 and for females 6.0. Frequency of disability showed no decline from year to year, but the period of absence showed a downward trend. The incidence of illness and the nature of the illnesses among different groups of employees are compared in tables and graphs.

Antagonism of Malaria Parasites.—This is a preliminary report on the effects of combining *P. vivax* and *P. malariae* for the treatment of paretics. When administered concomitantly one species, not always the same, rapidly became predominant, while the other tended to disappear. There is an apparent antagonism between the two species.

Washington vol. 53 August 5, 1938

- Prevalence of Communicable Diseases in the United States, June 19 to July 16, 1938.—p. 1337.
Case of Human Infection with *B. pseudotuberculosis rodentium*. N. H. Topping, C. E. Watts, and R. D. Lillie.—p. 1340.
*Studies on Dental Caries: V. Familial Resemblance in Caries Experience of Siblings. H. Klein and C. E. Palmer.—p. 1353.
Unsuccessful Treatment of Malaria with Sulphonamide Compounds. G. H. Faget, M. R. Palmer, and R. O. Sherwood.—p. 1364.
Deaths during Week Ended July 16, 1938: Deaths in Group of Large Cities in United States; Death Claims Reported by Insurance Companies.—p. 1367.
Infectious Disease Returns: United States, Foreign, and Insular.—p. 1368.

Dental Caries.—A preliminary survey indicates that there exists a familial resemblance in caries immunity and caries susceptibility. Two or more immunes were found in thirty families, and two or more susceptibles in sixteen families, but only in two families were both an immune and a susceptible found.

Washington vol. 53 August 12, 1938

- Report on Market Milk Supplies of Certain Urban Communities.—p. 1341.
*Comparison of Precipitation Reaction in Immune Serum Agar Plates with Protection of Mice by Antimeningococcus Serum. M. Putman, S. E. Branham, and E. M. Sockrider.—p. 1400.

State and Insular Health Authorities, 1937.—Directory with Date as to Appropriations and Publications.—p. 1468
Deaths during Week Ended July 23, 1938: Deaths in Group of Large Cities in United States; Death Claims Reported by Insurance Companies.—p. 1429
Infectious Disease Returns: United States, Foreign, and Insular.—p. 1430

Precipitation, etc., of Antimeningococcus Sera.—In a study of a number of antimeningococcus sera it was found that in the majority a definite correlation existed between the type-specific precipitins as estimated by the "plate" method and the mouse-protective activity. In all instances if no precipitins were demonstrable no mice were protected; if precipitins were demonstrable the serum was capable of protecting mice.

Revue de Chirurgie

Paris vol. 57 June, 1938

Study of Certain Metabolic Changes Produced by Surgical Operation M. A. Delzer.—p. 350
Operability and Extent of Operation in Cancer of Rectum in Female. M. A. Ducuing and G. Rimoud.—p. 423
Treatment of Abscess of Cerebellum. M. L. Léorat.—p. 444
Three Cases of Fracture of Vertebral Column Treated by Infiltration with Novocain. M. M. Junc and Christéas.—p. 458.

Cerebellar Abscess.—The treatment recommended in this article is primarily surgical, but is supplemented by medical and vaccine therapy. The technique of the operation is fully described; it is carried out in two stages. Owing to the gravity of the condition the proportion of cures is only 25 per cent.

Revue Neurologique

Paris vol. 70 July, 1938

Hemiballism and Nucleus of Luys. M. H. Marcus and H. Sjögren.—p. 1.
Necrosis of Lateral Femoral Cutaneous Nerve of Thigh in Course of Aneurysm of Abdominal Aorta. A. de Castro.—p. 29.
Role of Hypertonic Solutions in Treatment of Migraine. G. Villey, J. F. Buval, and Mme Buval-Pechon.—p. 32.

Hemiballism.—The authors describe in detail first the anatomical relations of the nucleus of Luys, and then five cases in which a lesion of the nucleus had given rise to hemiballism. They conclude that a lesion of the nucleus is necessary for this symptom, as adjacent lesions may produce athetosis but not hemiballism.

Migraine.—Hypertonic serum has been found to cause the disappearance of migraine headache in approximately fifteen minutes. The pharmacological and therapeutic aspects of these findings are discussed.

Rivista di Neurologia

Naples vol. 11 April, 1938

Donaggio's Reaction in Epilepsy. P. Jedlowski.—p. 89
Neurological Syndromes from Emetine Poisoning. F. Vizioli.—p. 145
On Presence of Neurofibrillary Net of Donaggio in Vesicular Cells of Mesencephalon. P. Jedlowski.—p. 160
Problem of Hallucination at Eleventh International Congress of Psychology. M. Gorziano.—p. 166.

Donaggio's Reaction in Epilepsy.—Donaggio's precipitation reaction due to the abnormal amounts of colloids in the urine and cerebrospinal fluid has been investigated in epilepsy. The reaction is positive, or if previously positive increased, immediately after the fit. The maximum reading is generally found from twelve to twenty-four hours afterwards, though sometimes it occurs in six hours and sometimes as late as forty-two hours. The intensity of the reaction on Donaggio's scale is on the average 33, sometimes being as high as from 45 to 51. In eighty-eight cases the duration of the reaction was on the average 106 hours, with a minimum of 42 and a maximum of 192. If the test is done at frequent intervals each patient shows a similar curve of intensity and duration for his fits which differs from the curves of other patients. Cardiazol convulsions produce a positive reaction, but it is much less intense and lasts a much shorter time than that seen in a true epileptic fit. Unless the

fits are very prolonged hysterical convulsions produce no reaction, and, even if present, in such prolonged attacks the reaction is feeble and of short duration.

Naples vol. 11 June, 1938

Problem of Traumatic Parkinsonism. F. Vizioli.—p. 185
Medullary Tuberculosis Masked by Necrotic Myelitis. G. Gluck and B. Garau.—p. 219.
Sacroscopic Scoliosis in Differential Diagnosis of Lumbosacral Pain Symptomatic of Compression of Caud. Equina and Protracted Idiopathic Lumbosacral (Sciatic) Pain. C. Masci.—p. 247

Traumatic Parkinsonism.—The author describes three cases of uncomplicated Parkinsonism following cranial injury. All three cases had suffered from epidemic encephalitis and the trauma had precipitated the Parkinsonian syndrome, but in the author's opinion was not the primary cause. It is argued that the morbid anatomy of the syndrome, and in fact all considerations in relation to it, make it exceedingly unlikely that any cranial trauma, and especially a cranial injury, could be truly causal.

Rivista di Patologia Nervosa e Mentale

Florence vol. 51 May-June, 1938

Behaviour of Neurofibrillary Network of Donaggio in Experimental Poisoning by Thyroid Extract. G. Ottolenghi.—p. 359.
Basal Metabolism in Cerebral Tumours. C. Ambrosio.—p. 379
Examination of Chronaxia and Neuromuscular Electrical Reactions in Schizophrenics during Insulin Therapy. A. Mazzotta.—p. 402
Sugars in Central Nervous System. A. Mazzotta.—p. 408.
Intradermal and Percutaneous Anaesthesia in Treatment of Some Peripheral Pains. C. Pero.—p. 417
Acute Syphilitic Meningitis. C. Trabucchi.—p. 439
Is Histopathological Picture of Progressive Paralysis Variable? F. Cardona.—p. 467.
Anatomical-clinical Description of Lymphocytic Meningitis of Unknown Pathogenesis (Anaphylactic) R. Marinetti and O. Carere-Comes.—p. 475.
Results of Progressive Paralysis treated with Malana in Psychiatric Institute of Florence. G. Taddei.—p. 503.
Progressive Paralysis occurring in Four Subjects who contracted Syphilis contemporaneously from Same Source. G. Taddei.—p. 524

Basal Metabolism.—The basal metabolism was investigated in fifty cases of cerebral tumour confirmed on the operating table or at necropsy. The tumours were divided into three groups: (1) those affecting the anterior cranial fossa, which showed a normal basal metabolic rate even when intracranial hypertension was present; (2) those occupying the middle cranial fossa, including tumours of the hypophysis and the region of the sella, which showed marked lowering of the rate, thus confirming the opinion of the author that the region of the third ventricle is specially concerned with the regulation of the distribution of energy; and (3) those occupying the posterior fossa, in many of which cases the rate was definitely lowered.

Peripheral Pains.—The author reports four cases of sciatic neuralgia, of which three were cured by intradermal injections of novocain and one by percutaneous injections, in all of which there was a rapid remission of symptoms. In two cases of facio-cervical neuralgia the author obtained a complete and lasting relief of pain by intradermal novocain, and in a patient with frontal sinusitis a percutaneous anaesthesia, tried as an experiment, produced a rapid and complete relief of pain in a few minutes. The author considers that the mechanism of this treatment consists of the establishment of a synaptic block which interrupts the waves of stimuli conveying the pain sensation.

Surgery, Gynecology and Obstetrics

Chicago vol. 67 July, 1938

Electrocoagulation of Four Hundred Cervical Erosions: Photographic Study. O. Zelczyn-Baumrucker and G. O. Baumrucker.—p. 17.
Renal Tuberculosis: Development of Renal Lesion. F. Lieberthal.—p. 26
Non-routine Views in Roentgen Examination of Extremities. R. W. Lewis.—p. 38.
Fertility and Sterility after Extra-uterine Pregnancy. C. W. Mayo and E. O. Strassmann.—p. 46.
Renal Tuberculosis in Patients with Active Pulmonary Tuberculosis. E. W. Jameson.—p. 56

- Influence of Certain Antispasmodic Drugs on Intestine of Man. R. J. Jackman and J. A. Borgen.—p. 63.
Surgical Procedure for Total Thyroidectomy E. C. Cutler and R. Zolinger.—p. 69.
Surgical Repair of Long-disabled Hand F. Young.—p. 73.
Changes in Intracholedochal Pressure following Cholecystectomy. C. B. Puestow.—p. 82.
"Subdural Haematoma" D. H. Kaump and J. Grafton Love.—p. 87.
Reduction of Fracture-dislocations of Cervical Vertebrae by Skeletal Traction. L. G. Barton.—p. 94.
Radical Breast Operation. H. C. Chase.—p. 97.
Haemorrhage from Carcinoma of Cervix: Control by Extraperitoneal Ligation of Hypogastric Arteries M. L. Leventhal, A. Flash, and A. Grossman.—p. 102.
Brachioradialis Muscle Transposition for Triceps Weakness. F. R. Ober and J. S. Barr.—p. 105.
Retropertoneal Pararenal Osteoma H. L. Kretschmer.—p. 108.
Amputation Stump of Arteriosclerotic Gangrene. F. W. Taylor.—p. 114.

Renal Tuberculosis.—In this article the progress of renal tuberculosis as it develops from the first focus in the kidney through the entire urinary tract is described. From the study of 270 cases of renal tuberculosis it has been possible to reconstruct the development of the lesion from its earliest to its end stages.

Chicago vol. 67 August, 1938

- Asphyxia Neonatorum: Pivot upon which Turns Movement to Prevent Asphyxial Death. P. J. Flagg.—p. 153.
Osteolytic Osteogenic Sarcoma. Eight Five-year Survivals. I. S. McReynolds.—p. 163.
Appendicitis in Childhood. E. H. Caldwell.—p. 169.
Persistence of Gonococcal Infection in Adnexa. W. E. Studdiford, W. A. Casper, and L. N. Scadron.—p. 176.
Experimental Methods of Lung Collapse: Fascial Transplantation and Bronchial Ligation L. Escudero and W. E. Adams.—p. 181.
Physiology of Uterine Musculature. A. C. Jy and L. Rudolph.—p. 188.
Surgical Anatomy of Superior Hypogastric Plexus: Presacral Nerve. J. S. Lahate.—p. 199.
*Complete Removal of Stomach for Malignancy. Five Surgically Successful Cases F. H. Lahey.—p. 213.
Nephrosomy: Some Clinical and Experimental Observations H. C. Rolnick.—p. 224.
Tibia and Fibula Lengthening by Turnbuckle Method F. A. Alcorn.—p. 230.
Mareh Fracture. H. W. Meyerding and G. A. Pollock.—p. 234.
New Type of Suction Apparatus C. H. H. Branch.—p. 242.
Technique for Rapid and Absolute Sterilization of Instruments. C. W. Walter.—p. 244.
Fractures of Lower End of Radius G. W. Taylor and C. L. Parsons.—p. 249.

Total Gastrectomy.—The question of the advisability of carrying out total gastrectomy for malignant disease of the stomach is discussed. Five cases are reported in which the operation, with anastomosis of the jejunum to the oesophagus, was carried out successfully from the surgical point of view. In one instance life was prolonged for three and a half years. The operative technique is fully described and illustrated.

Surgical Clinics of North America

Philadelphia vol. 18 June, 1938

Symposium on Cancer

- Some Cancer Problems. F. H. Lahey.—p. 585.
*Carcinoma of Skin H. F. Hare.—p. 595.
Carcinoma of Lip. N. W. Swinton and J. Trommald.—p. 599.
Intrinsic Carcinoma of Larynx W. B. Hoover and H. J. Richter.—p. 605.
Cancer of Thyroid. H. F. Hare.—p. 606.
Cancer of Breast: Analysis of 196 Cases S. F. Marshall and J. Higginbotham.—p. 615.
Haemopericardium as Complication of Primary Carcinoma of Bronchus: Case Report E. C. Bartels.—p. 625.
Tumours of Mediastinum H. D. Adams.—p. 629.
Carcinoma of Oesophagus W. B. Hoover.—p. 633.
Carcinoma of Oesophagus. Successful Resection of Lower End of Oesophagus with Re-establishment of Oesophageal-Gastric Continuity. S. F. Marshall.—p. 643.
Polyps of Stomach as Precancerous Lesions D. T. Chamberlin.—p. 649.
Notes on Differential Diagnosis of Carcinoma and Ulcer of Stomach S. M. Jordan.—p. 655.
Carcinoma of Cardiac End of Stomach E. D. Kiefer.—p. 661.
Carcinoma of Stomach: Factors influencing Operability and Method of Resection S. F. Marshall.—p. 671.
Case of Multiple Leiomyosarcomata of Stomach S. M. Jordan.—p. 683.
Carcinoma of Gall-bladder. S. F. Marshall and E. S. Morgan.—p. 687.
Carcinoma of Pancreas I. H. Lahey and D. C. Mackinnon.—p. 695.
Malignant Tumours of Small Intestine. D. T. Chamberlin.—p. 705.
Differential Diagnosis of Lesions of Colon S. A. Wilkinson.—p. 723.
Diagnosis of Carcinoma of Colon and Rectum N. W. Swinton and J. Higginbotham.—p. 733.
Operability of Carcinoma of Rectum. R. B. Cattell.—p. 745.

- Management of Colostomy. R. B. Cattell.—p. 755.
Carcinoma of Body and Fundus of Uterus. H. D. Adams.—p. 763.
Carcinoma of Ovary. H. D. Adams.—p. 771.
Carcinoma of Bladder. E. E. Ewert.—p. 777.
Carcinoma of Prostate. E. E. Ewert and H. F. Hare.—p. 785.
Carcinoma of Cervix. H. F. Hare.—p. 795.
Fibrosarcoma of Extremities. G. E. Haggart.—p. 801.
Backache in Cases of Suspected and Proved Neoplastic Lesions of Spinal Column. L. J. Millner.—p. 809.
Occult Lymphoblastoma. L. M. Hurxthal and J. W. Norcross.—p. 817.
Radiation Sterilization. H. F. Hare.—p. 827.
Treatment of Artificial Menopause F. N. Allan.—p. 831.
Anaesthesia for Poor Risk Patients L. F. Sise.—p. 841.
Some Anaesthetic Problems. U. H. Eversole.—p. 851.
Recent Experiences and Present Practice in Anaesthesia. P. D. Woodbridge.—p. 863.
Herniation of Intervertebral Disks. J. L. Poppen.—p. 879.

Carcinoma of the Skin.—A description is given of the three histological types of skin malignancy: the basal-cell carcinoma, the epidermoid carcinoma, and the adenocarcinoma. In a series of 320 cases of the first-named type a five-year cure was obtained in 38 per cent. of cases. The methods of treatment are discussed, large doses of superficial x-ray therapy being advised in the majority of cases.

Zeitschrift für die Gesamte Neurologie und Psychiatrie

Berlin vol. 162 June 22, 1938

- Studies on Pathology of Cerebral Vessels: I. Fibrosis and Hyalinosis. W. Scholz and D. Nieto.—p. 675.
Studies on Pathology of Cerebral Vessels: II. Plaque-like Degeneration of Cerebral Arteries and Capillaries. W. Scholz.—p. 694.
So-called "Religious Curve" (Klages) Critical Contribution to Expression-psychology of Handwriting. G. Kloos.—p. 716.
*Amnesic Syndrome after Insulin-Cardiazol Treatment P. Plattner.—p. 723.
Contribution to Question of Familial Diffuse Sclerosis, including Pelizaeus-Merzbacher's Disease and its Relation to Amaurotic Idiocy. R. Wieke.—p. 741.
Artefacts of Fixation in Central Nervous System. F. Tebels.—p. 767.
Remarks on Obsessional Character. N. Praeger.—p. 775.
Alterations of Form in Surviving Nerve Cells consequent on Alterations of H-ion Concentration. S. Huszák.—p. 789.
Periodicity of Manic-depressive Insanity E. Slater.—p. 794.
Weltmann's Coagulation Band in Psychiatric and Neurological Diagnosis. F. K. Redlich.—p. 802.
Critical and Experimental Study on Interpretation of Variations of Potential of Electrocardiogram. J. G. Dusser de Barenne and W. S. McCulloch.—p. 815.

Amnesia after Insulin-Cardiazol Treatment.—Plattner finds, in seven schizophrenics treated with combined insulin and cardiazol, organic disturbances and, particularly, disturbances of memory, in some cases to an incapacitating degree. He attributes these ill results to the fits produced by cardiazol.

Berlin vol. 163 July 21, 1938

- Heredity of Manic-depressive Insanity: Parents and Children of Manic-depressives. E. Slater.—p. 1.
Illness and Death of Paranoid Mass Murderer. Headmaster Wagner. R. Gaupp.—p. 48.
Problem of Acute Multiple Sclerosis. H. Kreissel.—p. 83.
Drawing of Patient with Total Aphasia A. A. Boon and P. Feitscher.—p. 103.
Apoplectic Onset in Tumours of Brain A. Stender.—p. 123.

Zeitschrift für Krebsforschung

Berlin vol. 47 July, 1938

- Resistance of Malignant Cells to Cold. H. Auler, W. Koeniger, H. Schlotzman, St. Bylina, and H. Schmidt.—p. 371.
Studies on Tumour Ascites of Mouse: III. Observations on its Transmissibility. E. Haagen and B. Krückeberg.—p. 382.
Studies on Tumour Ascites of Mouse: IV. Dependence of Transmissibility of Tumour Ascites on Vitality of Cells and on Temperature. E. Haagen and P. G. Seeger.—p. 394.
Considerations on Secondary Oesophageal Tumours. A. Zuppinger.—p. 413.
Vitamins and Carcinoma. T. Gordonoff and F. Ludwig.—p. 421.
*Course of Cancer Mortality in German Reich. E. Fürth.—p. 427.
Experimental Investigations on Question of Hetero-transplantation of Human Malignant Tumours M. Plonskier.—p. 462.
On Paget Cancer of Breast. P. Heilmann and A. Köhler.—p. 469.

Cancer Mortality in Germany.—Fürth analyses the cancer mortality in Germany during the periods 1926 to 1930 and 1931 to 1935, respectively, and discusses the significance of the absolute and relative increase in cancer deaths.

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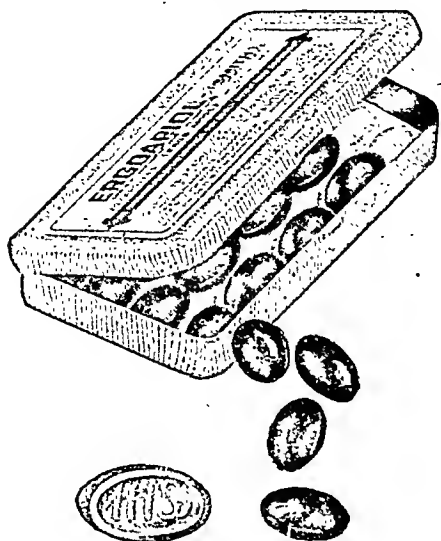
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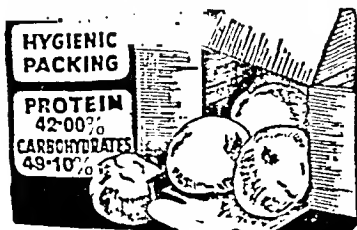
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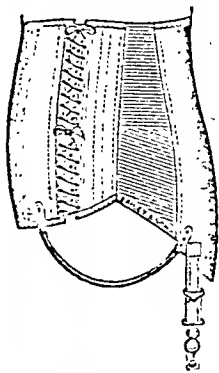


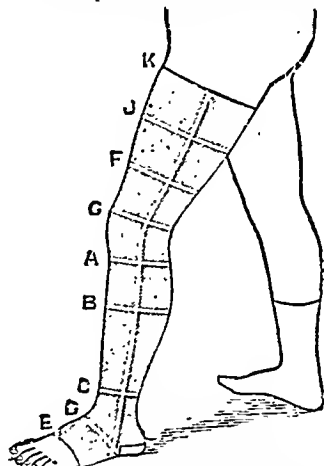
Fig. B690

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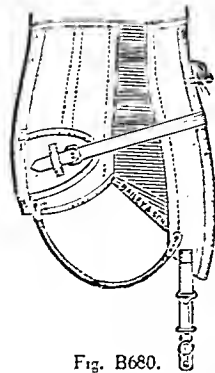


Fig. B680.

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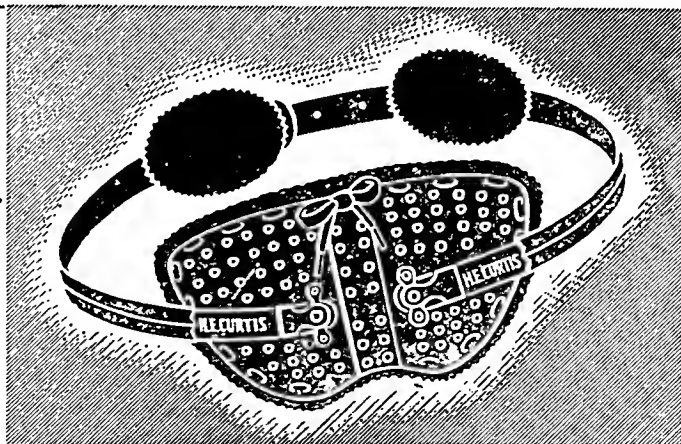
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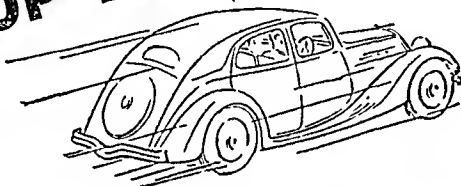
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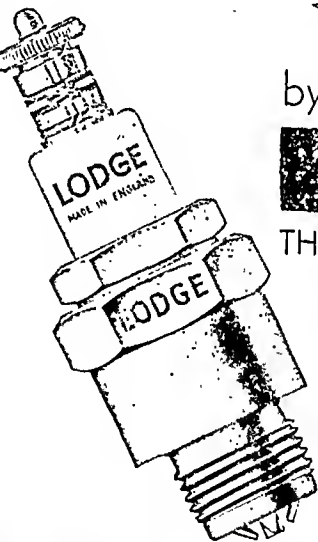
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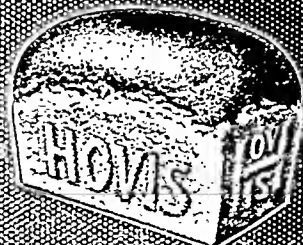
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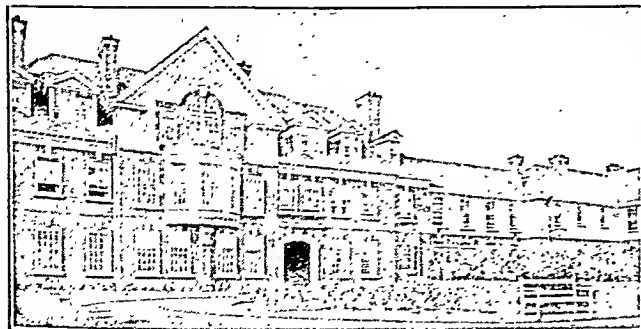
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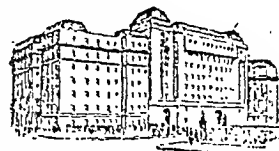
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Telegrams: "Alleviated, London."

Telephone: Rodney 2641-2642.

The above House is for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. Occupational therapy, physical drill, and other forms of modern treatment. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor drives are arranged when required. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week. Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

LAVERSTOCK HOUSE

SALISBURY WILTS

PRIVATE MENTAL HOME FOR LADIES AND GENTLEMEN.

Completely up to date. Lovely house and grounds (18 acres). Certified and uncertified cases taken. Facilities for going to the seaside.

ESTABLISHED OVER 200 YEARS.

Apply to Med. Supt. for illustrated brochure.

Tel.: SALISBURY 2612.

CHEADLE ROYAL HOSPITAL

CHEADLE, CHESHIRE.

This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.

The Hospital is governed by a Committee appointed by the TRUSTEES of the Manchester Royal Infirmary. In addition to the Main Building there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational therapy VOLUNTARY, TEMPORARY, and CERTIFIED PATIENTS received.

The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 34 hours from London.

For terms and further particulars apply to the Medical Superintendent, who may be seen in MANCHESTER by APPOINTMENT.

Telephone: GATLEY 2231 (3 lines).

**THE OLD MANOR
SALISBURY**

CONVALESCENT HOME
at BOURNEMOUTH

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Detached Villas standing in 12 acres of ornamental grounds, with tennis courts, etc., which Voluntary, Temporary, or Certified Patients may visit by arrangement, for long or short periods. Terms very moderate.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Phone: Salisbury 2251.

CALDECOTE HALL

NUNEATON

WARWICKSHIRE

(Phone: Nuneaton 241)

FUNCTIONAL NERVOUS DISORDERS

Residential treatment of
Including Alcoholism and other Addictions
(Certifiable Cases are not received)

This beautiful mansion situated in the heart of the country (less than two hours from London by L.M.S.R.) and surrounded by charming pleasure grounds, in which games and outdoor occupational therapy are available, is devoted to the treatment of Functional Nervous Disorders by psychotherapeutic and ancillary methods.

Illustrated Brochure and particulars obtainable from A. E. CARVER, M.D., D.P.M., Resident Medical Superintendent.

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E. 5.

Telegrams: "PSYCHOLIA, LONDON"

FOR THE TREATMENT OF MENTAL DISORDERS

Telephone: RODNEY 4242 (2 lines).

Also completely detached villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, Recreation Hall with Badminton Court, and all indoor amusements, including Wireless and other Concerts, Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician, Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident, and visiting Consultants. An illustrated Prospectus giving fees which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

**THE ROYAL EARLSWOOD INSTITUTION
FOR MENTAL DEFECTIVES, REDHILL, SURREY.**
(Formerly the EARLSWOOD ASYLUM.)

PATRON: H.M. THE KING.

FOR THOSE REQUIRING CONTROL, with EXPERT SUPERVISION and needing SPECIAL TRAINING in useful occupations, SCHOOLS, FARMING and various TRADE WORKSHOPS. Inclusive fees from £110 p.a. THOSE UNABLE TO PAY FULL FEES admitted by votes of subscribers with part payment towards cost.

RECREATIONS: Outdoor games, MALE STAFF BAND for Concerts, Dancing, etc.

Apply: The Medical Superintendent, Earlswood, Redhill, Surrey or to the Secretary, Mr. H. STEPHENS, 14-16, Ludgate Hill, E.C.4.

Phone: REDHILL 344.
Phone: CITY 4697.

NORMANSFIELD

For Mental Defectives of either sex.
Under private management.

Apply to Dr. Langdon-Down,
Normansfield, Teddington.

The MUNDESLEY SANATORIUM

The central building makes the Mundesley Sanatorium the best equipped building in England for the cure of Tuberculosis. All the bedrooms have hot and cold running water, electric light, and wireless headphones. The public rooms are spacious and comfortable.

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M.D.(Cantab.), M.R.C.P.(Lond.),
E. C. WYNNE-EDWARDS,
M.B.(Cantab.), F.R.C.S.(Edin.),
GEORGE H. DAY,
M.D.(Cantab.).

For all information apply:
The Secretary,
THE SANATORIUM, MUNDESLEY,
NORFOLK.

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(2 lines).

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Full day and night Nursing Staff. Terms 5 guineas to 71 guineas a week inclusive.
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Special terms for friends visiting Nursing Homes in vicinity.
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PAYING PATIENTS RECEIVED.
BOTH MEDICAL AND SURGICAL CASES.
5 to 8 guineas per week at the Hospital. 3 to 4 guineas per week at the Sanatorium.
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NERVOUS AND MENTAL DISORDERS.

This Hospital has every facility for complete investigation of the above conditions, and provides all forms of modern treatment including psychotherapy, physiotherapy, and recreational therapy. Cases of alcoholism and drug addiction are admitted. The Hospital has separate units fully equipped for X-ray work, radiotherapy, short-wave therapy, and hydrotherapy (swimming bath, prolonged baths, Scotch and Vichy douches, Plombières treatment, electric and Turkish bath cabinets, etc.). There is a fully equipped gymnasium under qualified instructors. Facilities are provided under special recreational therapists for all indoor and outdoor games, including golf course, cricket, football and hockey grounds, lawn tennis and squash courts, croquet and bowling greens.

The Hospital has its own Cinema, Library and Hairdressing Saloon. Terms include regular motor drives. Private rooms, suites or villas are available and special nurses can be provided.

The Hospital grounds, extending to nearly 1,000 acres, are situated in delightful country and include an extensive farm (F.T. herd), gardens and orchards.

As the Hospital is well endowed terms are exceptionally moderate, e.g., First Department, 3 to 30 guineas per week. Second Department, 2 and 2½ guineas per week. Voluntary and certified patients are received. Medical Certificates given anywhere in the British Isles are valid for admission of patients. For prospectus, necessary forms, and further information apply to:

Physician Superintendent, P. K. McCOWAN, J.P., M.D., F.R.C.P., D.P.M., Barrister-at-Law.
July 1st
Tel: Dumfries 1119.



Light, Artificial Sunlight, D'Arsonval high frequency, Electric, Steam, Baths, Soapless Foam Baths, etc.
n. Large Winter Garden.
Invalids, Night Attendants, Masseurs, Attendants, etc.

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Phone: No. 17. Grams: Smedley's, Matlock

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THE ONLY SANATORIUM IN SWITZERLAND UNDER BRITISH OWNERSHIP
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INCLUSIVE TERMS—from 7 guineas (sterling) per week.

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MARYLEBONE ROAD, N.W.1.

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one-half of the total admission being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Antenatal department there are over 20,000 attendances per annum. Clinical demonstrations are given by the Staff daily.

For rules, fees, etc., apply H. B. STOKES, Secretary-Superintendent.

CITY OF LONDON MATERNITY HOSPITAL

(Incorporated by Royal Charter)
CITY ROAD, E.C.1.

The Hospital offers facilities to POSTGRADUATES for observing the work of its Antenatal, Postnatal and Dental Clinics, and to male MEDICAL STUDENTS (and Practitioners desiring a Refresher Course) a two or four weeks Midwifery Course (Residential). Nearly 2,000 patients annually.

RALPH B. CANNINGS, Secretary.

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The Royal Institute of Public Health and Hygiene

The Course of Instruction can be commenced at any time. Special provision is made for students who can give only part time to the work.

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25, Portland Place, London, W.1

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Full details of above and Oral Classes—
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A Series of POST-GRADUATE CLINICAL DEMONSTRATIONS has been arranged in the various hospitals of Glasgow from November till March. Clinical Assistantships and some special courses are also available in several of the hospitals.

The syllabus may be had on application to the Secretary, Post-Graduate Medical Association, The University, Glasgow.

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Upper Woburn Place, near B.M.A. Headquarters.
Accommodates 235 Visitors. Modern Comforts.
Excellent table. A.A. and R.A.C. recommended.
Room, Bath, and Breakfast from 8/6.

A SPA UNDER ONE ROOF

In Rockside are combined all the amenities of a modern spa, including treatment, rest, and entertainment.

SHELTERED SITUATION. SPACIOUS GROUNDS. HIGHLY QUALIFIED STAFF.

The Baths and Treatment Rooms occupy a special wing accessible by lift from all floors, and are fully equipped for every form of physical treatment, including the most modern hydrological and electrical methods, massage and remedial exercises, dietetic and occupational therapy. Terms: £4 4s. 0d. to £6 6s. 0d.

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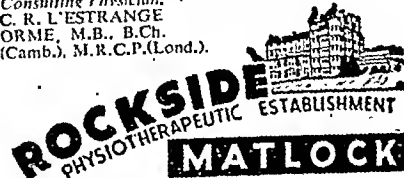
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The following booklets may also be had post
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St. George's Circus, S.E.1.

A Course in OPHTHALMIC PATHOLOGY AND
BACTERIOLOGY, suitable for Part II. D.O.M.S.
Candidates and Post-Graduates, will be held on
successive Tuesdays at 3 p.m., commencing NOVEM-
BER 15th, 1938.

There will be six demonstrations. A set of slides
will be provided for each student.

Fee £3 3 0

Lecturer Dr J. O. OLIVER, M.B., B.S., M.R.C.S.
For further particulars apply to the Dean.

IMPERIAL BUREAU OF ANIMAL NUTRI- TION, ROWETT RESEARCH INSTITUTE, ABERDEEN

Applications are invited for the post of DEPUTY
DIRECTOR of the Imperial Bureau of Animal
Nutrition, which is centred at the Rowett Research
Institute, Bucksburn, Aberdeen, Scotland.

The work of the Bureau consists mainly in the
collection and collation of scientific information on
nutrition (human and animal) and its dissemination
to research workers in countries of the British
Commonwealth and abroad.

Applicants should possess an honours degree in
Science or a degree in Human or Veterinary
Medicine. They should have experience in research
on nutrition. A knowledge of foreign languages
is desirable and overseas experience will be an
advantage.

The salary scale is £400-£700-£25-£800.
The initial salary within the scale will depend on
the qualifications and experience of the person
appointed. For a properly qualified applicant early
promotion to the £600 level is probable.

The person appointed will be included in the
Federated Superannuation Scheme for Universities
after one year's probation.

Applicants should state age, experience, and
qualifications and give at least two testimonials
or references.

Applications should be addressed on or before
November 19th to—

SIR DAVID CHADWICK,

The Secretary,

Imperial Agricultural Bureau,

2, Queen Anne's Gate Buildings,

London, S.W.1.

COUNTY BOROUGH OF DEWSBURY.

DEPUTY MEDICAL OFFICER OF HEALTH
and
DEPUTY SCHOOL MEDICAL OFFICER

Applications are invited from duly qualified
and registered medical practitioners for the post
of Deputy Medical Officer of Health and Deputy
School Medical Officer.

Applicants should have had at least three years'
experience since qualification and possess the
D.P.H. The duties include general Public Health,
School Medical work (including refractions), Child
Welfare, and Tuberculosis.

The salary is £600 per annum, rising by annual
increments of £25 to a maximum of £700, and
a motor-car allowance of £50 per annum. The
appointment will be subject to the provisions of the
Local Government and Other Officers' Super-
annuation Act, 1922, and the successful candidate
will be required to pass a medical examination.

Particulars of the duties and terms and conditions
of the appointment, together with application form,
may be obtained from Dr. J. F. Galloway, Medical
Officer of Health, Public Health Department,
Municipal Buildings, Halifax Road, Dewsbury, to
whom applications, accompanied by copies of not
more than three recent testimonials, should be
delivered not later than Monday, October 31st.

Canvassing in any form will be a disqualification.
Town Hall, HOLLAND BOOTH,
Dewsbury, Town Clerk.
October 10th, 1938.

CITY OF COVENTRY.

ASSISTANT MEDICAL OFFICER (Woman).

Applications are invited from duly qualified and
registered women Medical Practitioners under 40
years of age for the post of Assistant Medical
Officer in the City of Coventry Public Health
Department. The duties will be in connexion with
the maternity and child welfare scheme. Candidates
should possess a Diploma in Public Health, and
preference will be given to those having special
experience in the conduct of ante-natal clinics.

The salary will be £500 per annum, rising by
annual increments of £25 to a maximum of £700.
The officer appointed will be required to devote her
whole time to the duties of the post.

The appointment will be subject to the pro-
visions of the Local Government and Other Officers'
Superannuation Act, 1922, and the successful candi-
date will be required to pass the necessary medical
examination as to fitness and to contribute to the
Superannuation Fund.

Applications, together with copies of three recent
testimonials, must be made on the prescribed form
(which may be obtained on request) and must reach
the undersigned on or before November 3rd, 1938.
The Council House, A. MASSEY, M.D.,
Coventry, Medical Officer of Health.
October 17th, 1938.

COUNTY BOROUGH OF DERBY.

DERBY CITY HOSPITAL.

ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Assistant
Resident Medical Officer (male) at the above Hos-
pital of 300 beds. This Hospital provides treatment
for acute medical and surgical cases, obstetrics, and
children's diseases, etc.

Candidates must be registered in medicine and
surgery.

The appointment is for a period of six months;
two months' notice of termination of duties may be
given on either side. The successful applicant will
be required to commence duties as soon as possible.

Salary at the rate of £200 per annum, with board
and residence.

Applications, stating age, experience, and accom-
panied by three recent testimonials, should be sent
to the undersigned as soon as possible.

GORDON LILICO,

Medical Officer of Health.

Public Health Department,
1, Derwent Street, Derby.

CORPORATION OF LONDON.

PUBLIC HEALTH DEPARTMENT.

THE VACCINATION ORDER, 1930.

Appointment of PUBLIC VACCINATOR
for the City of London.

The Public Health Committee of the Corporation
of London are prepared to receive applications for
the appointment of Public Vaccinator for the City
of London.

Applicants must be registered medical prac-
titioners, and the appointment will be made in
accordance with the above Order and is subject
to the approval of the Minister of Health.

Applications for the appointment, on forms
which can be obtained from the undersigned, must
be addressed to the Town Clerk, Public Health
Department, Guildhall, E.C.2, and delivered on or
before Friday, November 11th, 1938.

Guildhall, E.C.2,
October 14th, 1938.

ROACH.

LANCASHIRE COUNTY COUNCIL.

PUBLIC ASSISTANCE COMMITTEE.

LAKE HOSPITAL,
Ashton-under-Lyne, near Manchester.

APPOINTMENT OF RESIDENT OBSTETRICAL
OFFICER.

Applications are invited for the appointment of
Resident Obstetrical Officer at the Lake Hospital,
Ashton-under-Lyne, near Manchester (300 beds—
approximately 600 births per year).

Applicants must hold the Diploma of the College
of Obstetricians and Gynaecologists or a Diploma
of similar standing, and preference will be given
to applicants who have held a responsible appoint-
ment at a Maternity Hospital.

The salary is at the rate of £350 per annum,
rising by annual increments of £25 to £400 per
annum, together with the usual residential
emoluments.

The appointment is for a period of one year in
the first instance, and may be renewed for a further
period of one year.

Forms of application may be obtained from the
County Medical Officer of Health, Hospital and
Medical Department, County Offices, Preston, to
whom all applications, accompanied by copies of
recent testimonials, must be forwarded not later
than Wednesday, November 9th, 1938.

County Offices, GEORGE ETHERTON,
Preston, Clerk of the County Council.
October 17th, 1938.

LANCASHIRE COUNTY COUNCIL.

WHISTON COUNTY HOSPITAL, near Prescot

APPOINTMENT OF RESIDENT MEDICAL
OFFICER.

Applications are invited for the appointment of
Resident Medical Officer (unmarried) at the
Whiston County Hospital, near Prescot (500 beds).

Applicants must have held previous hospital
appointments in which they have gained experience
in clinical medicine and pathology, and they should
hold one of the higher medical qualifications.

The salary is at the rate of £400 per annum,
together with the usual residential emoluments.
The appointment is for a period of one year in
the first instance, but may be renewed for a further
period of one year.

Forms of application may be obtained from the
County Medical Officer of Health, Hospital and
Medical Department, County Offices, Preston, to
whom all applications must be returned not later
than October 31st, 1938.

County Offices, GEORGE ETHERTON,
Preston, Clerk of the County Council.
October 10th, 1938.

COUNTY OF LINCOLN—PARTS OF LINDSEY.

PUBLIC HEALTH DEPARTMENT.

SENIOR ASSISTANT AND DEPUTY COUNTY
AND SCHOOL MEDICAL OFFICER.

The Council invite applications for the above
appointment at a salary of £720 per annum, which
sum includes emoluments valued at £100, with an
allowance for travelling according to the Council's
scale.

Applicants should be under 40 years of age and
hold a special qualification in State Medicine or the
Diploma in Public Health.

Experience in Public Health administration, with
a sound knowledge of the modern methods of the
diagnosis and treatment of tuberculosis, is essential.

Terms and conditions of appointment, together
with application forms, can be obtained from the
undersigned. Applications, which must be accom-
panied by copies of three recent testimonials, should
be received not later than Saturday, November 5th,
1938.

W. S. H. CAMPBELL,

County Medical Officer of Health.

Public Health Department,
County Offices, Lincoln.

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE.

ASSISTANT TUBERCULOSIS OFFICER.

The County Council of the West Riding of York-
shire invite applications for the appointment of an
Assistant Tuberculosis Officer. Candidates must be
qualified in accordance with the Regulations of the
Minister of Health. The possession of the D.P.H.
will be an advantage.

Salary £500 per annum, rising by annual incre-
ments of £25 to £700.

The appointment is subject to the provisions of
the Local Government and Other Officers' Super-
annuation Act, 1922.

Further particulars and forms of application may
be had from the undersigned, to whom all appli-
cations, together with copies of not more than three
recent testimonials, should be addressed not later
than Saturday, November 5th, 1938.

J. CHARLES McGRATH,

County Hall, Clerk of the County Council
Wakefield
October, 1938.



Appointments for Medical Officers in the ROYAL AIR FORCE

Medical men are invited to apply for Short Service Commissions in the Royal Air Force. Candidates must be registered under the Medical Acts and be not more than 31 years of age on entry.

The period of service is 3 years—extendible to 5 years. A gratuity of £400 or £1,000 is payable at the termination of 3 or 5 years respectively. Permanent commissions are awarded in a number of cases. These offer a pensionable career with the opportunity of extra leave on full pay for specialised study. Applicants who hold—or are likely to hold—post-graduate appointments in civil hospitals may, on joining the Royal Air Force, be seconded until the termination of their appointments (for a period not exceeding one year). An antedate of commission up to twelve months is allowed for appointments held at approved hospitals.

*Fuller information can be obtained from The Director
of Medical Services, Air Ministry, Kingsway, London.*

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in January, 1939.

Candidates below the age of 28 years are preferred; and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list, and periods of unemployed or half pay are very rare. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than November 21st, 1938.

COUNTY BOROUGH OF PRESTON. ASSISTANT SCHOOL MEDICAL OFFICER.

The Council invite applications from registered Medical Practitioners (male) for the position of Assistant School Medical Officer, at a salary of £500 per annum, rising by annual increments of £25 to a maximum of £700 per annum.

The duties are mainly in connection with the School Medical Service, but a certain amount of time is given to the Blind Persons Act, 1920, Diphtheria Immunisation, and Infectious Diseases.

Candidates must have had not less than three years' postgraduate experience, including resident hospital appointments, and must have had special experience in refraction work. Special experience in the diseases of children will be an advantage.

The person appointed will be required to pass a medical examination, and to contribute to the Council's Superannuation Fund.

Application forms, together with further particulars, can be obtained from the undersigned, to whom they must be returned and endorsed "School Medical Officer" on or before noon on Monday, November 7th, 1938.

HERBERT E. NUTTER,

Municipal Building, Town Clerk.
Preston.
October 12th, 1938.

HEBBURN URBAN DISTRICT COUNCIL. MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Urban District Council invite applications from fully qualified Medical Practitioners for the whole-time appointment as Medical Officer of Health and School Medical Officer, at a total inclusive annual salary of £800. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

The successful applicant will be required to devote the whole of his time to the duties of the appointment and will not be allowed to engage in private practice. Further particulars, together with a form of application, may be obtained from the undersigned.

Applications, accompanied by copies of not more than three recent testimonials, endorsed "Medical Officer of Health" must reach the undersigned not later than November 2nd, 1938.

Canvassing the members of the Council in any form will be a disqualification.

Council Offices, ERNEST FOXALL,
Hebburn, Co Durham. Clerk of the Council.
October 12th, 1938.

HULL CORPORATION HEALTH DEPARTMENT.

ASSISTANT MEDICAL OFFICER OF HEALTH (for Port Health Work).

Applications are invited from duly qualified medical men, under the age of 40 years and not less than three years' standing in their profession, for the appointment of Assistant Medical Officer of Health.

Salary £600 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700.

Candidates must hold a registered degree or diploma in State Medicine or Public Health. Experience in Port Health Work and Infectious Diseases will be considered special qualifications.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on forms to be obtained from the undersigned, are returnable not later than 10 a.m. on Thursday, November 3rd, 1938.

NICOLAS GEBBIE, M.D.,

Medical Officer of Health.

Health Department,

Gulldhall, Hull.

October, 1938.

HULL CORPORATION HEALTH DEPARTMENT.

CONSULTANT OBSTETRICIAN AND GYNAECOLOGIST.

Applications are invited from registered Medical Practitioners for the appointment of Consultant Obstetrician and Gynaecologist (part-time) to the Corporation's Hospitals, Institutions, Clinics, etc.

Candidates must be Fellows of one of the Royal Colleges of Surgeons and Members or Fellows of the British College of Obstetricians.

The successful candidate will be permitted to undertake private consulting practice, but general medical practice will not be allowed.

Salary £700 per annum—appointment non-resident.

Applications, on forms to be obtained from the undersigned, are returnable not later than 10 a.m. on Monday November 7th, 1938.

NICOLAS GEBBIE, M.D.,

Medical Officer of Health.

Health Department,

Gulldhall, Hull.

October, 1938.

ESSEX COUNTY COUNCIL. JUNIOR ASSISTANT MEDICAL OFFICER.

The County Council of the Administrative County of Essex invite applications for the appointment of Junior Assistant Medical Officer at the Black Notley Sanatorium, near Braintree.

This sanatorium contains 300 beds for the treatment of pulmonary and non-pulmonary tuberculosis in men, women, and children, and possesses all modern facilities for diagnosis and treatment, and a staff of visiting specialists.

The appointment is limited to a period of one year, and the salary will be at the rate of £250 per annum, together with board, lodging, and laundry. The successful applicant will be required to pass a medical examination, and will be subject to the Council's Sick Pay Rules and Regulations, a copy of which will be forwarded on application.

Preference will be given to candidates who have held an appointment as House Surgeon with orthopaedic experience.

Applications, in candidate's own handwriting, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials (which will not be returned), should be addressed to me and delivered at the County Hall, Chelmsford, not later than 10 a.m. on Thursday, October 27th, 1938.

County Hall, E. S. HOLCROFT,
Chelmsford, Clerk of the County Council.
October 10th, 1938.

SWANSEA COUNTY BOROUGH. ASSISTANT MEDICAL OFFICER.

The Swansea Borough Council invite the applications of women Medical Practitioners for the post of Assistant Medical Officer to assist with the medical services of the Corporation.

Special experience in the treatment of venereal diseases of women and children is essential; Resident Hospital, Mental Deficiency, School Medical Service, and Maternity and Child Welfare experience are desirable additional qualifications.

Salary £500, rising by annual increments of £25 to £700. The appointment is subject to the approval of the Ministry of Health and Board of Education.

Applications, on special forms which can be obtained from Dr. Thomas Evans, Medical Officer of Health, Public Health Office, Swansea, to be sent in not later than Thursday, November 3rd, 1938.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned position. Experience in a resident appointment in a general hospital for at least six months desirable. Married quarters not available.

QUEEN MARY'S HOSPITAL FOR CHILDREN, Carshalton, Surrey (1,284 beds). There are special departments for rheumatic and orthopaedic conditions, for congenital malformations, and for nutritional diseases.

ASSISTANT MEDICAL OFFICER (Grade II). Salary £250 a year, together with board, lodging, and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division 2A, County Hall, S.E.1, returnable by October 31st.

Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Grade I) — Salary £350-£225-£425, with board, lodging, and washing.

(a) PADDINGTON HOSPITAL, Harrow Road, W.5.

(b) HACKNEY HOSPITAL, Homerton High Street E.9.

Obstetrical and gynaecological experience essential (both positions).

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division, 2A), County Hall, S.E.1, returnable by October 28th. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners with appropriate qualifications for two appointments as ASSISTANT PATHOLOGIST at Group Laboratories in the Council's pathological service. Salary £650-£250-£500.

Candidates should have special experience in one or more branches of pathology in relation to the diagnosis and treatment of disease.

Forms of application and further particulars (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 2), County Hall, Westminster Bridge, S.E.1, returnable by October 31st.

Canvassing disqualifies.

STAFFORDSHIRE COUNTY COUNCIL. ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited from medical men holding the Diploma of Public Health for the above post. Candidates should have had at least three years' experience in the practice of their profession subsequent to qualification. Preference will be given to those who have held residential hospital appointments.

The person appointed will work under the direction of the County Medical Officer and the duties of the office will include school medical and maternity and child welfare work, in addition to such general public health work as may from time to time be prescribed.

The salary will be at the rate of £500 per annum, rising by annual increments of £25 to £700 per annum, subject to a deduction of 5 per cent. established under the Local Government and Other Officers' Superannuation Act, 1922.

The successful candidate will be required to undergo a medical examination and to produce a birth certificate.

The appointment will be subject to three calendar months' notice on either side.

Forms of application may be obtained from the undersigned and should be returned by "first" post on October 27th, 1938, together with copies of not more than three testimonials.

Candidates must state in their applications whether or not they are in any way related to a member of the County Council.

Canvassing, either directly or indirectly will be a disqualification.

Candidates receiving no reply by November 12th, 1938, may assume the vacancy to be filled.

H. L. UNDERWOOD,

Clerk of the County Council.

County Buildings,

Stafford.

October 10th, 1938.

DEVON COUNTY COUNCIL. PSYCHIATRIST TO THE COUNTY MENTAL DEFICIENCY AND EDUCATION COMMITTEES.

Applications are invited from duly qualified Medical Practitioners (male or female) for the above appointment.

The officer will be on the staff of the County Medical Officer and will work under his supervision and control.

The officer will be responsible for the work of ascertainment and certification of the Mentally Defective, and will have certain supervisory duties in respect of the three Certified Institutions for the Mentally Defective controlled by the Council.

The officer will also be required to advise in cases of educational retardation and behaviour disorder in School Children.

Salary, in accordance with the Askwith Scale will commence at £750 per annum, and rise by three biennial increments of £50 and one of £37 10s., amounting to £937 10s.

The appointment will be subject to the provisions of the County Council's Superannuation Scheme, and the successful candidate will be required to undergo a Medical Examination.

Forms of application and details of duties may be obtained from the undersigned and should be returned not later than first post, November 3rd, 1938.

L. MEREDITH DAVIES,

4, Barnfield Crescent, County Medical Officer.
Exeter.

CITY OF LIVERPOOL. SENIOR RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the above appointment at the Alder Hey Children's Hospital, West Derby, Liverpool (940 beds).

Candidates must be single, fully qualified, and registered, and have had considerable experience in diseases of children, and should preferably possess one of the higher qualifications in medicine.

Salary at the rate of £250 per annum, rising by annual increments of £25 to £450 per annum, together with the usual residential allowances. All fees received in connection with the appointment to be handed over to the City Council.

The position offers exceptional opportunity for anyone wishing to specialise in diseases of children.

The person appointed will be required to work under the direction of the Medical Superintendent. The appointment will be made in accordance with the Standing Orders of the City Council and will be determinable by three months' notice on either side.

Canvassing, either directly or indirectly, will be deemed a disqualification.

Applications, on forms obtainable from the Medical Officer of Health, Hospitals Department, Liverpool, 2, to be endorsed "Senior R.A.M.O." and returned to the undersigned so as to be received not later than Thursday, November 3rd, 1938.

Municipal Buildings,

Liverpool, 2.

October, 1938.

W. H. BAINES,

Town Clerk.

CITY OF MANCHESTER

PUBLIC HEALTH DEPARTMENT

CRUMPSALL HOSPITAL (1,565 Beds)

APPOINTMENT OF A CONSULTANT SURGEON (Part-time)

The Public Health Committee invite applications for the appointment of Consultant Surgeon (part-time) at the Crumpsall Hospital, Manchester, 2. Experience in urology will be regarded as an additional qualification.

Salary £300 per annum

Terms of application and copies of a memorandum on the terms and conditions of appointment may be obtained from the Medical Officer of Health, Public Health Department, Town Hall, Manchester, 2, by whom applications must be received not later than Saturday, November 5th, 1938.

Town Hall, Manchester, 2.
R. H. ADCOCK, Town Clerk
October 18th, 1938

CITY OF MANCHESTER

WITHINGTON HOSPITAL (1,184 Beds)

(Recognized under the Regulations for the F.R.C.S.)

The Public Health Committee invite applications from registered Medical Practitioners for posts of THREE RESIDENT ASSISTANT MEDICAL OFFICERS at the above-named hospital, which will become vacant early in January, 1939.

The salary for each appointment is £200 per annum, with board, residence, and laundry in addition, subject to the Manchester Corporation conditions of service.

Each appointment will be made in the first instance for a period of six months, renewable for a further six months, but not renewable thereafter. Full information and forms of application may be obtained from the Medical Officer of Health, Town Hall, Manchester, 2, and applications for the posts must be received by him not later than November 10th, 1938.

Town Hall, Manchester, 2.
R. H. ADCOCK, Town Clerk
October 17th, 1938.

BOROUGH OF TOTTENHAM WELFARE AUTHORITY.

MATERNITY AND CHILD WELFARE COMMITTEE.

VISITING ANAESTHETIST.

Applications are invited for the post of Visiting Anaesthetist to the above Authority in connection with their Dental Scheme for the treatment of expectant mothers and children under 5 years of age.

Remuneration will be at the rate of two and a half guineas per two-hour session and the number of sessions will be one per month to commence with. This number is likely to be increased in the near future.

Preference will be given to applicants holding Hospital Visiting Appointments.

Applications, accompanied by a copy of three recent testimonials, should be forwarded to the Medical Officer of Health, Town Hall, Tottenham, N.15, not later than Tuesday, November 1st, 1938.

M. F. DAVIDSON,
October 13th, 1938. Clerk to the Committee

GENERAL HOSPITAL, NOTTINGHAM.

(389 Beds.)

A HOUSE SURGEON is required at the above Institution for the Ear, Nose and Throat Department, containing 40 beds and a large Out-patient Department. The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry.

Candidates are desired to send applications, stating age, qualifications, and experience, together with copies of testimonials, to the undersigned. Duties to commence on December 1st, 1938.

HENRY M. STANLEY,
House Governor and Secretary.

FREE EYE HOSPITAL, SOUTHAMPTON.

The Committee require the services of a duly qualified HOUSE SURGEON for a period of six months from December 1st, 1938. Salary £150 per annum, with board, residence, and laundry.

Postgraduate experience in Ophthalmology is desirable.

Applications, with three recent testimonials, to reach the Secretary by November 4th, 1938.

ECCLES AND PATRICROFT HOSPITAL, Near Manchester

SENIOR HOUSE SURGEON required early November. Appointment for six months, may be extended. Commenced salary £174 p.a., plus usual emoluments. Excellent surgical experience obtainable. Apply, with references to Secretary.

MIDDLESEX COUNTY COUNCIL

PUBLIC HEALTH DEPARTMENT.

10, Great George Street, Westminster, S.W.1

(1) Additional ASSISTANT MEDICAL OFFICER OF HEALTH required—must be medical practitioner with degree or diploma in Sanitary Science, Public Health, or State Medicine, previous hospital appointments, good knowledge of clinical medicine and public health organization, and practical experience in public health administration essential.

Pensionable staff, subject to medical examination. Salary £1,000-£1,100 p.a., and reasonable out-of-pocket travelling expenses.

Duties on central staff under supervision and control of County Medical Officer. Whole-time duties on other appointments or private practice permitted. Last date for receipt of applications October 29th, 1938.

(2) DENTAL ANAESTHETISTS required for duties as and when required at school dental clinics in Fretton Burnet, Wembley, South Harrow, Hayes, Southall, Uxbridge, and Slough.

Must be registered medical practitioners, with special knowledge and experience in administration of dental anaesthetics.

Fee, £1 11s 6d for 1½-hour session, approximately weekly and arranged as far as possible to suit anaesthetists' convenience. Last date for receipt of application October 29th, 1938.

WEST MIDDLESEX COUNTY HOSPITAL

Tuckenhams Road, Ilkworth

(3) Resident ASSISTANT MEDICAL OFFICER—registered medical practitioner required, with previous resident appointments in general hospitals and special surgical experience.

Salary £400-£25-£475 per annum, with board, lodging, and laundry valued at £100 per annum.

Whole-time duties under supervision of Medical Superintendent; pensionable staff, subject to medical examination. Appointment for four years only, subject to one month's notice on either side. Possibility of retention on established staff with £500 p.a. maximum. Contribution to the superannuation fund will be required from April 1st, 1939. Last date for receipt of applications November 5th, 1938.

Apply for either post to the undersigned, giving age, qualifications, and special experience, and copies of not more than three recent testimonials. Enclose envelopes either "Asst. C.M.O." "Dental Anaest." or "West Mid. A.M.O." Canvassing, direct or indirect, disqualifies.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.
Guildhall, Westminster, S.W.1.

CITY OF BIRMINGHAM

Maternity and Child Welfare Department.

Canwell Hall Babies Hospital (84 Beds.)

A WOMAN RESIDENT MEDICAL OFFICER is required for a period of six months. Duties to commence on December 6th.

Applicants should have had previous experience as a resident house physician, preferably in a Children's Hospital.

Salary £250 per annum, with board and laundry. Applications, endorsed "Resident Medical Officer," and accompanied by copies of three recent testimonials to be made on a form obtainable from the Medical Officer of Health, Council House, Birmingham, 3, and returned to him on or before October 26th.

BIRMINGHAM AND MIDLAND SKIN HOSPITAL

John Bright Street, Birmingham, 1.

Applications are invited from registered Medical Practitioners to act as AFTERNOON CLINICAL ASSISTANTS, Saturdays and Sundays excepted, in the Out-patient Department.

An honorarium of half a guinea per attendance will be offered. The Clinical Assistants will be allotted one afternoon each per week. They will hold office for six months from January 1st, 1939, and will then be eligible for reappointment until December 31st, 1939.

Applications, stating age, qualifications, experience, and suggested afternoon to the undersigned not later than November 5th, 1938.

I. E. MURTAGH,
House Governor and Secretary.

THE STAFFORDSHIRE GENERAL INFIRMARY, STAFFORD.

(145 Beds, including 14 Private Wards Three Residents)

HOUSE PHYSICIAN required. Salary £150 per annum, with board and residence.

Applications, stating age and experience, accompanied by copies of three recent testimonials, should be sent to me forthwith.

A. E. COLLINS,
Stafford.
October 19th, 1938. Secretary.

KENT AND SUSSEX HOSPITAL FUN-
BRIDGE WELLS (210 Beds.)

Applications are invited for the post of RESIDENT SURGICAL OFFICER. Salary £250 per annum, with board, residence, and laundry in the House.

The Hospital includes the following departments: Medical, Surgical, Ear, Nose and Throat, Ophthalmic, Orthopaedic, Gynaecological, Radium, X-Ray and Electro-therapeutic Massage, Pathological, Venereal Disease, etc.

In addition to the Resident Surgical Officer the Resident Staff includes:

One Senior House Surgeon,
One Casualty Officer and Junior House Surgeon,
One House Physician,
One Ear, Nose and Throat, and Ophthalmic House Surgeon.

Applications, stating qualifications, together with certificate of registration and copies of not more than three recent testimonials, should be sent to the undersigned as soon as possible. The appointment will be for twelve months.

TOM E. HARRISON,
October 4th, 1938. Superintendent-Secretary.

TILBURY HOSPITAL, ESSEX.

(92 Beds.)

MEDICAL SUPERINTENDENT

The Committee of Management of the Seamen's Hospital Society invite applications for this appointment, falling vacant on December 1st. The appointment will be for one year in the first instance at a salary of £200 per annum, with board, residence, and certain emoluments, the holder is eligible for re-election for a second year. Candidates must be single and not more than 35 years of age. Preference will be given to those who have had surgical experience.

Candidates, with copies of recent testimonials, to be sent in immediately to the undersigned, from whom further particulars can be obtained.

Seamen's Hospital, F. A. LYON,
Greenwich, S.E.10 Secretary
October 14th, 1938

NORFOLK AND NORWICH HOSPITAL

Norwich. (417 Beds.)

Applications are invited for the post of CASUALTY OFFICER. Salary £120 per annum, with board, residence, and laundry. Candidates (male) must be unmarried and must possess registered qualifications.

Applications, stating age, nationality, etc., together with copies of testimonials should be forwarded to the undersigned not later than first post on Tuesday October 25th, 1938.

FRANK INCH,
Home Governor and Secretary.
October 14th, 1938

NOTTINGHAM GENERAL DISPENSARY

Broad Street, Nottingham.

Wanted, RESIDENT MEDICAL OFFICER (female) unmarried. Must have Medical and Surgical qualifications. Salary £300, with £25 increase per year up to £350. House, with attendance, lights and fuel (not board). This Institution is a non-provident one. No Midwifery.

Applications, stating age and accompanied by copies of recent testimonials, to be sent by November 5th, 1938.

Thurthall Street, R. H. WILLATT,
Nottingham. Secretary.

THE DUCHESS OF YORK HOSPITAL FOR BABIES.

Manchester (50 Beds.)

Applications are invited for the post of SENIOR RESIDENT MEDICAL OFFICER. Appointment for seven months from December 1st, 1938. Salary at the rate of £125 per annum, with Laundry. Previous Hospital experience essential.

Applications, together with copies of testimonials, to be sent to the Secretary by October 31st.

LOUISE BAILEY, Secretary.

THE COUNTY INFIRMARY, CARMARTHEN

(100 Beds.)

HOUSE SURGEON required for six months in first instance from November 7th next. Salary £150 per annum, with board, residence and laundry.

Medical, Surgical, and Maternity cases. Applications stating age qualifications, etc., by October 31st.

HON. SECRETARIES

ESSEX COUNTY HOSPITAL, COLCHESTER.

(174 Beds.)

Wanted in mid-November a HOUSE PHYSICIAN (male). Salary £150 per annum, with board, washing, and residence.

Applications, with three recent testimonials, to be sent by Friday, November 4th, to the Secretary.

THE WILLEDEN GENERAL HOSPITAL, Harlesden Road, N.W.10

ASSISTANT SURGICAL OFFICER.

The Council of Management invite applications for the appointment of Assistant Surgical Officer.

Candidates must be Fellows of the Royal College of Surgeons of England and shall not be engaged in general practice. An honorarium at the rate of £50 per annum is attached to the appointment.

Six copies of application, with names of referees (testimonials not to be sent) to be received not later than 9 a.m. on Monday, October 24th, 1938, by the Secretary of the Hospital, from whom a copy of the Regulations may be obtained upon written application.

October 10th, 1938.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W.C.1.

RESIDENT HOUSE SURGEON (Male).

There will be a vacancy for a Third Resident House Surgeon to enter on duty shortly. The appointment will be for a period of nine months: three months as Third House Surgeon, three months as Second House Surgeon, and three months as First House Surgeon. Remuneration at the rate of £75 per annum.

Applications, accompanied by copies of not more than three testimonials, should be sent to the undersigned immediately.

JOHN H. YOUNG,
Secretary-Superintendent.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the post of HONORARY BIOLOGIST. Candidates must be University Graduates and have had previous experience in this type of work. Appointment is for one year, with eligibility for re-election.

The successful candidate will be required to undertake special biological and biochemical investigations outside the routine work of the Pathological Laboratory.

Full particulars of the appointment and details with regard to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications should be returned not later than November 11th, 1938.

GILBERT G. PANTER,
Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the post of PHYSICIAN for Diseases of the Skin (Second) at the above Hospital.

Candidates must possess the degree of M.D. or M.B. obtained by examination at a British University, and be Fellows or Members of the Royal College of Physicians.

Full particulars of the appointment and details with regard to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications should be returned not later than November 11th, 1938.

GILBERT G. PANTER,
Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

A vacancy occurs for a CLINICAL ASSISTANT in the Ear, Nose and Throat Department. Applications should be addressed to the Secretary.

THE LONDON LOCK HOSPITAL, 283, Harrow Road, W.9.

Applications are invited for a RESIDENT MEDICAL OFFICER (male) to ALL DEPARTMENTS. Candidates must be doubly qualified and duly registered. The appointment is for six months commencing December 1st. Salary at the rate of £175 p.a., with furnished rooms, full board, and laundry. Preference will be given to candidates having previous chirostatic experience.

Applications, enclosing copies of three recent testimonials, must be in the hands of the Secretary (from whom further particulars can be obtained) by first post on Friday, October 28th.

THE RADIIUM INSTITUTE AND MOUNT VERNON HOSPITAL, 1, Ridgely House Street, London, W.1.

A HOUSE SURGEON is required immediately at the Mount Vernon Hospital, Northwood. The appointment will be made for six months at a salary at the rate of £110 per annum, with board and residence.

Applications should be sent at once to the undersigned at the above address.

A. A. GARNER, Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15.

Applications are invited for the post of HONORARY ASSISTANT PHYSICIAN to the Department of Psychological Medicine at the above Hospital.

Applications, accompanied by copies of testimonials from candidates, who must be duly registered Practitioners, either Graduates in Medicine of a University or Fellows or Members of a Royal College of Physicians, should be lodged with the undersigned not later than Tuesday, November 1st, 1938.

RAPHAEL JACKSON (Major),
Secretary.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.1.

OPHTHALMIC DEPARTMENT.

Applications are invited for the office of CLINICAL ASSISTANT and REFRACTIONIST, for attendance one session per week.

Honorarium £50 per annum.

Applications, with copies of three testimonials, should be sent to the undersigned on or before Friday, October 28th, 1938.

By Order of the House Committee.
CHARLES M. POWER,
Secretary.

THE SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.1.

Applications are invited for the post of HOUSE SURGEON for a period of six months, commencing November 15th next. Salary at the rate of £100 per annum, with board, lodging, and laundry. Previous experience as House Surgeon essential.

Applications, stating age, accompanied by copies of only of testimonials, should be sent to the Secretary at the Hospital on or before Thursday noon, October 27th, 1938.

G. H. HAWKINS,
Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL, Euston Road, N.W.1.

OPHTHALMIC DEPARTMENT, OUT-PATIENTS.

Applications are invited from fully qualified medical women for the post of CLINICAL ASSISTANT—Thursday-evening clinic—honorarium £50 per annum.

Further particulars of the post may be obtained from the undersigned, to whom applications, with copies of three testimonials, should be sent not later than November 2nd, 1938.

JEAN R. MURRAY,
Secretary.

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN, St Quintin Avenue, North Kensington, W.10. (Ladbroke 0133.)

The Board of Management invite applications for the post of PHYSICIAN-IN-CHARGE of the Child Guidance Clinic. Applicants must hold the D.P.M. and must have had practical experience in a Child Guidance Clinic.

Applications, accompanied by copies of three testimonials, should be sent to the undersigned at the Hospital, from whom any further information can be obtained, and should reach him not later than October 28th, 1938.

H. J. ELEY, Secretary.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

Applications are invited for the appointment of ASSISTANT PHYSICIAN. Intending candidates (men or women), who must be Fellows or Members of the Royal College of Physicians, London, should submit applications, accompanied by copies of three recent testimonials, to the undersigned on or before November 7th, 1938.

RICHARD T. BARTLEY, Secretary.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

There is a vacancy for an HON. ASSISTANT RADIOLOGIST at the above Hospital. The candidates must be British subjects and must hold a registrable medical qualification and a D.M.R.E.

Applications, accompanied by three recent testimonials, should be sent to the undersigned by November 20th, from whom further particulars may be obtained.

RICHARD T. BARTLEY, Secretary.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.3.

The Committee of Management give notice that there will be two vacancies in the office of PHYSICIAN to the Hospital on November 30th, 1938. Intending applicants, who must be Fellows or Members of the Royal College of Physicians of London, should address applications, accompanied by copies of testimonials, not later than Monday, November 7th, to the undersigned.

Two Assistant Physicians to the Hospital are candidates for the posts.

Brompton, S.W.3. F. G. ROUVRAY,
October, 1938. Secretary.

LONDON HOSPITAL, E.1.

Applications are invited for the post of FIRST ASSISTANT and REGISTRAR to the Children's Department. The appointment is for one year, but is renewable annually, on application, for two further periods of one year.

Salary £500 per annum, payable by the Hospital and Medical College jointly.

Candidates must be fully qualified medically. Applications should arrive at the Hospital not later than by the first post on Saturday, November 12th.

ARTHUR G. ELLIOTT,
House Governor.

LONDON HOSPITAL, E.1.

Applications are invited for the post of SURGICAL FIRST ASSISTANT and REGISTRAR. Candidates must be Fellows of the Royal College of Surgeons. The appointment is for one year, but is renewable annually on application for two further periods of one year. Salary £300 per annum, payable by the Hospital and Medical College jointly.

Applications should arrive at the Hospital not later than by the first post on Saturday, December 17th.

A. G. ELLIOTT,
House Governor.

LONDON HOSPITAL, E.1.

CARDIAC DEPARTMENT.

The post of PATERSON RESEARCH SCHOLAR and CHIEF ASSISTANT in this Department will be vacant on January 1st, 1939.

The salary is at the rate of £400 p.a. Applications should arrive at the Hospital not later than Saturday, December 10th.

Further particulars on request.
ARTHUR G. ELLIOTT,
House Governor.

METROPOLITAN HOSPITAL, Kingsland Road, London, E.8.

Applications are invited for the post of CASUALTY OFFICER AND RESIDENT ANAESTHETIST (male). Salary at the rate of £100 p.a., with board, residence, and laundry. Duties to commence December 1st. Candidates must possess a registered medical and surgical qualification of the United Kingdom.

Applications should be obtained and returned to the undersigned not later than November 8th.

FRANK JENNINGS,
House Governor and Secretary.

KING EDWARD MEMORIAL HOSPITAL, Ealing, W.13. (145 Beds.)

Applications, which should be submitted by Wednesday, November 9th, 1938, are invited for the following appointments:

CONSULTING PHYSICIAN,
CONSULTING PHYSICIAN FOR DISEASES
OF CHILDREN.

Particulars may be obtained from the undersigned.

R. A. NICKELWRIGHT,
House Governor.

EAST HAM MEMORIAL HOSPITAL, Shrewsbury Road, E.7. (104 Beds.)

Applications are invited for the post of ANAESTHETIST. The successful candidate will be required to attend on Wednesday mornings. Honorarium £1 1s. per session.

Applications, stating age, experience, and full particulars, together with copies of three testimonials, should reach the undersigned by November 9th.

REGINALD PERRY,
Secretary.

KING'S COLLEGE HOSPITAL, London, S.E.5.

Applications are invited for the post of ASSISTANT OPHTHALMIC SURGEON. Particulars may be obtained from the House Governor, to whom applications (accompanied by copies of three testimonials) should be sent not later than October 31st.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

| Town or District. | Town or District. | Town or District. |
|--|--|---|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(contd.) | PUBLIC HEALTH |
| ABERTYSSWG MEDICAL AID SOCIETY (Medical Officer.) | MID-RHONDDA MEDICAL AID SOCIETY (Assistant Medical Officer.) | COUNTY OF ROXBURGH. (Assistant Medical Officer of Health.) |
| BLAENAVON MEDICAL SOCIETY (Chief Medical Officer.) | NEATH AND DISTRICT. (Medical Aid Association.) | DISPENSARY APPOINTMENTS |
| GILFACH GOCH, GLAMORGAN (Workmen's Medical Scheme.) | OGMORE VALLEY, GLAMORGAN (Wynham Colliery Medical Aid Society) (Workmen's Medical Scheme.) | LIMERICK CITY. (Whole-time Dispensary Medical Officers.) |
| LLWYNPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme.) | OAKDALE, MON. (Medical Officer for Medical Aid Association.) | |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District. | Hon. Sec. of Division or Branch. | Town or District. | Hon. Sec. of Division or Branch. | Town or District. | Hon. Sec. of Division or Branch. |
|---|--|---|--|---|--|
| NEW SOUTH WALES (All Friendly Societies' Appointments.) | The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W. | VICTORIA (All Institute or Medical Dispensaries.) | The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria. | WESTERN AUSTRALIA (Contract and Lodee Practitioners.) | The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia. |
| QUEENSLAND (Brisbane Associate Friendly Societies Institute.) | The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17. | | | | |

October 19, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

CERN COED HOSPITAL, SWANSEA (Swansea County Borough Mental Hospital.) DEPUTY MEDICAL SUPERINTENDENT.

Applications are invited for the above post from registered Medical Practitioners (male) whose ages do not exceed 45 years.

Candidates must have previous Mental Hospital experience, and must hold a Diploma in Psychological Medicine. Preference will be given to those who have experience as House Surgeon or House Physician in a General Hospital.

Salary £525 per annum, rising by two annual increments of £25 each to £575, with pleasant detached house (rent and rate free), coal, electric light, laundry, and garden produce, which are valued for superannuation purposes at £75 per annum. The appointment will be subject to the provisions of the Asylum Officers' Superannuation Act, 1909, and may be terminated by two calendar months' notice on either side. The selected candidate will be required to pass a medical examination.

Applications, accompanied by copies of two recent testimonials, must be sent to the Medical Superintendent not later than Wednesday, October 26th.

H. L. LANG-COATH,
Clerk to the Visiting Committee

WORTHING HOSPITAL.

Applications are invited for the post of SURGEON to the Hospital.

Candidates must be Fellows of the Royal College of Surgeons of England or Masters in Surgery of a British University. They should not be engaged in general practice, and must reside within easy access to the Hospital.

Applications, with not more than three testimonials (copies only), together with the names of persons to whom reference can be made, should be sent to the Secretary Superintendent of the Hospital, from whom further particulars may be obtained. They should be received not later than October 28th, 1938.

A. V. OAKTON,
Secretary Superintendent

WILSON HOSPITAL, MITCHAM, SURREY. (72 Beds.)

RESIDENT MEDICAL OFFICER, male or female, required from November 24th next. Salary £150 per annum, with board, residence, and laundry. The appointment is for six months, renewable for a further six months at the discretion of the Committee.

The Hospital is quite modern and exceptionally well equipped, and carries out work of a character which gives the Resident Medical Officer a considerable amount of experience.

Applications, with copies of three testimonials, stating age, qualifications, and experience (particularly anaesthetics), should be sent at once to the Hon. Secretary, "Greenview," Lower Green, Mitcham.

ROYAL SURREY COUNTY HOSPITAL, Guildford.

WANTED, NOVEMBER 1ST.
HOUSE PHYSICIAN AND CASUALTY OFFICER
(Male.)

Six months' appointment—recognized for M.D. examination. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age and essential particulars, with copies of not more than three testimonials, to reach the Secretary-Superintendent not later than first post on Wednesday, October 26th.

VICTORIA HOSPITAL, BLACKPOOL (182 Beds.)

HOUSE SURGEON (Male) Required to
Surgical Unit No. 1.

There are four resident Medical Officers. Appointment is for six months. Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, with copies of three recent testimonials should be sent to the
GENERAL SUPERINTENDENT.

ALTRINCHAM GENERAL HOSPITAL. (100 Beds.)

HONORARY SURGEON.

Applications are invited for the post of Honorary Surgeon to the Altrincham General Hospital.

Applicants must have a higher surgical qualification, and should reside within ten miles from Altrincham. Applicants must state what hospital appointments they already hold, and what attendances these appointments entail.

Further particulars and list of duties can be obtained from the Secretary of the Hospital. Twelve printed or typewritten copies of the application, together with three testimonials, should reach the undersigned not later than Monday, October 31st, 1938.

E. A. BIDEN, Secretary.

ABERDEEN ROYAL INFIRMARY.

The Board of Directors invite applications for the appointment of MEDICAL REGISTRAR, to take up duty on or about November 12th, 1938. The post is a resident one and the salary is at the rate of £200 per annum.

Applications, accompanied by six copies of recent testimonials, should be lodged on or before October 24th, 1938, with the undersigned, from whom particulars of the duties and terms of appointment may be obtained.

1, Albany Place, JOHN A. MCCONACHIE,
Aberdeen. Clerk and Treasurer.

MARGATE AND DISTRICT GENERAL HOSPITAL (98 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male).

Salary £150 per annum, with board and laundry. Duties to commence November 1st, 1938.

Applications, accompanied by copies of testimonials, should be addressed to the Secretary at the Hospital as early as possible.

(Appointments continued on p. 59)

CHARGES for ADVERTISEMENTS

CIRCULATION OF THIS ISSUE—41,750 COPIES

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ADVERTISEMENT MANAGER, BRITISH MEDICAL JOURNAL;
B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

EUSTon 2111

NOT CLASSIFIED

DOCTOR DONALD McPHEE.—WILL ANY doctor aware of the present or last known address of the above-named, who is believed to have practised in the Chiswick area of London and latterly in West Lothian, Scotland, kindly communicate with Address, No. 9242, B.M.A. House, Tavistock Square, W.C.1.

WINTER SPORTS

Party to Saas-Fee (6,000 ft.), December 28th-January 11th. Winter Sports certain. Splendid skiing. Ski School. Large ice-rink adjoining hotel. Magnificent scenery. Brilliant sunshine. Largest hotel, entirely reserved. Dr. and Mrs. C. F. Fothergill will conduct the Party. Many medicals and members of their families have attended our Parties from time to time. Write for prospectus: Dr Fothergill, Chorley Wood, Herts. Phone: 24.

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TOBACCO GOOD SMOKES at a low price, quality guaranteed. Box of 50 for 25/-, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

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THE finest combination ever discovered of Choice Natural Tobaccos. Every pipeful an indescribable pleasure. 12.6 per 1 lb. tin, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

WANTED. MEDICAL MAN FOR YACHT.
Four to five months from November 15th. Surgical experience essential.—Apply, HOPDER, 141, Harley Street, W.1.

M.B., B.Ch. (39). WIDE EXPERIENCE.
seeks INTERESTING POST, not general practice. Good references.—Address, No. 9520, B.M.A. House, Tavistock Square, W.C.1.

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NATIONAL ADOPTION SOCIETY, 4, BAKER STREET, W.1. Telephone: Welbeck 7211. OFFERS ASSISTANCE in the legal adoption of illegitimate and orphan babies into suitable family life. Chairman, THE LADY GWENETH CAVENDISH.

PHYSICIAN IN BEAUTIFUL PART OF Somerset, three miles from sea, can RECEIVE INVALID (either sex), or married couple. Quiet, cheerful home. All modern conveniences. Saloon car available.—Address, No. 9504, B.M.A. House, Tavistock Square, W.C.1.

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WANTED IMMEDIATELY, OUTDOOR male ASSISTANT for mixed practice in South Coast town. Salary £400, plus £50 car allowance.—Address, No. 9420, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR AND Outdoor ASSISTANTS for town and country practices, with and without view to Partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED AT ONCE, INDIAN ASSISTANT in a Lancashire town. Reply with full particulars regarding age, experience, etc.—Address, No. 9434, B.M.A. House, Tavistock Square, W.C.1.

WANTED NOW, OUTDOOR ASSISTANT, Scottish or English, Protestant, graduate, under 30. Surgical-hospital experience, scope E.N.T., own car necessary. Salary £450 inclusive. Send full particulars.—Address, No. 9435, B.M.A. House, Tavistock Square, W.C.1.

WANTED, END OCTOBER, WINTER OUT- door ASSISTANTSHIP. Woman, 11 years in general practice, M.B., L.M., N.U.I., accustomed charge. Drive car.—Address, No. 9419, B.M.A. House, Tavistock Square, W.C.1.

WANTED, NOVEMBER, YOUNG MALE Indoor ASSISTANT, British. Good-class mixed country practice, Shropshire. Hospital experience, £300 p.a.; £50 car allowance.—Address, No. 9254, B.M.A. House, Tavistock Square, W.C.1.

WANTED AT EARLY DATE, YOUNG single male outdoor ASSISTANT, English or Scottish and recently qualified preferred, for mixed practice in Essex, 30 miles from London. Salary £480, including car allowance. Own car essential. References.—Address, No. 9426, B.M.A. House, Tavistock Square, W.C.1.

WANTED AT ONCE, AN OUTDOOR ASSISTANT. Must be married and have own car and furniture. Salary £450 and bonuses. District industrial, bordering on agricultural. Midlands area.—Address, No. 9515, B.M.A. House, Tavistock Square, W.C.1.

WANTED, OUTDOOR MALE ASSISTANT. English or Scottish, unmarried, with some previous experience, and under 30 years of age, for panel and private practice in urban district of Yorkshire. £300 and all found, with £50 p.a. car allowance.—Address, No. 9501, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT, INDOOR, mixed practice near London. Salary £300, car provided. Must be European and possess driving licence.—Address, No. 9505, B.M.A. House, Tavistock Square, W.C.1.

WANTED, OUTDOOR MALE UNMARRIED ASSISTANT for South Wales practice. Car provided. Salary £400, rooms and attendance. Car provided. Driving licence essential. Apply, with testimonials, stating age, experience (if any), and nationality.—Address, No. 9427, B.M.A. House, Tavistock Square, W.C.1.

WANTED, YOUNG MALE ASSISTANT, unmarried, to reside at branch surgery, £300 p.a. all found, plus £50 car allowance and free garage accommodation. Midlands.—Address, No. 9508, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, OUTDOOR, SINGLE male, British, Protestant, with some experience, for rural practice in N. of England. Salary £400 per annum, with car allowance. Work light.—Address, No. 9503, B.M.A. House, Tavistock Square, W.C.1.

WANTED, A COLOURED DOCTOR FOR AN ASSISTANT. Able to drive car. Must be keen and energetic. Car allowance, salary, and future to be discussed at interview.—Address, No. 9502, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP OR LONG LOCUM by woman doctor. Several years' experience private and panel practice. Drive car.—Address, No. 9507, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT (PART TIME) WANTED IN North London. Very little work, but principal with evening surgery. Living in car to be arranged if desired.—Address, No. 9506, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT, PERMANENT. Preferably married, British, for S.W. London full practice. Salary £354, large flat, use of car. Full particulars to—Address, No. 9430, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT, SINGLE, WANTED IN BRISTOL area, indoor. Apply with references.—Address, No. 9431, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT REQUIRED FOR BRITISH Colony, of German or Austrian nationality holding degree of either country and British qualifications, single, aged 24/35. Salary £600 p.a. plus bonus, passage paid. Four years' contract and view to partnership. Surgical experience essential. Subject to Government permit.—Write **PREVITAL TURNER, LTD.**, 25, Maiden Lane, Strand, W.C.2.

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MEDICAL WOMAN, EDINBURGH graduate, several years' hospital experience, G.P., accustomed sole charge, keen and reliable, requires outdoor ASSISTANTSHIP, £400 p.a. plus car allowance, all out. Own car. Excellent references.—Address, No. 9411, B.M.A. House, Tavistock Square, W.C.1.

OUTDOOR ASSISTANT, REQUIRED IMMEDIATELY for general practice, South Coast, Young, single, recently qualified man preferred. Salary £456, including car allowance, garage provided. Full particulars Interview.—Address, No. 9432, B.M.A. House, Tavistock Square, W.C.1.

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WANTED, BY CAMBRIDGE MAN, 44, extensive operative and obstetrical experience abroad, plus some G.P. England, OPENING in PARTNERSHIP in the warm south, preferably country town, Dorset, Devon. Large income not required, but opportunity desired for some surgery (e.g., Cottage Hospital), plus midwifery and general practice.—Address, No. 9414, B.M.A. House, Tavistock Square, W.C.1.

WANTED, FOURTH PARTNER IN LARGE old-established practice, North London. Growing district, scope for young, energetic Englishman. Six months' preliminary assistantship at £250 plus £50 car allowance. Share worth £1,000-£500 to start with.—Address, No. 9435, B.M.A. House, Tavistock Square, W.C.1.

WANTED, A THIRD PARTNER IN AN old-established practice in a country town in Midlands. Cash receipts over £6,000 a year. Must have good surgical experience. Preferably a Cambridge graduate, but not essential.—Address, No. 9407, B.M.A. House, Tavistock Square, W.C.1.

WANTED, YOUNG PARTNER HAVING done a house appointment for rapidly increasing unopposed practice Bucks. Share £650. Two years' purchase.—Address, No. 9510, B.M.A. House, Tavistock Square, W.C.1.

ENGLISHMAN, M.D. (CANB.), AGED 45, desires PARTNERSHIP. Experienced in neurology, psychiatry, psychotherapy, medicine, and clinical pathology. Willing to take course in anaesthetics first.—Address, No. 9409, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, PEMBROKESHIRE COAST TOWN General PARTNERSHIP view early SUCCESSION. Share £500. Good panel. Accountant's figures. Scope. No Welsh spoken. Good shooting, sea-bathing, educational facilities. Excellent freehold house available on mortgage. Premium share 2 years.—Address, No. 9428, B.M.A. House, Tavistock Square, W.C.1.

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GYNAECOLOGIST, YOUNG AND WELL qualified, wanted as PARTNER in consulting surgical practice. Hospital appointment.—Address, No. 9268, B.M.A. House, Tavistock Square, W.C.1.

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PARTNER REQUIRED IN LARGE, UN- opposed practice in country town in the west of England. Incoming partner required to do very little panel, but experience in midwifery desirable. Share worth at present £2,000 per annum for sale at two years' purchase. Good house to rent or buy.—Address, No. 9233, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP IN CORNISH TOWN: £1,500 at two years' purchase. Partner should be young, married, with good medical degree, and experience G.P. Good house, garden, garage.—Address, No. 9233, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP (ONE-THIRD SHARE), IN Scotland, W. Coast, from Jan. 1st. Average receipts (3 years) £2,000. Panel 2,100, increasing. Premium £1,500 with half-share in five years without further payment.—Address, No. 9279, B.M.A. House, Tavistock Square, W.C.1.

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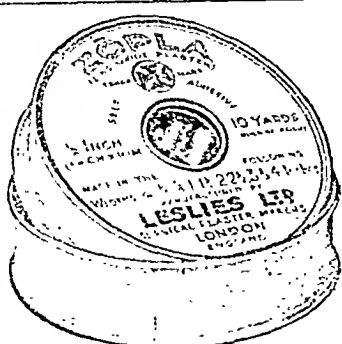
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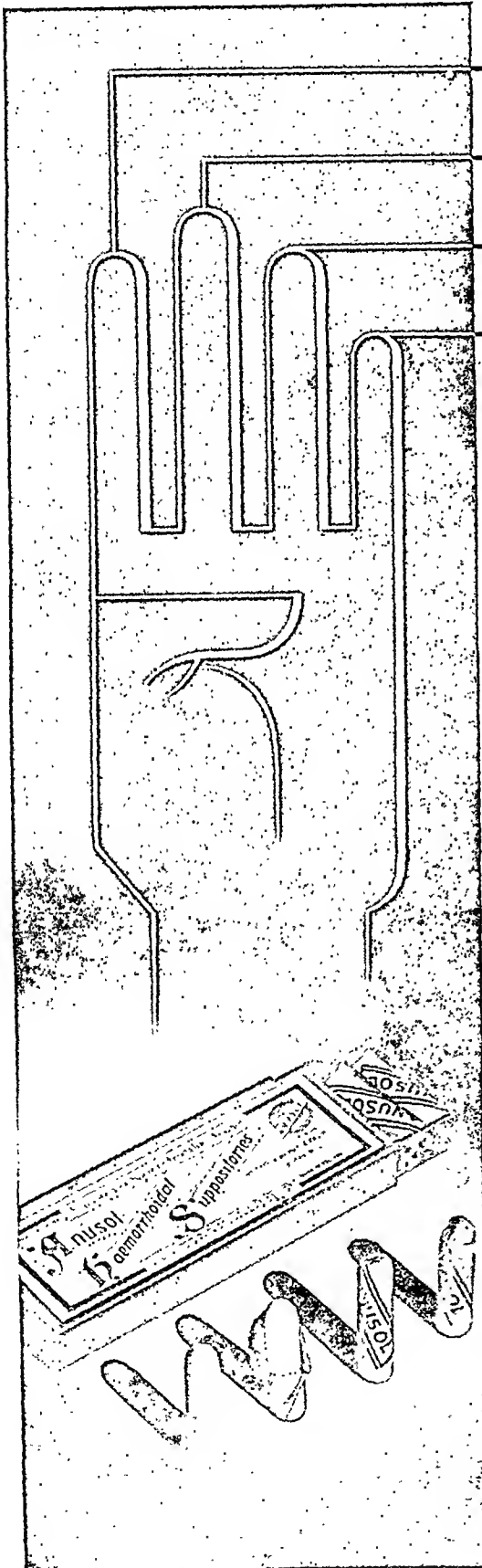
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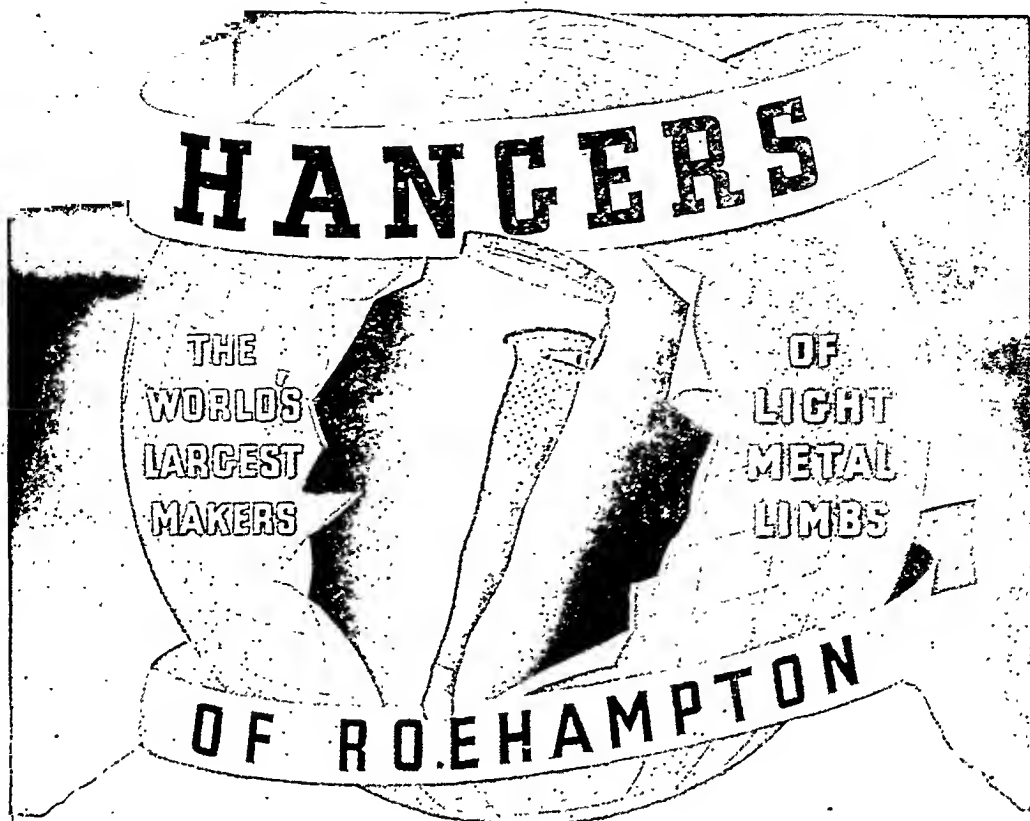
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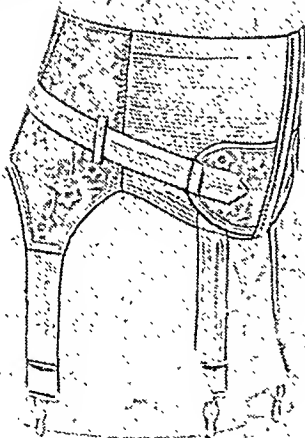
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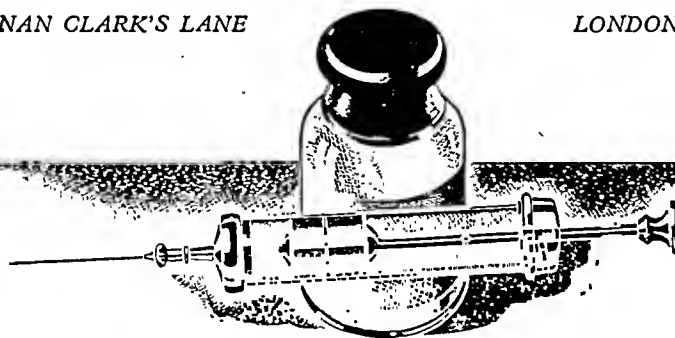
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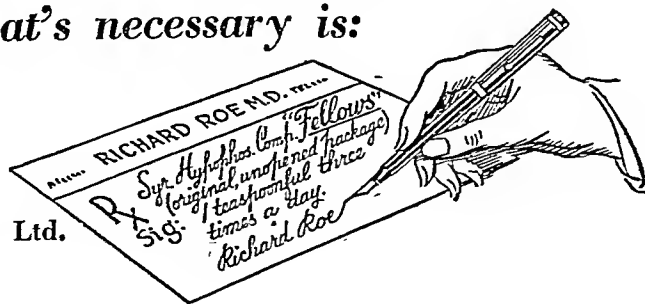
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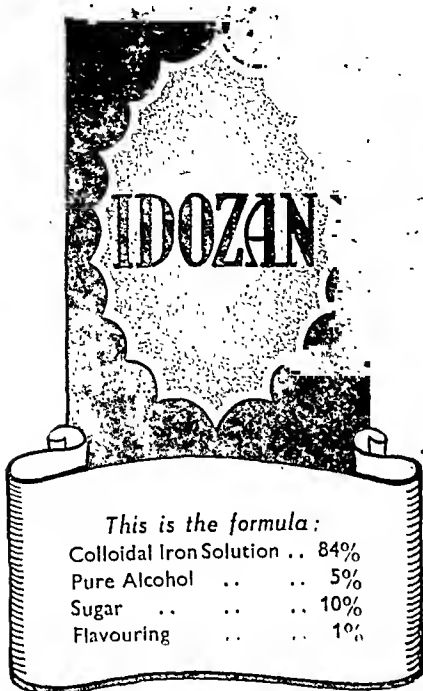
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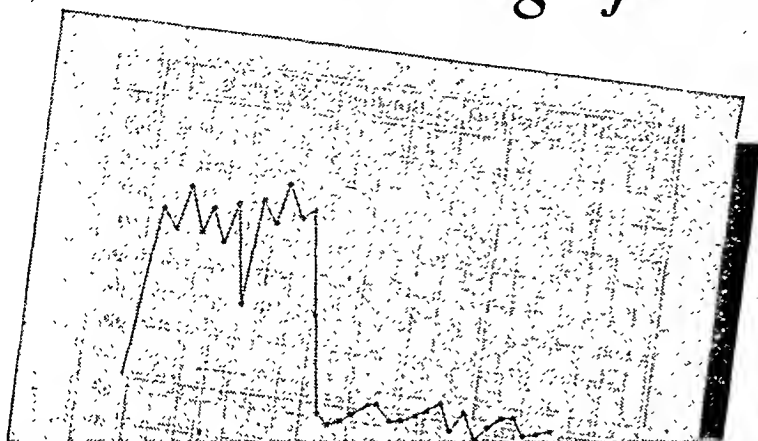
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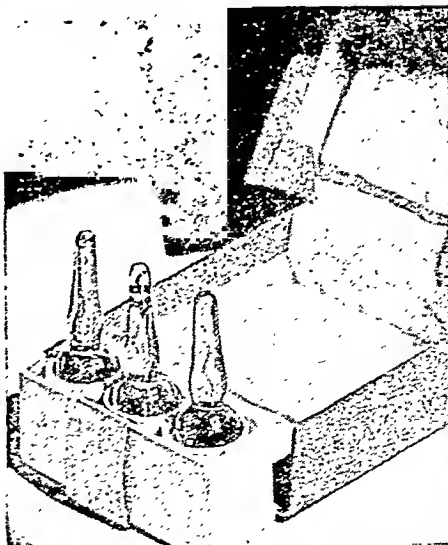
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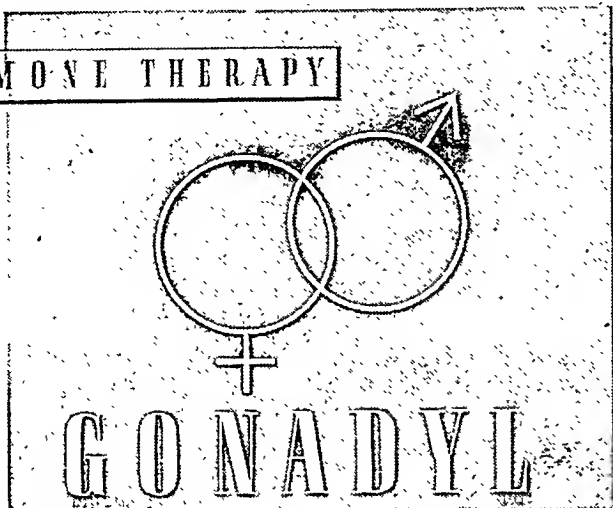
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HORMONE THERAPY

**FEMALE**

AMENORRHOEAS
HYPOMENORRHOEAS
STERILITY

MALE

HYPOGONADISM
IMPOTENCE
AZOOSPERMIA

CHILD

DYSTROPHIA-
ADIPOSO-GENITALIS
DELAYED PUBERTY
CRYPTORCHIDISM

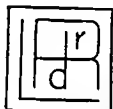
GONADOTROPIC HORMONE

FROM THE SERUM OF
PREGNANT MARES

FOLLICLE STIMULATING HORMONE

Physiological stimulator of the secretions of Ovarian and Testicular Hormones

Ampoules for subcutaneous injections—Biological standardisation—
40 Evans Units (400 Mouse Units approximately)



Box of { 6 Ampoules of Gonadotropic Hormone
6 Ampoules of Solvent

Literature on application to

Sole Distributors for U.K. and
Etc.

ANTIGEN LABORATORIES,

95, Great Portland Street,
London, W.1.



ROUSSEL LABORATORIES LTD

36, CAVENDISH SQUARE, LONDON, W.1

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'ENTORAL'

TRADE MARK

BRAND

ORAL COLD VACCINE

FOR PROPHYLACTIC IMMUNISATION TO RESPIRATORY INFECTIONS AND
PARTICULARLY TO THE COMMON COLD.

ISSUED IN PACKAGES OF 20 and 60 'PULVULES' brand filled capsules.

ELI LILLY AND COMPANY LIMITED,

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TELEPHONE: GERRARD 2144

Distributing Agent in Britain for

ELI LILLY AND COMPANY, INDIANAPOLIS, U.S.A.



MANDECAL

(Compound Calcium Mandelate B.D.H.)

*In the treatment
of urinary infections*

The superiority of Mandecal over other mandelic acid preparations prescribed in the treatment of urinary infections lies in the fact that, whilst it is equally effective, therapeutically, its administration causes less irritation to the gastric mucosa and eliminates the nausea so frequently associated with this form of therapy.

Furthermore, Mandecal is simple of administration; being miscible with water, it is readily taken in a draught.

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THE BRITISH DRUG HOUSES LTD., LONDON N. 1

Telephone: Clerkenwell 3000

Telegrams: Tetradome Telex London

Mand S r.

In Pruritus Ani,¹ Anal Fissure,¹ Pruritus Vulvæ,¹ and Lower Abdominal Pains originating from the Cervix Uteri²

Proctocaine is a lasting, non-toxic, local anæsthetic, for use in irritating or painful conditions of the skin and subcutaneous tissues. It is an improved form of A.E.A. Proctocaine is a combination of oil-soluble anæsthetics of low toxicity. These are combined so as to produce *immediate local anæsthesia* which is maintained by the slow, uniform absorption of its oily vehicle, and action of its oil-soluble ingredients.

The advantages of Proctocaine over other solutions have been found¹ to be as follows:

1. Its effect is almost certain.
2. It produces anæsthesia or hypo-anæsthesia for periods varying from 7 to 28 days or longer.
3. The relaxation which it produces in the anal musculature is much greater and more prolonged.
4. It is comparatively non-toxic, injection of 20 to 30 c.cm. producing no general effect.
5. Even large quantities of it at one sitting have not been found to produce any local reaction if injected properly.
6. Its injection is painless if made slowly.
7. In no case did it produce severe after-pain.

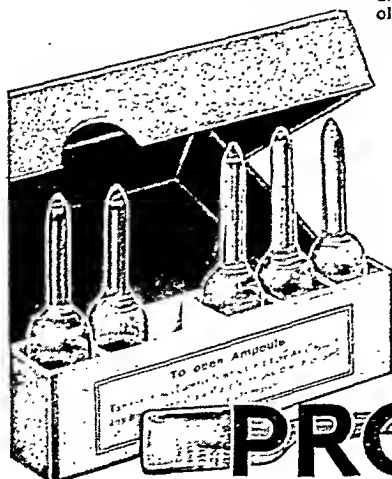
¹British Medical Journal, 1935, November 16th, p. 938.

²British Medical Journal, 1938, January 15th, p. 105.

In 2 c.cm. ampoules: boxes of 6, 4/6; and 12, 8/6.

" 5 c.cm. " " 6, 8/6.

" 10 c.cm. " " 3, 8/6.



PROCTOCAINE

Injection Solution

LOCAL ANÆSTHETIC-ANALGESIC



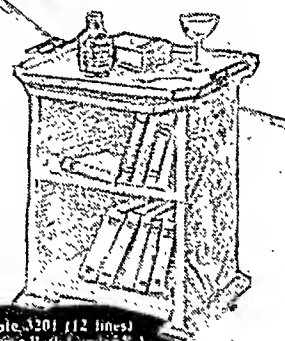
In Gastro-Intestinal Disorders

Allenburys
BEEF JUICE

In such conditions it is a primary consideration that the food should be light and unirritating. In gastric and duodenal ulceration and in the dyspepsias, Allenburys Beef Juice may safely and advantageously be given, where beef tea would often increase the pain and have a harmful effect. Because of its high protein and vitamin content, it provides a valuable means of keeping up a patient's strength.

In bottles at 1/9 and 3/- each.

Descriptive literature and clinical trial sample will be sent on application.



ALLEN & HANBURY'S LTD., London, E.2

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Telex: 33333 Greenbury's Beth

MARMITE

YEAST EXTRACT
for vitamin B complex
in **POLYNEURITIS**

The close connection between polyneuritis and vitamin B₁ deficiency is well known. Not only is the polyneuritis of beri-beri considered to be due to deficiency of this factor, but so also is the polyneuritis associated with gastro-intestinal lesions, pregnancy, alcoholism and other toxic conditions.

Clinical tests have proved beyond doubt that Marmite therapy is effective in these cases of polyneuritis of nutritional origin. In a recent paper on peripheral neuritis, associated with pyloric stenosis and deficiency of vitamin B₁, it is recorded that the patient

"was advised to take Marmite, 2 drachms daily . . . made a gradual improvement and returned to work . . . still takes Marmite. . ."

(Lancet, May 7th, 1938, p. 1045.)

Sample and
literature
on request

THE MARMITE FOOD EXTRACT CO. LTD. - 35, Seething Lane - London, E.C.3

Jars: 1-oz. 6d., 2-oz. 10d., 4-oz. 1s. 6d., 8-oz. 2s. 6d., 16-oz. 4s. 6d.

Special terms for packs for hospitals and welfare centres

3810

IN DEPRESSIVE STATES

In depressive states the suitability of 'Benzedrine' Brand Tablets (β -aminoisopropylbenzene sulphate), as well as the correct dosage, must be determined for the individual patient.

Tentative classifications, however, suggest that the drug is most likely to be of use in conditions characterized by diminution of capacity for activity, and that it is apt to be contra-indicated in anxiety states accompanied by agitation. In depressive psychopathic states, this form of treatment should only be undertaken in an appropriate institution.

Initial doses should be small, ranging from 2.5 mg. (half tablet) to 5 mg. (one tablet). These should be regarded as test doses, and if no effect is obtained from the smallest amount given, the dosage may be progressively increased until a definite effect manifests itself. Careful medical supervision during this test period is particularly desirable.

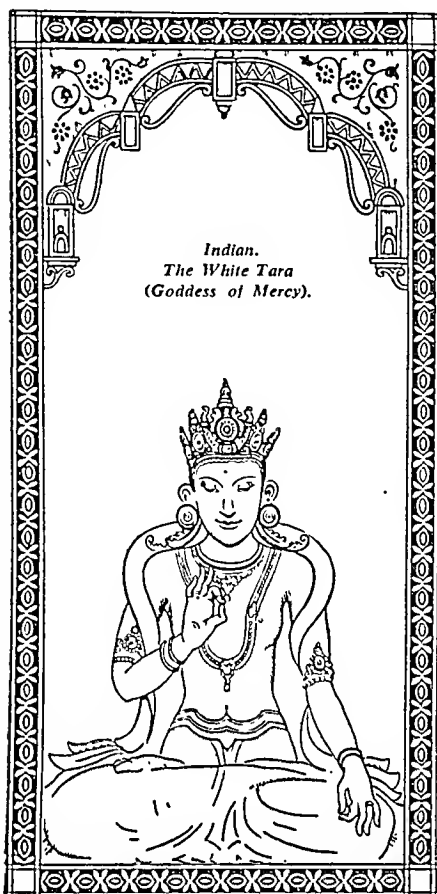
When the correct dosage has been determined, it may be given two or three times daily, bearing in mind that administration in the late afternoon or evening may interfere with sleep.

*Detailed literature will be sent to medical men
on request*

'BENZEDRINE'
BRAND
TABLETS

Distributed by

MENLEY & JAMES LTD., 64, HATTON GARDEN, LONDON, E.C.1,
for Smith, Kline & French Laboratories, owners of the Registered Trade Mark, 'Benzedrine.'



"ALOCOL"

Colloidal Hydroxide of Aluminium

For Gastric or Duodenal Ulcer

IN view of the increasing adoption of intensive alkaline medication for gastric and duodenal ulceration, the selection of a suitable antacid agent is a matter of considerable importance to the general practitioner.

"Alocol" allows of antacid therapy in a particularly effective, safe and reliable form, and replaces with advantage mixtures composed of sodium bicarbonate, magnesia, bismuth, etc. It does not determine any unpleasant secondary reactions, even when taken in strong doses and over a long period of time.

The powerful antacid effect of "Alocol" is more mechanical than chemical in nature. It acts by adsorbing excess of hydrochloric acid, thus facilitating its elimination. It promptly relieves pain and being non-absorbable is free from toxic sequelae.

Complete chemical history of "Alocol" with convincing clinical reports and supply for trial sent free to physicians on request.

A. WANDER, Ltd., Manufacturing Chemists,
184, Queen's Gate, London, S.W. 7.

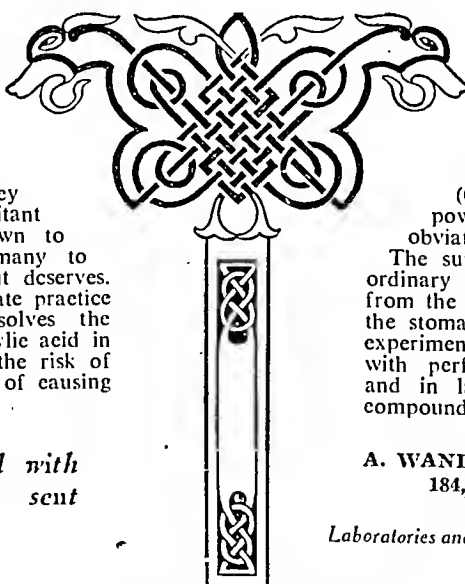
Works: KING'S LANGLEY, HERTFORDSHIRE.

M282

FOR EFFECTIVE CONTROL OF PAIN

AMONG the many and diverse analgesics which have been evolved by modern chemical research, acetyl-salicylic acid retains its reputation as one of the safest and most effective. Its tendency to liberate salicylic acid—the irritant properties of which are well known to physicians—has, however, caused many to hesitate to employ it as widely as it deserves. Exhaustive trial in hospital and private practice proves that "Alasil" definitely solves the problem of administering acetyl-salicylic acid in an effective form, being free from the risk of irritating the stomach or bowels or of causing general reactions.

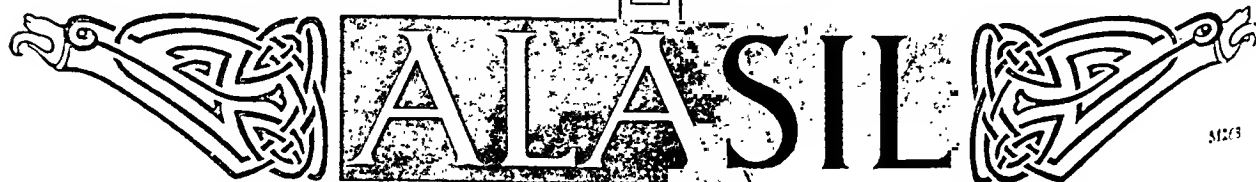
A supply for clinical trial with full descriptive literature sent free on request.



In "Alasil" the desirable therapeutic effects of acetyl-salicylic acid are well exhibited by its calcium acetyl-salicylate moiety, while the presence of "Alocol" (Colloidal Hydroxide of Aluminium), a powerful gastric sedative and antacid, obviates any tendency to gastric irritation. The superior absorbability of "Alasil" over ordinary salicylate compounds and its freedom from the risk of liberating free salicylic acid in the stomach have been well proved by careful experimentation. "Alasil" can be prescribed with perfect safety to patients of all ages and in larger doses than ordinary salicylate compounds.

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M283

INDICATIONS FOR 'SANATOGEN'.

No. 6.

TUBERCULOSIS

PUBLIC ENEMY No. 5

Since the beginning of the century, the death rate from all causes has fallen by one-third. The death rate from Typhoid has dropped from 113 per million to 6.3 in 1936; that from Influenza from 189 to 109; whilst from Measles the death rate has fallen from over a thousand to under three hundred. In the first five years of the century, the average mortality rate from Tuberculosis was over 1700; in 1936 it was 657—but it still holds fifth place in the list of causes of death in this country.

For these improvements, better sanitation and the raising of the economic level of the poor are mainly responsible. Environmental circumstances are important, but so far as Tuberculosis is concerned, nutrition is evidently the most important factor. An adequate supply of nourishing food constitutes the first line of defence. The food must be ample, digestible and absorbable; and must include a sufficiency of proteins, vitamins and minerals.

'Sanatogen', which is a carbohydrate-free product of 95% pure milk casein with 5% sodium glycerophosphate, has proved itself to have great value in building up the body's resisting power to hostile bacilli. It is easily digested and assimilated, and markedly increases the nutritional value of other foods taken with or after it. It is notably helpful to the debilitated; rejuvenating cellular activity (including that of the white blood corpuscles) and promoting healthy tissue-building.

'SANATOGEN'

(Trade Mark)

A Brand of Casein and Sodium Glycerophosphate

Sold by all chemists price 2/3 to 19/9

DOSAGE: For children and adults two teaspoonsful three times daily, or according to circumstances. For infants $\frac{1}{2}$ teaspoonful added to each bottle feed.

The word 'SANATOGEN' is the Trade Mark of Genatosan Ltd., and denotes their famous brand of Casein and Sodium Glycerophosphate. A 'GENATOSAN' product made by GENATOSAN Ltd., Loughborough, Leicestershire.

Clinical samples and literature available on request to

GENATOSAN LTD., LOUGHBOROUGH, LEICESTERSHIRE.

Pediatricists

approve these purées

A range of Strained Foods giving maximum nutritive values


THE nutritional value of vegetable purées for infants and soft diet cases is receiving the endorsement of the medical profession to a very marked degree.

Hitherto the difficulties and deficiencies of home preparation—inefficient sieving and destructive oxidation—not to mention the tedium and labour involved—have hindered practical application, but the introduction of a complete range of strained foods by H. J. Heinz Co. Ltd. has been universally accepted as the solution of this problem.

H. J. Heinz Co. Ltd., with their exceptional experience in food preparation, have recognised the legitimate possibilities of supplying strained foods of that maximum nutritive value, uniformity and convenience which only good factory practice can achieve.

The vegetable and fruit purées of H. J. Heinz Co. Ltd. are prepared under conditions of the most scrupulous care with special reference to minimising mechanical loss of mineral salts and other soluble nutriment. The edible portions are washed and trimmed and then cooked under light steam pressure until in perfect disposition for comminution by extrusion and cutting. All mineral salts, vitamins and other soluble nutriment are retained, while harsher fibres, if any, are so reduced as to be non-irritant. The raw materials are purchased when and where seasonal and regional conditions of growth are most favourable, and only fresh gathered vegetables of the highest quality are used.

After the straining process the purée is adjusted to a proper solid content convenient for marketing. Absorbed air is removed and sealing *in vacuo* follows in specially prepared enamel-lined containers. The process concludes with high-temperature sterilisation.



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|------------------|--------|
| PROTEIN | 4.8 |
| CARBOHYDRATES | 8.8 |
| CALCIUM | 0.012 |
| PHOSPHORUS | 0.083 |
| IRON | 0.0016 |
| VITAMIN A. | GOOD |
| VITAMIN B. | V.GOOD |
| VITAMIN C. | V.GOOD |
| VITAMIN G. | FAIR |
| CALORIES PER OZ. | 170 |

A typical example of the high nutritive values retained in Heinz Strained Foods. (Figures show percentages on the wet basis)

NOTE: Glass containers are not used owing to the deteriorating effect of light on vitamin content and on the palatability of the products.

HEINZ STRAINED FOODS

★ Fully explanatory literature and samples gladly sent on request.

H. J. HEINZ COMPANY LIMITED. HARLES DEN, LONDON, N.W.10

SPINACH
TOMATOES
CARROTS
VEGETABLE SOUP
PEAS
GREEN BEANS
MIXED GREENS
BEETS
PRUNES
CEREAL
APRICOTS AND
APPLE SAUCE
BEEF & LIVER SOUP

'SALYRGAN'

TRADE MARK

BRAND OF MERCURIAN

in the treatment of OEDEMA

AMPOULES



To be used where an immediate result is wished for. Also for continuous therapy if necessary.

Ampoules (1 c.c.) in boxes of 5 and 100

Ampoules (2 c.c.) in boxes of 5 and 100.

SUPPOSITORIES



The suppositories are used as a supplement to the drug by injection. They may be employed alone where it is difficult or impossible to inject.

Suppositories (0.4 gm.) in boxes of 5 and 25.

PELLETS



These pellets are an even more compact form of 'Salyrgan' and are for the express purpose of lengthening the interval between the injections. They maintain a satisfactory diuresis combined with good tolerability.

Pellets in tubes of 20 and bottles of 250

NEW!



ALKA-ZANE

FOR ACIDOSIS

SODIUM POTASSIUM CALCIUM MAGNESIUM

IN THE FORM OF

CARBONATES PHOSPHATES CITRATES

FOR QUICK
AND EFFECTIVE
REPLENISHMENT
OF
THE ALKALI
RESERVE.

The alkaline needs of the body cannot be satisfied by a single alkali, especially when acidosis makes special demands upon the alkaline reserve. The complex mechanism of physiological neutralization could hardly be maintained with one basic substance. Furthermore, the administration of a single alkali in excess may tend to disturb the balanced relationship existing between the alkaline buffers of the organism. Alkalization with Alka-Zane is free from these objections. It may be used in any condition whenever the alkali reserve needs replenishment and support.

Adequate supplies for clinical trial sent on request.

WILLIAM R. WARNER & CO. LTD.,
POWER ROAD, CHISWICK, LONDON, W.4

MADE IN ENGLAND



THE HEPATEX LIVER PRODUCTS

The name Hepatex associated with Liver Extracts
is a guarantee of high potency

HEPATEX (ORAL)

A highly concentrated liquid extract, one fluid drachm containing the equivalent of 2 oz. of whole mammalian liver. One bottle contains sufficient for one week's initial treatment or three weeks' maintenance treatment of pernicious anæmia.

Dose: Initial treatment, one fluid drachm, four times daily. Maintenance treatment, one or two fluid drachms daily.

Bottles of 4 fld. oz. 12/6 each

NEO-HEPATEX (PARENTERAL)

A highly fractionated liver extract for use in the treatment of pernicious anæmia by intravenous or intramuscular injection.

Every batch is clinically tested and approved by independent hospital test before issue.

Dose: In mild cases 1 cc. doses will be found sufficient.

In the average uncomplicated case it will usually be found that 2 cc. given intramuscularly on each of three successive days will produce a satisfactory response, subsequent dosage depending on progress.

In more severe cases larger doses, given intravenously, may be required.

Ampoules. Boxes of 6 × 1 cc. 5/3 per box

Boxes of 6 × 2 cc. 8/- per box

Ampoules. Boxes of 3 × 4 cc. 7/- per box

Rubber-capped bottles of 10 cc. 6/- each

HEPATEX WITH IRON

A combination of Hepatex with Iron. One fluid drachm contains the equivalent of 2 oz. of fresh liver and one grain of metallic iron with a trace of copper.

Indicated in stubborn secondary anæmia.

Dose: One or two fluid drachms per day is in most cases ample.

Bottles of 2 fld. oz. 8/6 each

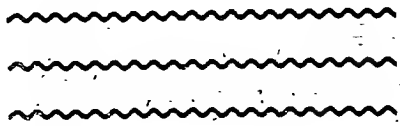
Made at

THE EVANS BIOLOGICAL INSTITUTE

BY

Evans Sons Lescher & Webb Ltd.

LIVERPOOL and LONDON



THE ADVANTAGES OF COD LIVER OIL

as a source of

VITAMIN A and VITAMIN D

In view of the widely varying vitamin content of many liver oils available to the public, it is interesting to note that the British Pharmacopoeia in their most recent Addendum (1936) lay down a definite standard of vitamin content for cod liver oil, and also a definite dosage.

The vitamin content is standardised at not less than 600 International Units of Vitamin A and not less than 85 International Units of Vitamin D per gramme; and the dosage is given as a minimum of 15 minims (a quarter teaspoonful) three times a day. The oil itself is described as "from the fresh liver of the cod."

'SevenSeaS' Cod Liver Oil is extracted on the boat, within thirty minutes of the fish being taken from the sea. It is therefore fresh and easily digested. It is an interesting point of fact that the process of extraction on the boat is impossible with other fish liver oils. 'SevenSeaS' therefore obviates any need to resort to liver oils made from stale and rancid livers.

In its Standard form, 'SevenSeaS' is guaranteed to conform to the standard

vitamin content laid down by the British Pharmacopoeia. For practitioners wishing to administer Vitamin A and Vitamin D in cases where a large fat intake is contra-indicated, 'SevenSeaS' in its 'High Potency' form has a special significance. The vitamin content of this 'High Potency' oil is guaranteed to be four times the Pharmacopoeia standard, and the dosage can therefore be reduced to a few drops only. This is not a fortified oil, but is obtained simply by selection from the oils of the richest livers.

All 'SevenSeaS' Cod Liver Oil is tested and packed in strict conformity with British Pharmacopoeia requirements. Samples of the High Potency Oil, the Standard Oil, and the High Potency Oil in Capsules, will be supplied on request.

VOLPAR

Volpar is the new contraceptive which has been formulated in co-operation with the medical Sub-Committee of The National Birth Control Association; it is the outcome of nearly ten years' continuous investigation conducted by University research workers under the direction of the Birth Control Investigation Committee.

Laboratory tests have shown that the active principle of Volpar is the most powerful non-toxic spermicidal substance known.

An article reporting the results of the above-mentioned investigation was published in *The Lancet* of October 15th, 1938, p. 882, and a letter signed by the medical members of the Birth Control Investigation Committee commenting upon this article has also appeared (*Lancet*, October 22nd, 1938, p. 970).

Volpar is issued in two forms:—

VOLPAR GELS

Soluble suppositories primarily intended for use alone, or (for maximum safety) with a cap or sheath.

VOLPAR PASTE

Anon-greasy paste for the lubrication of occlusive caps and sheaths or condoms.

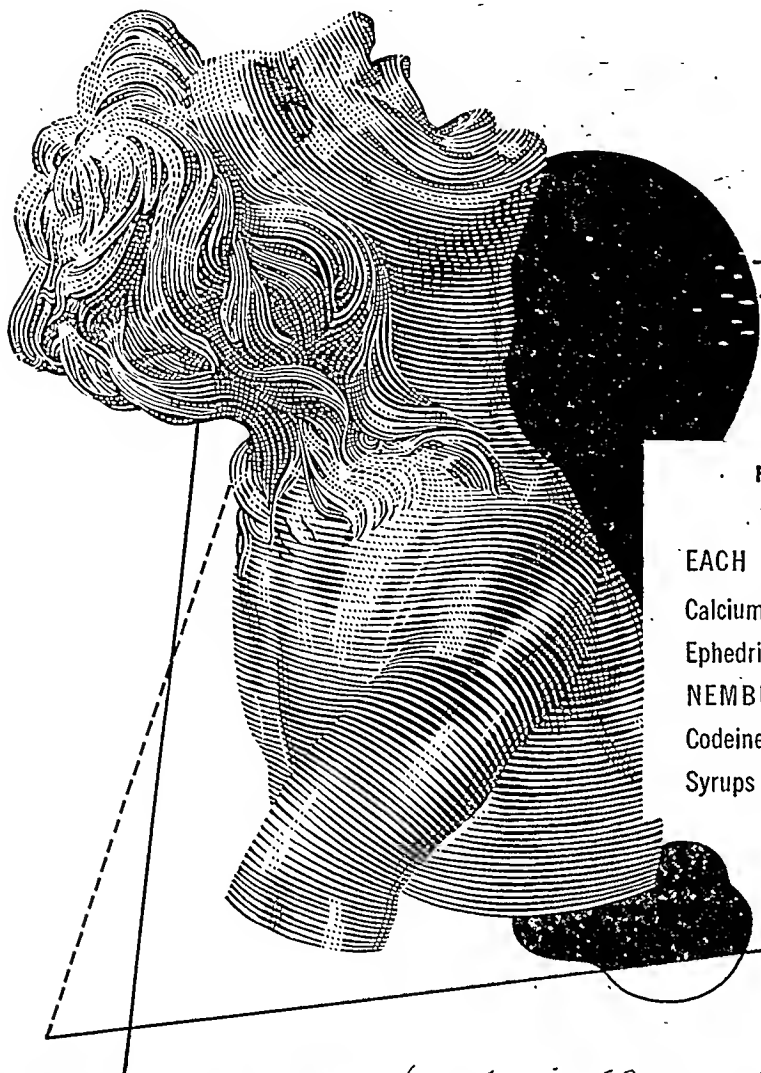
Volpar Gels and Volpar Paste are sold only by pharmacists at the following prices (applicable to Great Britain only):

GELS: in screw-capped glass tubes containing 1 dozen gels, 2s. 0d.

PASTE: in collapsible tubes containing sufficient for 12 applications, 2s. 0d.

Literature on request

THE BRITISH DRUG HOUSES LTD. LONDON N1



After Pollainolo: Hercules Strangling Anteus; R. National, Florence

FORMULA

EACH FLUID OUNCE REPRESENTS:

| | |
|--|---------|
| Calcium Iodide (equivalent to Iodine 6 grs.) | 7 grs. |
| Ephedrine Hydrochloride | 3/8 gr. |
| NEMBUTAL | 3/8 gr. |
| Codeine Sulphate | 1/4 gr. |
| Syrups Wild Cherry and Tolu, with Aromatics | q.s. |

FOR COUGHS { *Acts to Liquefy Bronchial Mucus.* *Produces Distinct Sedative and Antispasmodic Effects*

Syrup Calcidrine (Abbott) offers, in an unusually palatable and well-tolerated combination, an effective cough sedative with distinct antispasmodic properties. The high iodine content of the preparation, as represented in calcium iodide, distinguishes it from the usual demulcents and expectorants. ● Clinical experience has shown the value of certain combinations of iodine and calcium in the treatment of colds, including simple

throat and bronchial infections of an acute and subacute nature. The iodides are often used to liquefy bronchial mucus and thus to facilitate its removal. There is evidence that they tend to produce an unfavourable soil for the increase of bacteria in the throat and respiratory passages. ● The combined effects, therefore, of iodine and calcium, with the antispasmodic action of Ephedrine and the sedative action of Nembutal, can be utilised to great advantage in the

treatment of acute and subacute bronchial infections, especially where night cough prevents proper rest and sleep. ● Syrup Calcidrine (Abbott) is supplied through pharmacies in 4-oz., 16-oz. and 80-oz. bottles. Literature and a trial sample will be sent upon request.

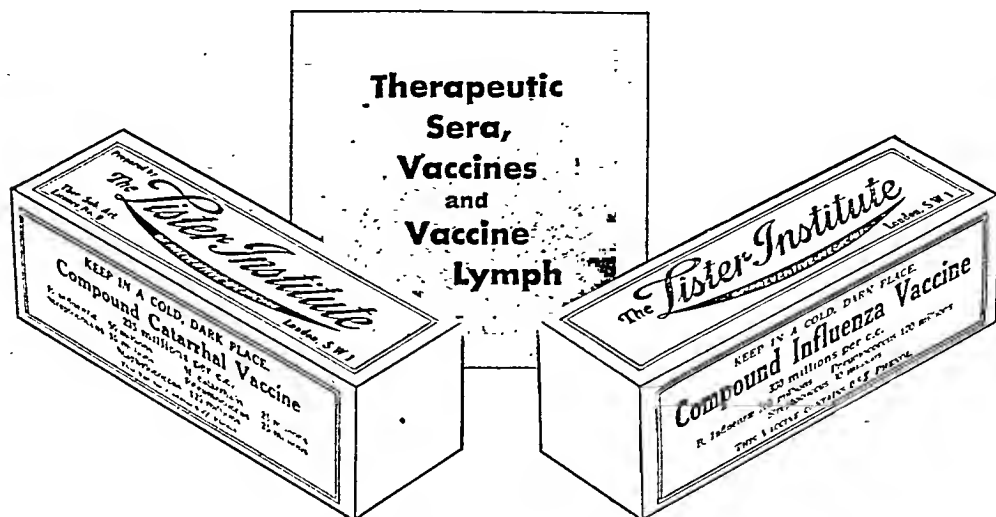
ABBOTT LABORATORIES
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SYRUP CALCIDRINE
BRAND
Abbott

Please send literature and a sample of Syrup Calcidrine (Abbott):

NAME _____

ADDRESS _____



The Lister Institute
OF PREVENTIVE MEDICINE

Compound Catarrhal Vaccine

In catarrhal conditions of the respiratory passages mixed infections are found more often than pure infections with one type of organism. *Bacillus influenzae*, *Pneumococcus*, and *Micrococcus catarrhalis* are believed to be the commonest primarily infecting organisms, but *Streptococcus* and *Staphylococcus* seem to be responsible for many of the secondary infections. A mixed vaccine has been prepared from these five kinds of bacteria. It is generally given as a prophylactic, but may also be used in acute respiratory infections.

DOSAGE—Prophylaxis: 1st dose, 50 million *B. influenzae*, 10 million *Streptococcus*, 25 million *M. catarrhalis*, 25 million *Pneumococcus*, 125 million *Staphylococcus*. Subsequent doses at intervals of 7 to 10 days, gradually rising to 8 times the original dose. Then 4 to 8 times the initial dose every 4 to 8 weeks.

Treatment— $\frac{1}{2}$ to $\frac{3}{4}$ of the prophylactic doses.

PRICES—Ampoules containing

| | |
|--------------------------------------|-----|
| 235 million organisms per c.c., each | 2/6 |
| 470 " " " " " | 2/6 |
| 940 " " " " " | 2/6 |
| 1,880 " " " " " | 2/6 |

10 c.c. rubber-capped vials containing
470, 940 or 1880 million organisms per c.c., each 15/-
25 c.c. ditto ditto, each 25/-

Compound Influenza Vaccine

The Compound Influenza Vaccine prepared by the Lister Institute contains the chief types of bacteria found in the catarrhal secretions of the respiratory passages in epidemic influenza, viz.: *B. influenzae*, *Pneumococcus*, and *Streptococcus*. It is primarily intended as a prophylactic, but may also be used for treatment.

DOSAGE—Prophylaxis: 1st Dose, *B. influenzae* 200 million, *Pneumococcus* 100 million, *Streptococcus* 10 million = 330 million organisms. 2nd dose, 660 million organisms, 7 to 10 days later. In treatment 1:5th to 1:2:5th of the prophylactic doses may be given commencing with the lower dose in severe cases.

Compound Influenza Vaccine

PRICES—

In ampoules of 1 c.c. containing 330 or 660 million organisms per c.c., each 2/6
In 10 c.c. rubber-capped vials containing 660 million organisms per c.c., 15/-
25 c.c. ditto ditto 25/-

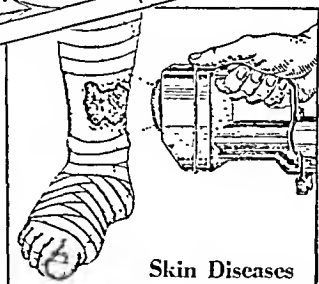
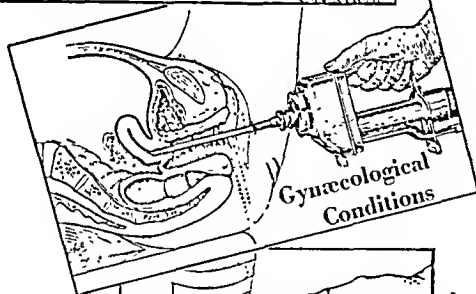
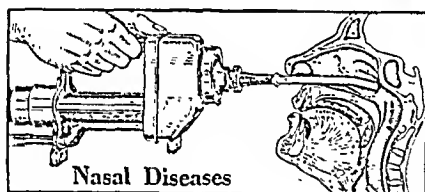
Sole Distributors for the Lister Institute:

Allen & Hanburys Ltd.

London, E. 2



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A COMPLETE SERVICE

A comprehensive guaranty, full operating instructions, technical aid when needed, the complete handbook "ACTINOTHERAPY TECHNIQUE," and a free subscription to our special actinotherapy magazine "The Quartz Lamp," are furnished free to every professional user of Hanovia equipment, anywhere in the Empire.



HANOVIA LTD. SLOUGH

London Showrooms: 3, Victoria Street, S.W.1

This new handbook tells you of everyday conditions — septic tonsils, sinusitis; impetigo, shingles, boils, prostatitis, fistulae. Two hundred actual extracts describe the indications and results of focal therapy with the Kromayer Lamp; clear diagrams and descriptions explain the technique.

35 years of clinical work done in 14 countries are presented here in a form easily read and fully indexed. Whether you are in general practice or specialising in ear, nose, throat, skin, G.U. or gynaecology, you need this new Hanovia handbook.

SEND FOR YOUR FREE COPY

HANOVIA Ltd. SLOUGH.

Please send me a free copy of "Modern Focal Therapy."

Name.....

Address.....

M.75/1.....

STATES OF DEPRESSION: THEIR CLINICAL AND AETIOLOGICAL DIFFERENTIATION*

BY

AUBREY LEWIS, M.D., F.R.C.P.

Clinical Director and Lecturer on Psychiatry, Maudsley Hospital

Classification and diagnosis have been so derided in psychiatry that the subject of our discussion to-day is almost a shady one. No doubt the shadow under which it lies comes also from the solid difficulties, which are plain when any of the current ways of differentiating between depressions are applied to a series of cases. It is, I think, at all events correct to say that (although a fair amount has been written) no fresh light has been cast on the subject for several years, since it is much easier to show the inadequacy of proposed methods than to substitute for them a useful and valid one. Useful and valid are the two epithets which any classification should deserve. In considering them the opportunities and difficulties can be brought into clearer view.

Valid Classification

The usefulness of a classification will vary according to who uses it. One that serves the clinician well may be of little value to the research worker: it may even make his task harder. The clinician wants classes into which he can put his patient's illness after a reasonably brief period of investigation, and which will assist him to make a prognosis and decide on treatment. So long as the classes do this, it does not matter how illogical, psychologically or pathologically unsound, and expressive of his own idiosyncrasies they may be: they provide him with extra knowledge of the sort he wants, and he does not care whether they represent his own, more or less incommunicable, experience or the fruits of others' study. The man who treats patients only in private practice may find a classification useful which the physician in the mental hospital regards as illusory, and the latter may use one which the consulting-room psychotherapist detests or cannot understand: both these classifications may be useless to the general practitioner. If all three physicians had the same clinical material and problems they would no doubt come to use the same classification; but at present they do not, although they may use the same words for their classes: to realize this one has only to compare the letters sent by each of them when referring depressed patients to an out-patient clinic. Because of the peculiar phenomena of mental disorder, so much harder to describe in agreed conventional terms than those of other illnesses,

it is customary for clinicians to use their words, and their classes, with an individual twist. This is what distinguishes them from those of the research worker. He wants his classes, and his words, to have some fixity, so that he can generalize and summarize and communicate his observations: he cannot work in circumstances where the case that he calls an endogenous melancholia another man may call a reactive depression, and a third man call a paranoid schizophrenic. He may be satisfied if he can delimit a class of depressions in which the only distinguishing feature common to all members of the class is some chemical anomaly, even though for the clinician this turns out to be a woefully heterogeneous group. Many quarrels about the justness of classifications in psychiatry are usually due to these differing needs of the clinician and the research worker. In an ideal state of knowledge the schism would end, but that is still a distant time.

It might seem that validity is here merely a synonym for usefulness. But classifications may be useful for the wrong ends: they may be used to separate off cases which are regarded—wrongly—as hopeless, or as needing a particular type of treatment; the clinician may never come to see how vicious are the uses to which he has been, contentedly, putting his classification. The research worker, on his side, may have delimited classes of which the characteristic is irrelevant to his problem, much as though he were to divide depressives into those with and those without naevi, or those whose parents had hernia and those who had not. A valid classification is one which is not only useful, but useful for sound medical or scientific ends. It is necessary to see how far the available classifications are valid in this sense.

The first task of classification is obviously to recognize the depression itself. This is too often taken to be a diagnostic act. It should be concerned with nothing further than description of the emotional state. Any person who is unhappy, and ill with his unhappiness, may properly be said to be in a state of depression. To lay down other criteria for a depression is to raise fundamental problems. For convenience we may restrict the term to those states of depression in which we cannot discover any other significant illness—for example, schizophrenia, cerebral tumour, arteriosclerosis. But the elimination of these is the second task. It is common ground that depression may be the conspicuous or the only clinical evidence of almost any mental illness at some stage: everyone will

* Read in opening a discussion in the Section of Neurology and Psychiatric Medicine at the Annual Meeting of the British Medical Association, Plymouth, 1938.

aim at spotting the G.P.I., say, or cerebral tumour, or schizophrenia which hides behind a depressive front. What is more, the psychiatrist cannot dismiss this depressive front as a false one, a screen, but has to consider how far it stands for an independent contribution to the total illness. It is at this point that the clinician's private notion of depression creeps in, bringing confusion. If he regards "true" depression as an endogenous illness, of good prognosis, and itself recognizable, he will be interested to see whether this patient's depression conforms to his notion of "true" depression, in which case, if there is also another disorder present, such as a schizophrenic or an obsessional one, he says, "We have here a mixed picture": or he may regard this depression as the normal response to the abnormal situation created by the concomitant, or screened, illness, and may dismiss it as secondary and rather irrelevant. In short, the moment description is deserted, at the second stage of the classifying process, influences get to work which are often only in part consciously recognized as such by the clinician, though they may greatly modify his decisions.

Hereditary and Environmental Factors

The most popular classification is, on the surface, an aetiological one. It says that there are depressions due to heredity (autonomous, autogenous, endogenous, manic-depressive, cyclothymic, vital, constitutional, are among the words employed) and others due to the environment (psychogenic, exogenous, extraneous, reactive, psycho-neurotic). But this is purely theoretical. We have no means of detecting such causes satisfactorily, except in a minority of cases. Moreover, as theory it is bad. It derives from the days when Nature and nurture could be contrasted in an epigram. It assumes that heredity commonly operates with that high probability of manifestation which we see in Huntington's chorea or the height of sweet peas: and that environment can work on an almost illimitably plastic and responsive human organism. As biology has moved beyond these excessively simple views, and recognizes that hereditary and environmental factors commonly interact, it is reactionary to uphold them in the case of a depressive illness, especially when it is so extremely difficult to determine the relative importance of hereditary and environmental factors in any such case. It is probably true that in some depressions the hereditary factor vastly outweighs the environmental, and that in others the reverse is the case, but to detect such cases we have only dubious means—study of the parentage and sibship, observation of the bodily habit, assessment of the relation between the outbreak of the illness and the external factors which might have conduced to it. In the present state of knowledge these are dubious means when applied to the individual case, though they serve well enough for the analysis of a collection of cases, statistically. The number of cases in which critical and experienced psychiatrists with different theoretical standpoints would be found to agree that the hereditary factors were almost certainly responsible for the attack (or, in the alternative instance, that environmental ones were) is, I believe, so small that the subjectiveness of many of our judgments on this matter can scarcely be gainsaid. There are some cases in which a recent distress seems to account for the depression, which is then properly called a reactive one, but since profound melancholia or mania may likewise ensue upon a sorrow, reactivity does not mean only psychogenesis. The more thorough the analysis that can be made of the life of the patient, and of his responses to circumstances, the stronger is one's inclination to attribute his morbid behaviour mostly to post-natal influences;

genetic studies have the opposite effect. There is no reliable evidence as to the heredity of so-called psychogenic depression; and as for the other varieties, what has been reported does not justify distinctions upon a hereditary basis.

Differentiation by Study of Symptoms

A differentiation that can be made by study of the symptoms is of value to the practising physician. When he sees a patient who has fits it is more convenient for him to run over in his mind the differential points given in the textbook tables than to inquire at length into the previous personality, make an encephalogram, etc. At any rate he tries the short method first, preparatory to further search. If he could similarly separate forms of depression he would not be put off by any uncertainty about causes. I have taken a very recent table of the sort: the author says that the differences between neurotic and manic-depressive depression are usually clearly marked: they lie in the constancy of the depression during the attack; the patient's ability to be amused by a joke; to weep, or to appreciate beauty; his interest in himself and his surroundings, his self-reproach, his good health in the period before or between attacks, and his admission that he is ill. Also it is said that in manic-depressive depression "the patient gets well obviously spontaneously. He has been unresponsive to all therapeutic efforts, and the doctor is never given the impression that he has done anything." Nothing could better illustrate what I said earlier about the personal and partly incommunicable value of the classification which a particular clinician may find useful. The psychiatrist quoted works very satisfactorily with a scheme which to me is useless: when I try to apply it it fails, because the same cases will fall on one count into the left-hand side of the table and on another count into the right-hand side. It is true that when first seen in the outpatient department cases often seem to me to fall readily into one or the other category, but when they are gone into more fully in the course of treatment this facility of classification turns out to have been spurious. And I take it that this is partly because my notions of spontaneous or aided recovery, of variability and responsiveness in the depression, and so forth, are not those of the author of the table. Also it is because of a disagreement about facts: patients with severe self-reproachful depression sometimes weep, sometimes even laugh, sometimes worry about their relatives, are mildly depressed and anxious between attacks, or admit that they are ill; patients with chronic reactive depression may be self-reproachful, incapable of appreciating beauty, and never weep. Moreover, in a series of cases I have lately looked through for the purpose, illnesses that fulfil all these clinical requirements of a reactive depression have occurred preceding an acute mania and a severe involutional melancholia, either as an initial stage or as a previous attack (in my earlier published series the same sequence can be found): some of them have been treated as such psychotherapeutically, and with benefit, in previous attacks. Even this shows only how useless the scheme is to me: not that it is generally useless. Actually it is a question of how many patients fit comfortably into either group, so characterized. As is fairly plain in the series I reported, I find that few do; Curran reaches the same conclusion. I think these groups are extreme types rather than clinical realities: a few others, however, find good reason to hold the contrary view. Clouston, who believed in the importance of a distinction (between "melancholy" and "melancholia"), put the matter quite simply in 1904: "Typical cases exhibiting these two conditions are totally different and distinguishable, and the only excuses for confounding them are that they shade off

into each other, that we have no absolutely definite scientific test to distinguish them, that they are both in many cases the outcome of the same temperament and diathesis, and that they both have something of the same nature, both psychologically and physiologically." These are good excuses. Probably there are genuine differences between cases of mainly hereditary causation and those in which environmental causes predominate, possibly also between cases with different kinds of hereditary causation, but the clinical differences given in such tables as I have mentioned do not at present serve to distinguish them. And it is well to remember, as Newman has recently concluded from his studies, that in many ways what heredity can do environment can also do.

There is another such table which includes bodily features—anorexia, constipation, loss of weight. Muncie has stressed the sleep disturbance. Various writers have thought that metabolic variations, especially in respect of nitrogen and carbohydrate metabolism, occur in manic-depressive depression and not in reactive depression. Such claims have not been substantiated as yet. When classes can be separated which are marked by significant somatic differences, it will have the advantage that trained observers will presumably be able to agree as to the presence or absence of these somatic characteristics in any patient.

In recent contributions to the subject emphasis is variously laid upon periodicity, concomitant depersonalization or anxiety and tension, sleep, personality, heredity, psychopathology, and somatic pathology (Rouart, Muncie, Titley, Schnitzenberger, Broekhausen, Montassut, Anthonisen, Schilder, Armenise, Lorand, Baruk and Gevaudan, Georgi, etc.). But periodicity would be more valuable if it could be demonstrated to be a frequent characteristic, whereas actually it is rare; recurrence is of course a different thing, and may be no more indicative of an intrinsic rhythm, a biological periodicity, than is a series of colds in the head; it may indicate recoverability only. As for the anxiety or tension depressions, they cannot be made to form a homogeneous group, for they have only the phenomena of the anxiety attack in common, all the rest being expressible in terms of mild and severe, or proportions of fear and misery. Personality and heredity have not so much cast light on involutional melancholia as left it in a penumbra. Twin studies should, of course, elucidate the whole problem, but until Dr. Slater's material is published nothing is available on this aspect of the classification of depressive states. Psychopathology is as variable as ever in its voices, and no somatic changes are of sufficient definiteness and constancy to be the basis or the buttress of a differentiation.

Distinction between Reactive and Manic-depressive Varieties

Apart from some English writers, it is difficult in the literature of the last five or even ten years to find support for any sharp distinction between reactive and manic-depressive varieties of depression. But a distinction of this sort is often implied in what is written, especially (if it may be said without offence) in the more elementary presentations, in which an almost entirely hereditary psychosis is kept remote from the "neurasthenia" of year-long neurotics and the mourning and unhappiness of those who have lost something of immense emotional value to them. Moreover, in many writings the intelligibility of the occurrence is taken as a criterion: if the physician can enter into the patient's feelings and understand the illness as the natural outcome of situations in which the patient has been, then he calls it psychogenic or reactive; if he

cannot, then he calls it autonomous (thus Adolf Meyer talks of a "true simple melancholia, or 'unjustified depression'"). No doubt this too is a personally valuable way of reviewing the illness, but it has the disadvantages already mentioned as attaching to such subjective judgments. For psycho-analysts it is out of the question, because of the universally explanatory value of their views and method.

There could be no more convincing evidence of the way classifications epitomize theory, and can be serviceable for very limited groups while worthless to others, than the psycho-analytical classification put forward by Glover. Psycho-analytical work in the field of depression during the last few years (for example, Schilder, Klein) has shed as little light on the topic of this discussion as have published studies in heredity, psychology, or somatic pathology.

It is very probable that all the tables and classifications in terms of symptoms are nothing more than attempts to distinguish between acute and chronic, mild and severe: and where two categories only are presented, the one—manic-depressive—gives the characteristics of acute severe depression, the other of chronic mild depression. I am using acute and chronic as temporal words, and mild and severe as indicating the degree of the overt mental disturbance. This, if recognized for what it is, is a useful division, provided the vulgar error is avoided of thinking that every manic-depressive should get well inevitably and spontaneously, and that every case of reactive depression calls for intensive psychotherapy which, if well given, should bring recovery. It also rather fails to provide for the acute mild and the severe chronic cases, which are numerous.

The danger of these classifications, for the clinician, lies in two directions. First there is the assumption, just alluded to, that when a patient's illness seems to fit into the manic-depressive category there is nothing to be done but to fold one's arms in resignation, or, at most, to employ "reassurance and safeguarding" until he gets better of his own accord; and, alternatively, that if it falls into the other group, psychotherapy, and nothing but psychotherapy, will restore him to active life. Treatment should be based on a knowledge of the patient's constitutional qualities and the stresses he has met, not on a schematic and rigid plan, a short cut to the wrong shop. Secondly, it is dangerous because it says, as one of these tables does, that in reactive depression suicide is "sometimes talked but not attempted." Now and again there appears in the account of some inquest the evidence of the doctor who had concluded that it was "only a neurotic depression," and had his views confirmed by a psychiatrist, who found no sign of a "genuine psychosis." Of course, everyone makes mistakes in assessing the likelihood of suicide, and it is quite possible that in these cases the suicide would have occurred anyhow, since one cannot send into a mental hospital every doubtful case of suicidal risk. And, again, it may be conceded that in the hands of some clinicians this method of assessing the risk of suicide works very well. But it is surely bad when that immensely important question of suicide can be disposed of in the practitioner's mind by reference to a classification that creaks at the joints, and is applied differently by different people. Classifications cannot take the place of experience, or of knowledge of one's patient, of the depth of his despair, and the strength of his impulses.

Involutional Depression

These are the two varieties of depression chiefly dwelt upon in textbooks and articles. Attention is also paid to

involutional depression. Thus, one authority speaks of five varieties: constitutional depression, prolonged neurasthenic malaise, true simple melancholia, depressive delusion with intense fear, and catatonic melancholia (but the last two are, of course, usually involutional, and the first covers Reiss's group of 1910, now swallowed up in the reactive group). It is true that some features common in involutional melancholia are rare in other forms of depression, but since these probably depend on the patient's age and on degenerative cerebral disease (often of the vessels), or on schizophrenic admixture, it does not seem necessary for classification to stress them as such, but rather to use the patient's age as the sole reason for calling the depression "involutional," and to seek for further data which will illuminate the prognosis and treatment.

The necessity for making sure that a depression is not due to G.P.I., pernicious anaemia, or other organic disease is present to everyone's mind. But it is less often remembered that the discovery of hysterical, obsessional, or other psychopathic trends in the patient may be important too. A very depressed young woman may be troubled by the thought that she has injured her child through leaving pins about which he could swallow; the obsessional component in this needs examination. A depression in a patient aged 50 may be accompanied by many hysterical symptoms; if the patient has most of his life shown nothing hysterical in his behaviour the possibility of a cerebral arteriosclerosis must then be reckoned with. Or a depression may be found to have developed in a person of schizoid personality, and to be ushering in a schizophrenia. Depression is a very ready psychic response; hence it cannot be evaluated and pigeon-holed without a survey of the patient's life. It was not for lack of instances to support their view that the psychiatrists of the last century believed that most mental diseases began with a stage of depression.

Conclusion

The classification, or avoidance of classification, which I would propose is: first, to determine whether the depression is severe or mild—melancholia or neurasthenia, descriptively speaking; and, of course, there are many grades. Next, does it depend on physical disease, and, if so, how completely? What happened in any previous attacks? On what discoverable influences does it depend: age; constitutional morbid trends; lifelong environmental factors, recent more acutely disturbing ones? What, in sum, is the presumptive balance of environmental forces responsible for the illness as against inherited ones; and what is the balance between environmental influences that may be modified for the better and those that are irremediable? Has the morbid condition been going on long enough to have, so to speak, established an autonomy, set up bodily and mental habits that are inveterate? Have the patient's character and surroundings worked to his advantage or disadvantage during the illness? These are points to weigh rather than points on which to classify; matters of clinical judgment, not solely of observation. A classification can, however, be built upon them. It is because we have no sure means of distinguishing exactly the numerous causes in each case, and their effects, that we must deny ourselves the ease of a simple classification: I think it is a deceptive ease and a deceptive simplicity. No doubt increasing knowledge will bring an improved, eventually even a stable, classification based on aetiology, and pointing, it may be hoped, to treatment: whether it comes by way of genetics, psychology, or somatic pathology, it will be welcome so long as it is useful and valid.

THE CLINICAL SIGNIFICANCE AND ESTIMATION OF BLOOD VITAMIN B₁

BY

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Vitamin B₁ has been used therapeutically in many diseases, but only in beriberi is there overwhelming evidence of its importance. Therapeutic successes, however, have been claimed in nearly all forms of neuritis; thus, Russell (1936) and others have reported dramatic improvement in patients with subacute combined degeneration of the spinal cord following parenteral administration of vitamin B₁ concentrates. We, however, have failed to obtain such striking responses in a series of patients suffering from the disease in varying degrees of severity, although partial relief was noted in a few; a similar series of patients treated in the usual way with liver extracts or preparations of hog's stomach showed much more satisfactory improvement.

Writers on nutrition differ noticeably in their views of the incidence of vitamin B₁ deficiency; thus, whereas Hutchison and Mottram (1936) state that "it is in the perversity of things that food faddists have raised more to-do about vitamin B₁, which few, if any of us, lack," Vorhaus (1937) and McCarrison (1936) have remarked on the relative frequency of this deficiency, McCarrison writing that "the insufficient ingestion of vitamin B₁ is a common food fault."

Our disappointing results in subacute combined degeneration of the cord, the difficulty of assessing the value of vitamin B₁ in this disease, and the many statements that these patients are deficient in vitamin B₁ led us to investigate the possibility of estimating satisfactorily the state of vitamin B₁ nutrition in a series of normal subjects and in patients. The vitamin B₁ content of a diet is not easily estimated from a list of its constituents, and Williams (1938) considers that it is impossible to do so from the available data with an error of less than 50 per cent. Biological assay and the chemical methods so far employed are not sensitive enough to measure the minute quantities present in blood. Roscoe (1936) attempted to estimate the urinary excretion of the vitamin, using for a test the cure of neuritis in rats, but concluded that the method was of little value, while Harris and Leong (1936) have used the rat bradycardia technique.

Test for Vitamin B₁ in Blood

It appeared possible that a satisfactory test for vitamin B₁ in blood might be based upon Schopfer's discovery (1935) that the growth of the mould *Phycomyces blakesleeana* was proportional within certain limits to the amount of vitamin B₁ present in the medium. By plotting the weight of mycelium obtained against the quantity of vitamin B₁ added, a smooth curve could be produced, and Schopfer used this as a quantitative test for vitamin B₁ in foodstuffs and animal tissues. We have employed Schopfer's technique and applied it to the

estimation of the vitamin B₁ content of human blood; our method is very similar to that since described by Meiklejohn (1937), details of which were kindly made available to us by Professor R. A. Peters. The test we used was as follows:

Technique of the Method Used

Two series of flasks are set up: (1) *The standard range*, containing medium to which known amounts of vitamin B₁ up to 0.5 µg. per flask have been added; and (2) a similar range of flasks into which are placed duplicated quantities of 1, 2, and 3 c.cm. respectively of the blood under investigation.

The medium for the standard range of flasks is dextrose (0.556 M), asparagine (0.030 M), magnesium sulphate (0.002 M), potassium dihydrogen phosphate (0.011 M); but only half the amount of asparagine is put into the blood-containing flasks. Oxalated blood is used, and the blood-containing flasks are allowed to stand for several hours to allow the corpuscles to form a firm cake at the bottom. The contents of all the flasks are adjusted to pH 6.5 to 6.7 by adding N/10 NaOH and then sterilized by autoclaving. After inoculation with 0.2 c.cm. of a spore suspension of *Phycomyces blakesleeana* (containing not less than 1,000,000 spores per c.cm.) they are set aside in the dark at a temperature of 20° C. for ten days, when the mycelia are removed, washed, and dried at 110° C. for two hours. The weights of mould in the standard range are plotted against the amounts of vitamin B₁ added and a smooth curve is drawn through the points on the graph. The vitamin B₁ content of the blood can then be read off on this graph from the weight of mycelium obtained similarly with the blood samples. It is unfortunately necessary to construct a fresh graph for the standard range with each series of estimations. Thus, in Case II the standard range was as in Fig. 1.

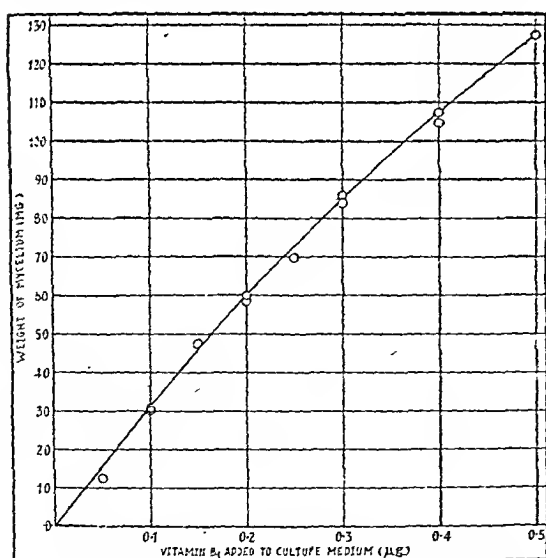


FIG. 1.—Specimen curve showing weight of phycomyces obtained with known amounts of vitamin B₁.

The weights of mycelia, using 1, 2, and 3 c.cm. of this patient's blood, were 22, 44, and 65 mg. respectively, which from this graph give 7, 7.1, and 7.3 µg. per 100 c.cm.

Evidence in Support of the Method

In spite of the fact that this method may not estimate the vitamin in its natural state in the blood but possibly only its hydrolytic disintegration products, it appears to give a good estimate of the vitamin B₁ content of the blood. There is much experimental evidence in support of this view: (1) The only factor other than vitamin B₁ that has been shown to affect the mould growth is the concentration of nitrogen in the medium; allowance can be made for this. (2) The addition to the medium of a mixture of the two fission products of vitamin B₁,—namely, 4-amino-5-aminomethyl-2-methylpyrimidine and 4-methyl-5-oxethylthiazol (kindly supplied by Professor A. R. Todd)—permits the mould to grow as effectively as with the vitamin B₁ itself. (3) The addition of vitamin B₁ to blood, at least in small amounts, usually increases the growth of mycelium to the same extent as would be produced by the same quantity of vitamin B₁ in the absence of blood. (4) The growth-promoting factor in blood resembles vitamin B₁ in that it is completely destroyed by heat at pH 9. (5) The growths obtained using 1, 2, and 3 c.cm. respectively of blood give values for the vitamin B₁ content per 100 c.cm. that agree within the limits of experimental error for the test. (6) Meiklejohn has shown that blood from pigeons fed on vitamin-B₁-deficient diets gives much less growth than that from normal pigeons. (7) We have found that blood withdrawn after intramuscular injection of pure vitamin B₁ into a non-deficient subject produces a greater growth of the mould, the increase starting about ten minutes after the injection and falling to normal within approximately one hour.

It is not yet possible entirely to exclude the presence of other limiting factors in blood, but the values given by duplicate estimations correspond reasonably, and the error for the test is apparently less than 10 per cent.

Normal Controls

Having established the fact that this phycomyces test gives a fairly reliable method of estimating vitamin B₁, we determined the standard range for normal blood, taken from healthy members of the departmental staff, who gave figures ranging between 6.5 µg. and 16.5 µg. per 100 c.cm. of blood. Meiklejohn obtained a range of 6.5 to 14 µg. in a series of six estimations on human blood. We have therefore considered the normal range to be 6.5 to 16.5 µg. per 100 c.cm. of whole blood (Table 1).

TABLE 1—Estimations carried out on Normal Subjects

| Initials | Sex | Age | Vitamin B ₁ in µg per 100 c.cm. blood* |
|----------|-----|-----|---|
| A. N. | M | 40 | 7.5 |
| E. P. | F | 26 | 9.5 |
| L. E. | M | 29 | 16.5 |
| B. P. | M | 25 | 7.5 7.0 |
| T. J. | M | 31 | 7.0 |
| W. B. | M | 17 | 8.2 |
| S. C. | M | 33 | 6.7 6.5 |
| E. B. | F | 24 | 7.0 |

* Each figure is the average of duplicate estimations on 1, 2, and 3 c.cm. of blood respectively.

Vitamin B₁ in Disease

Estimations have also been carried out on a series of patients suffering from a variety of diseases, including those in which a deficiency of vitamin B₁ has been said to be an important aetiological factor (Fig. 2; Table II).

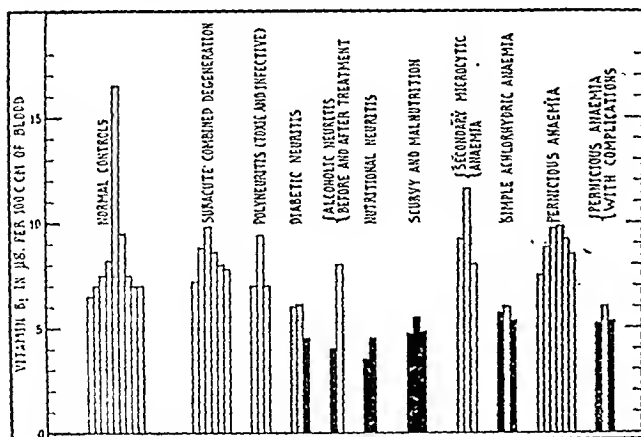


FIG. 2.—Blood vitamin B₁ in normal controls and patients.

Black columns = Deficient patients (vitamin B₁ present in deficient amount). Shaded columns = Intermediate group. Unshaded columns = Normal (vitamin B₁ present in normal amount).

I. Vitamin B₁ and the Nervous System

The study of beriberi and experimental investigations in animals have established beyond doubt an intimate and fundamental relation between vitamin B₁ and the nervous system; it is therefore natural that the vitamin has proved of most value in neurological conditions, particularly neuritis and polyneuritis. It has been claimed that the histological changes in the central nervous system in human beriberi are indistinguishable from those of toxic, especially alcoholic, polyneuritis, but recent work by Davison and Stone (1937) indicates that the pathological changes in the nervous system of rats suffering from inanition are essentially the same as those in animals deprived of vitamin B₁ or vitamins B₁ and B₂; these changes are the same whether the animals are starved with or without the administration of vitamins B₁ and B₂.

ALCOHOLIC NEURITIS

The most striking therapeutic results have been obtained in cases of alcoholic neuritis, and there are now many claims for its efficacy in this condition (Vorhaus, 1937; Jolliffe and Colbert, 1936). Although most of the clinical observations were not adequately controlled, the recent careful investigation by Goodhart and Jolliffe (1938) has confirmed the good results. Moreover, the patients can be cured in spite of continuing the intake of alcohol.

There is considerable evidence supporting the view that this condition is attributable to lack of vitamin B₁ rather than to a specific toxic action of the alcohol on nervous tissue. For example: (a) Alcohol does not hasten the onset of beriberi and actually delays the onset of symptoms of polyneuritis in rats. (b) The clinical and pathological manifestations of alcoholic polyneuritis are strictly comparable to those of beriberi (Minot *et al.*, 1933); transitional cases occur in which more definite symptoms of beriberi develop (Weiss and Wilkins, 1936). (c) There is evidence of dietary neglect in those alcoholics who develop nervous symptoms (Jolliffe *et al.*, 1936; Minot *et al.*, 1933; Alsted and Lunn, 1938). (d) There is evidence of defective assimilation in alcoholics. (e) Storage in the liver is probably defective in alcoholics,

and it has been claimed that the irritant effect of alcohol on the stomach and liver causes vitamin deficiency. (f) There is evidence of increased tissue demand for the vitamin in alcoholics.

TABLE II.—Estimations carried out on Patients with Various Diseases

| Case No. | Sex | Age | Disease | Vitamin B ₁ in µg. per 100 c.cm. blood |
|----------|-----|-----|---|---|
| 1 | F | 50 | Alcoholic neuritis before treatment | 4.0 |
| | | | After treatment | 8.0 |
| 2 | M | 47 | Polyneuritis (toxic) | 9.4 |
| 3 | M | 61 | " (infective) | 7.0 |
| 4 | F | 52 | " (toxic) | 7.0 |
| 5 | F | 48 | Subacute combined degeneration of the cord, untreated | 9.8 |
| 6 | M | 62 | " " " " | 8.8 |
| 7 | M | 51 | " " " " | 8.6 |
| 8 | M | 65 | " " " " | 7.8 |
| 9 | F | 53 | Subacute combined degeneration of the cord, treated | ++ |
| 10 | M | 55 | " " " " | 8.0 |
| 11 | M | 47 | " " " " | 7.2 |
| 12 | M | 16 | Diabetic neuritis | 6.1 |
| 13 | F | 61 | " " " " | 6.0 |
| 14 | M | 52 | " " (coma) | 4.5 |
| 15 | F | 45 | Nutritional neuritis | 3.5 |
| 16 | F | 48 | " " " " | 4.5 |
| 17 | M | 62 | Malnutrition | 4.7 |
| 18 | M | 69 | Scurvy | 5.5 |
| 19 | M | 62 | " " " " | 4.8 |
| 20 | F | 46 | Simple achlorhydric anaemia .. | 6.0 |
| 21 | F | 55 | " " " " | 5.7 |
| 22 | F | 48 | " " " " | 5.3 |
| 23 | F | 38 | Secondary microcytic hypochromic anaemia | 11.6 |
| 24 | F | 42 | " " " " | 9.2 |
| 25 | F | 58 | " " " " | 8.0 |
| 26 | F | 48 | Pernicious anaemia | 9.8 |
| 27 | M | 55 | " " " " | 9.7 |
| 28 | M | 58 | " " " " | 9.2 |
| 29 | M | 62 | " " " " | 8.8 |
| 30 | F | 63 | " " " " | 8.5 |
| 31 | M | 38 | " " " " | 7.5 |
| 32 | F | 61 | Pernicious anaemia + diabetic neuritis | 6.0 |
| 33 | M | 59 | Pernicious anaemia + carcinoma | 5.3 |
| 34 | M | 59 | Pernicious anaemia + furunculosis | 5.2 |
| 35 | F | 58 | Peptic ulcer | 8.0 |
| 36 | M | 31 | " " " " | 6.0 |
| 37 | F | 24 | Thyrotoxicosis | 7.1 |
| 38 | F | 39 | " " " " | 5.4 |
| 39 | F | 34 | " " " " | 5.0 |
| 40 | F | 35 | Addison's disease | 11.0 |
| 41 | M | 19 | Eunuchoid infantilism | 5.4 |
| 42 | M | 16 | Diabetes mellitus | 6.1 |
| 43 | F | 61 | " " " " | 6.0 |
| 44 | M | 52 | " " (coma) | 4.5 |
| 45 | M | 64 | Arteriosclerosis | 7.4 |
| 46 | F | 67 | Hyperpiesis | 6.8 |
| 47 | F | 40 | " and malnutrition .. | 5.5 |
| 48 | M | 23 | Heart failure | 7.5 |

Alcoholic neuritis appears to be more intimately associated with vitamin B₁₂ deficiency than any other form of neuritis apart from beriberi: it is relatively very uncommon in this country, and is rarely seen in hospital patients.

One female patient (seen through the courtesy of Dr. F. R. Ferguson), who was known to have taken two bottles of whisky daily for many years, suffered from polynuritis and Korsakoff's psychosis. Several estimations of the blood vitamin B₁₂ gave values of only 4 µg. per 100 c.cm. That the patient's symptoms could be attributed to the deficiency of vitamin B₁₂ was supported by the marked improvement in both her neurological and her mental condition after the institution of a course of injections of crystalline vitamin B₁₂ (4 mg.) thrice weekly. She now has a normal vitamin B₁₂ value of 8 µg. per 100 c.cm.

NON-ALCOHOLIC POLYNEURITIS

In recent publications it has been suggested that vitamin B₁₂ acts specifically in cases of neuritis of the most divergent aetiology: Vorhaus (1937) claimed complete disappearance of all symptoms in 90 per cent. of 250 cases, and in 70 per cent. of cases of localized neuritis improvement occurred in spite of the presence of septic foci. He concluded that "the action of vitamin B₁₂ in neuritis bears a close analogy to that of iron in anaemia." Russell (1936) recorded dramatic improvement in an old-standing case of chronic progressive polynuritis; similar results have been claimed by many other workers.

We examined three cases of non-alcoholic toxic or infective polynuritis and found blood vitamin B₁₂ values of 7, 7, and 9.4 µg. per 100 c.cm. respectively, which are well above lowest normal values. Treatment, however, with vitamin B₁₂ failed to produce any improvement.

SUBACUTE COMBINED DEGENERATION

As already mentioned, vitamin B₁₂ has been claimed to produce very good results, even complete remission, in these cases. We have been unable to confirm this, and poor therapeutic responses in this disease after vitamin B₁₂ have also been reported by other workers (Sciclounoff and Broccard, 1936; Fouts *et al.*, 1932, etc.). We found that in seven patients the blood vitamin B₁₂ was normal, ranging between 7.2 and 9.8 µg. per 100 c.cm.

DIABETIC NEURITIS

Two patients with diabetic neuritis were not significantly deficient (6 and 6.1 µg.), but a third one had a definitely low blood vitamin B₁₂ value (4.5 µg.); this latter patient was in a state of mild diabetic coma.

NUTRITIONAL NEURITIS

Two patients with neuritis due to a definite nutritional deficiency were examined; they showed complete recovery after suitable treatment with normal diet and added vitamin B₁₂.

The first patient, a woman aged 45, had suffered from neuritis and hyperpexis for two years; she had complained of flutulent dyspepsia, vomiting, constipation, and anorexia, and had greatly restricted her food intake: in attempts to control the vomiting she never ate eggs, fruit, or vegetables of any kind, and had actually been taking little else but tea and biscuits. There was no evidence of organic disease other than a severe hypochromic microcytic anaemia, achlorhydria, and a subnormal blood vitamin C value (0.16 mg. per 100 c.cm.); her blood vitamin B₁₂ was the lowest obtained in this series, being only 3.5 µg. per 100 c.cm. of whole blood. Another woman, aged 48, had complained of paraesthesiae and ataxia for some nine months; she had suffered from long-standing anorexia and was obviously undernourished. There was no evidence of organic disease, but she had a moderate hypochromic microcytic anaemia and hypochlorhydria. Examination showed absence of all deep

reflexes and disturbances of sensation in the lower limbs. Her blood vitamin B₁₂ was only 4.5 µg. per 100 c.cm.

II. Vitamin B₁₂ and Anaemias

In view of the fact that many types of anaemia are essentially nutritional deficiency diseases, and of the probable coincident deficiency of vitamin B₁₂, the importance of improving the general nutrition of the patient cannot be emphasized too strongly. Nevertheless Davidson (1931), using yeast in a series of different types of anaemia, obtained good results in only one case, while yeast preparations are only in exceptional cases effective in pernicious anaemia, as we also have noted. Wills (1931) found marmite effective for tropical macrocytic anaemia, but as its efficiency is not destroyed by previous autoclaving it cannot be due to the vitamin B₁₂. Elsom (1937) reported eight cases of macrocytic anaemia in pregnant women who responded to brewers' yeast orally and to liver parenterally; the clinical disturbances appeared when calculations based upon Cowgill's (1934) formula indicated a deficiency of vitamin B₁₂.

We examined the blood from six untreated cases of pernicious anaemia without spinal cord involvement. They formed a representative group of patients with typical uncomplicated pernicious anaemia taken from a series of over 1,000 cases: the blood vitamin B₁₂ values (7.5 to 9.8 µg. per 100 c.cm.) were all within the normal range. On the other hand, the blood from three cases of pernicious anaemia with complications gave much lower values, which clearly depend on the complicating disease.

The first patient, a woman aged 61, had a diabetic neuritis (blood vitamin B₁₂, 6.0 µg.); the second, a man aged 59 who had been under adequate control and treatment with hog's stomach for three years, had a normal blood count and was suffering from severe furunculosis: his blood vitamin B₁₂ value was only 5.2 µg. The third patient, also a man aged 59, had been under treatment for eight years, and although his blood count was normal he complained of a recent and sudden onset of difficulty in breathing with hoarseness and loss of weight: examination showed an inoperable carcinoma of the larynx. His blood vitamin B₁₂ value was 5.3 µg. per 100 c.cm.

Three female patients with nutritional iron deficiency (achlorhydric) microcytic anaemia had the typical symptoms and signs associated with achlorhydria; their haemoglobin percentages and colour indices were low and they responded completely to intensive iron therapy; the blood vitamin B₁₂ values were 6, 5.7, and 5.3 µg. per 100 c.cm. of blood respectively—definitely below the accepted minimum of the normal range. It is well known that this type of patient often shows other concurrent dietetic deficiencies, so that low values for the blood vitamins B₁₂ and C (Portnoy and Wilkinson, 1938) are commonly found.

Microcytic hypochromic anaemia secondary to other diseases, however, gave normal values, as might be expected in the absence of any nutritional deficiency. Thus three patients, in whom the anaemia directly followed (1) haematemesis from duodenal ulcer, (2) peptic ulceration, (3) severe menorrhagia, had blood vitamin B₁₂ values of 8, 9.2, and 11.6 µg. per 100 c.cm. of blood respectively.

Three patients with malnutrition had definitely low values for vitamin B₁₂ in the blood.

Two of these patients were indigent males (aged 62 and 69 years respectively) suffering from very severe scurvy: they were grossly undernourished and neither had taken fresh food of any kind for many months, having eaten only poor quality bread, margarine, tea, and very occasional small portions of meat. They both had most extensive ecchymoses and widespread purpura, particularly of the legs, arms, and face, and haemorrhages from the mucous membranes. Plasma ascorbic

acid determinations showed gross deficiencies (Portnoy and Wilkinson, 1938), in one instance (Case 18) the plasma vitamin C content being less than 0.1 mg. per 100 c.cm. The vitamin B₁ contents of the blood in these two cases were 4.8 and 5.5 μ g. respectively. Both patients responded dramatically to treatment with intravenous administration of ascorbic acid and full normal diets. The third patient (Case 17) in this group had taken a poor diet for many years and was obviously much undernourished, but he did not show any evidence of scurvy; the vitamin B₁ content of his blood was only 4.7 μ g. per 100 c.cm.

III. Vitamin B₁ and Cardiovascular and Kidney Disease

Cardiovascular disorders are common and often important features in beriberi, and there is evidence that the heart returns to a normal condition when adequate amounts of vitamin B₁ are given. Weiss and Wilkins (1936) have reported a series of alcoholic patients displaying severe cardiac failure, which they attribute to an unbalanced food intake, particularly lacking in vitamin B₁; they claim that minor degrees of circulatory disturbance due to vitamin B₁ deficiency are often seen.

During the course of this investigation we did not encounter any patients whose heart disease could reasonably be attributed to a deficiency of vitamin B₁, and our impression is that such cases are distinctly uncommon.

In a woman, aged 67, suffering from essential hypertension, with a normal blood urea and electrocardiogram, we found the blood vitamin B₁ was normal: 6.8 μ g. per 100 c.cm. A second poorly nourished patient, with hyperpica, albuminuria, an enlarged liver, and oedema of the legs, but a normal blood urea, and who had had two previous attacks of eclampsia, had a blood vitamin B₁ of only 5.5 μ g. per 100 c.cm.

A man aged 64 with arteriosclerosis and nephritis had a blood pressure of 135/80, albuminuria, a normal blood urea, impaired renal function, anaemia (red blood cells 3,872,000 per c.mm., haemoglobin 62 per cent., colour index 0.8, white blood cells 8,800 per c.mm.), and a blood vitamin B₁ within the normal range—7.4 μ g. per 100 c.cm. A young man aged 23 suffering from extreme heart failure of obscure aetiology, whose heart was very much enlarged, was found to have a blood vitamin B₁ of 7.5 μ g. per 100 c.cm. After a serious prolonged illness he eventually recovered.

Endocrine Diseases

A few preliminary observations were made on a miscellaneous group of patients with endocrine disturbances, but the numbers are as yet too few to permit deductions to be made. Any changes in vitamin B₁ metabolism are probably secondary to other metabolic disturbances. It has been shown that the need for vitamin B₁ is increased in states of increased metabolism in animals (Cowgill, 1934). Clinical hyperthyroidism, however, is usually associated with increased appetite and the consumption of a well-balanced diet, and only rare instances are accompanied by anorexia. Moreover, the reports of the clinical trial of vitamin B₁ in various metabolic disturbances are conflicting. There is, however, a close relation between vitamin B₁ and carbohydrate metabolism, and changes in the blood vitamin B₁ content in these conditions may be determined by associated disturbances of the carbohydrate metabolism. The following were the observations made:

1. In three of our patients with thyrotoxicosis two had basal metabolic rates of +80 per cent. and +68 per cent. respectively; their blood vitamin B₁ values were subnormal, being 5.4 μ g. and 5 μ g. per 100 c.cm. respectively. The third patient (a woman aged 24) had had five operations on the thyroid gland and still presented the typical symptoms of toxic hyperthyroidism with a basal metabolic rate of +48 per cent., achlorhydria, and a hypochromic microcytic anaemia; her blood vitamin B₁ was 7.1 μ g. per 100 c.cm.

2. A youth aged 19 with eunuchoid infantilism presented the typical appearance of hypogonadism and dwarfism, had a mild hypochromic microcytic anaemia, a basal metabolic rate of -40 per cent., and a normal glucose tolerance; his blood vitamin B₁ was subnormal, being only 5.4 μ g. per 100 c.cm.

3. A woman with very severe Addison's disease who responded dramatically to treatment with large doses of cortin had a blood vitamin B₁ value of 11 μ g. per 100 c.cm. at a time when her blood pressure was 65/55.

Vitamin B₁ Tolerance Tests

The possibility of using tolerance tests for determining vitamin B₁ deficiency has been under investigation, and the conclusions will be published separately. The results so far obtained resemble those of Portnoy and Wilkinson (1938) using vitamin C—that is to say, there is a rapid rise in the blood vitamin B₁ level within the first fifteen

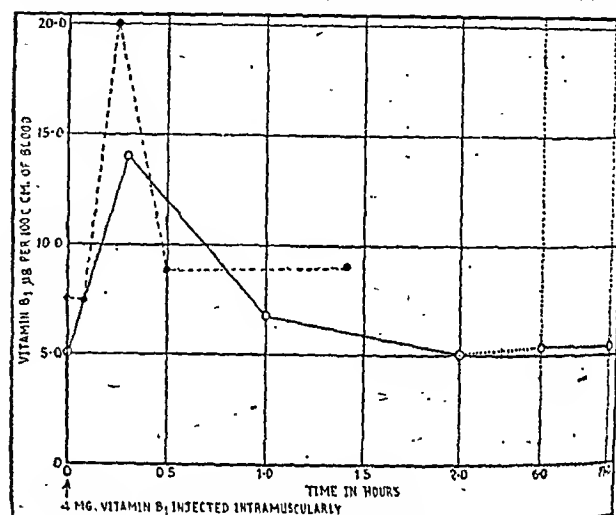


FIG. 3.—Vitamin B₁ tolerance curves.

to twenty minutes after administration of vitamin B₁, followed by a quick fall to normal levels. The pure vitamin B₁ (aneurin) is given by parenteral injection, intramuscularly for preference, and samples of blood are withdrawn at frequent intervals, the vitamin B₁ being estimated by the method described herein. A disadvantage of these tolerance tests is that relatively large samples of blood must be withdrawn by venous puncture at short intervals—every five minutes for the first twenty to thirty minutes, and then half-hourly.

In Fig. 3 are shown specimen normal curves following the intramuscular injection of 4 mg. pure vitamin B₁ (aneurin). It will be seen that the maximum blood vitamin B₁ peak occurs about fifteen to eighteen minutes later, and is followed by a rapid fall to normal levels within an hour.

DISCUSSION

Our investigations seem to show that gross vitamin B₁ deficiency is rare in this country. This is not unexpected, since the daily requirement for the normal individual is about 500 international units (1 mg. pure vitamin B₁); vitamin B₁ has a very wide distribution in foodstuffs, and it is therefore almost impossible for the intake to be inadequate with a reasonable diet. This is in marked contrast to the position with vitamin C, the distribution of which is restricted to certain types of food such as fresh fruits and green vegetables; further, vitamin C is required in much larger daily amounts, and is present in the blood in much greater quantities.

Nevertheless, vitamin B₁ deficiency may arise from (1) an inadequate supply, (2) inadequate absorption.

(3) inadequate utilization, or (4) through its destruction in the alimentary tract.

1. *Inadequate Supply.*—It is known that the storage of vitamin B₁ in the body is limited, and therefore a minimal intake is essential to meet the normal requirements; thus the deficiency observed in patients with alcoholic neuritis, severe malnutrition, and scurvy is undoubtedly due to a defective intake of vitamin B₁, and this is probably also a factor in incipient diabetic coma. Excessive vomiting as in hyperemesis gravidarum may lead to loss from the stomach of vitamin B₁ taken in food and the development of a deficiency; this may be the mechanism by which polyneuritis of pregnancy is produced. A normal intake of vitamin B₁ may be inadequate in certain conditions of hypermetabolism such as pregnancy, lactation, and hyperthyroidism, in which increased supplies of vitamin B₁ may be required. Thus the low values in our hyperthyroid patients may be attributed to a failure to meet an increased demand: it is interesting that the patient who gave a normal figure did not show the typical emaciation associated with thyrotoxicosis.

2. *Inadequate Absorption.*—The vitamin B₁ deficiency observed in cases of simple achlorhydric microcytic anaemia may be an impairment of vitamin B₁ absorption, but the part played by the achylia gastrica in this respect is not known, and it may be concerned with some further intermediate chemical mechanism. Many difficulties arise, since in pernicious anaemia and subacute combined degeneration of the cord achlorhydria is almost invariably present, but the blood vitamin B₁ values are normal in the absence of complications, so that there must obviously be other factors of importance.

3. *Inadequate Utilization.*—This is associated with hypometabolism (as shown by some cases of hypochromic anaemia which fail to respond unless thyroid is given with the iron), toxæmias as from chronic nephritis, and infection; the low figure given by the patient with carcinoma of the larynx may come into this category. It is interesting to note that Schopfer and Jung (1937) found less vitamin B₁ in cancerous tissues than in normal tissues. An unbalanced diet, especially an excessive intake of carbohydrate, has long been known to affect the utilization of vitamin B₁.

4. *Destruction of Vitamin B₁.*—The destruction of vitamin B₁ in the alimentary tract could also lead to an insufficient supply of vitamin B₁ being available for absorption, but the conditions under which this might arise are not clear.

It is evident that a vicious circle arises: in many of these deficiencies an inadequate dietetic intake leads to anatomical or physiological changes within the intestine and then to diminished absorption, which in turn leads to further disorder of the intestinal function. Moreover, some balance between the specific nutritional elements, such as iron and vitamin B₁, may be necessary.

THERAPEUTIC VALUE OF VITAMIN B₁

The only conditions in which a gross deficiency of vitamin B₁ was found were: alcoholic neuritis, nutritional neuritis, scurvy, and malnutrition, and in these cases marked improvement followed the administration of vitamin B₁ (and vitamin C in the scorbutic patient). A partial deficiency was observed in simple achlorhydric anaemia.

The cases of subacute combined degeneration of the spinal cord gave normal figures, so the poor therapeutic results following the administration of vitamin B₁ obtained by us and other workers are not surprising. Similarly,

in spite of a few sporadic claims for its efficacy, the vitamin has not proved of much value in polyneuritis other than the alcoholic, gestational, and nutritional forms, and this finding corresponds with the values for blood vitamin B₁ found in this series. It appears, therefore, that the changes in the nervous system in these conditions, though clinically similar to those reported in beriberi, are of different aetiology and not associated with vitamin B₁ deficiency. There is no clinical evidence that vitamin B₁ is concerned in haemopoiesis, and this is corroborated by the normal figures given by this test in the uncomplicated primary anaemias.

Summary

1. The Schopfer phycomyces test has been applied to the estimation of vitamin B₁ in the blood.

2. The modified method described can be adapted as a reasonable test for vitamin B₁ nutrition, and appears to be the best method at present available for dealing with the small quantities of vitamin B₁ in the blood, but it is too laborious and exacting in technique to serve as an ordinary routine laboratory method.

3. The range for the vitamin B₁ content of blood in eight normal subjects was 6.5 to 16.5 µg. per 100 c.cm.

4. From our experiments vitamin B₁ was found to be present in normal amounts in the blood of patients with subacute combined degeneration of the spinal cord, polyneuritis (excluding that due to alcohol and malnutrition), pernicious anaemia without neurological involvement before and after treatment, and secondary microcytic anaemia.

5. Gross deficiencies were present in alcoholic neuritis (4 µg. per 100 c.cm.), nutritional neuritis (3.5 and 4.5 µg. per 100 c.cm.), scurvy (4.8 and 5.5 µg. per 100 c.cm.), and malnutrition (4.7 µg. per 100 c.cm.); partial deficiencies were noted in simple achlorhydric anaemia (5.3 µg. to 6 µg. per 100 c.cm.).

We wish to thank those members of the honorary medical staff of the Manchester Royal Infirmary who kindly allowed us to examine patients in their hospital and private practice, and also Messrs. Roche Products Ltd. for kindly supplying the synthetic vitamin B₁ (aneurin) used in this work.

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TREATMENT OF BRUCELLA ABORTUS INFECTION WITH FOUADIN AND PRONTOSIL

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Reports on the treatment of *Brucella abortus* infection with fouadin and prontosil are gradually accumulating. Personal experience during the last year with the five cases here recorded supports the general impression that in the treatment of this disease both prontosil album and fouadin are of value, and that the former may prove to be a simple specific remedy when the patient can tolerate it in moderate doses (about 3 grammes daily) for a week. In view of the tendency to relapse (Case III) it is probably wise to give short intermittent courses of the drug for two or three months after the fever has disappeared.

Case I

A man aged 37, a patient of Dr. W. C. Blackham of Moseley, was admitted to the General Hospital, Birmingham, on August 3, 1937. In January, 1929, he had pneumonia after influenza. Bilateral sterile pleural effusions followed; that on the left side recurred so often that an exploratory thoracotomy was done without effect. In September, 1929, a large abscess emptied itself through the operation wound; its origin was never determined, but it was thought to have tracked from the mediastinum. The sinus did not heal until 1931. He remained well and active until three weeks before admission, when he became febrile (temperature usually about 100° F. at night) and had transient slight pain in the right hypochondrium. Fever persisted at about the same level; there was some sweating at night, and the pulse varied between 72 and 80.

Physical examination was negative apart from flattening of the left chest—a consequence of the illness in 1929. The urine was normal. A radiograph of the chest showed nothing of significance; a cholecystogram was normal. There was slight leucopenia (polymorphs 50 per cent. in a count of 5,000). Agglutinations on August 5 were positive to *Br. melitensis* at 1 in 250, 1 in 500, and 1 in 1,250, but not at 1 in 50 or 1 in 2,500; to *Br. abortus* at 1 in 250 and (feebly) 1 in 500; and negative for the typhoid and Salmonella groups.

A week later without treatment his condition was unchanged, but the agglutination to *Br. melitensis* now occurred at 1 in 2,500 and to *Br. abortus* at 1 in 1,000. On August 13 he was given 1.5 c.cm. fouadin, and the evening temperature fell to 99° F.; on the 16th 3.5 c.cm. of fouadin was given, and his temperature fell to normal. Three further injections of fouadin, each of 5 c.cm., were given at weekly intervals. After both the last two injections he had a rigor and his fever rose to 102° for a few hours; otherwise, apart from a trivial sore throat, his convalescence was uneventful. On September 7 agglutinations to *Br. abortus* and *Br. melitensis* were obtained at 1 in 5,000 dilution.

Case II

For the following notes I am indebted to Dr. M. I. Dick of Alvechurch. I did not see the patient myself, but advised treatment on the telephone.

The patient was a farmer's wife aged 45, and was the only member of the household who drank no milk except in her tea. She felt ill all through January. She was first seen on January 31, when she complained of aching all over. No abnormal physical signs were observed. Temperature 102° F.

During the following week her condition was unchanged, her temperature being round 101° F. in the morning and 103° F. in the evening. On February 7 strong positive agglutination to *Br. abortus* was obtained. The same day

the patient began to take one tablet of prontosil every four hours. Three days later she complained that the tablets made her sick, and as her condition was no better they were stopped, and on the 12th fouadin was given, the first injection being 3.5 c.cm., and every other day afterwards 5 c.cm. On February 14 her temperature began to come down, and by the 18th was considerably lower. By February 26 she was much better, the morning temperature being normal and the evening temperature usually about 100°. The last injection was given on February 26, nine having been administered. On March 8 the patient was up for a few minutes, but was still having a slight evening rise and was feeling very weak. On March 25 she came downstairs.

Case III

A woman aged 61, a patient of Dr. C. Lowe of King's Heath, was admitted to the General Hospital, Birmingham, on May 24, 1938. She had been treated for pulmonary tuberculosis in 1918, but there was no subsequent ill-health. She had three children, one of whom had tuberculosis of the hip. For six weeks before admission she had high fever (between 102° and 103° F.), usually from midday until 10 p.m., when she sweated profusely. Shivering attacks occurred at intervals. Her appetite was poor; she lost weight and was unable to sleep. She also complained of a tongue that had been "sore and swollen."

Physical examination was negative. The pulse was 110. The urine contained a few pus cells, hyaline casts, and streptococci. Radiographs of the chest were normal. The blood count showed a slight simple anaemia and leucopenia (polymorphs 46 per cent. in a total count of 3,800). Agglutinations were positive to *Br. abortus* at all dilutions to 1 in 2,500 and to *Br. melitensis* to 1 in 1,250; negative to the typhoid and Salmonella groups.

From May 28 to June 5 she was given 3 grammes of prontosil album daily; from June 6 to 10 she had 1 gramme daily. The temperature fell to normal on June 2, and remained so (six days after the first dose of prontosil). In hospital the highest fever recorded was 101° on the day before treatment began. On June 15 agglutination to *Br. abortus* could only be obtained up to 1,250; at this date the leucopenia persisted (3,900) at the same level as before treatment.

The patient left hospital apparently well on June 18. A fortnight later she had a recurrence of symptomless fever, which disappeared after a few days' treatment at home with prontosil album under the care of Dr. Lowe. There has been no relapse since.

Case IV

A woman aged 62, a patient of Dr. Jessiman of Malvern. She had had typhoid in her youth, and her gall-bladder had been drained in 1920. She had been subject to migraine all her life. Rheumatic pains occurred in the right shoulder and sacro-iliac joints for a year, and she "had not been quite well" for some months.

History of Present Illness.—She has been feverish for five weeks (temperature at first between 100° and 101° F. at night and about normal in the morning, but during the last five days has been continuously between 101° and 102° F.). There have been profuse night sweats with an unpleasant odour and occasional "shivers," some neuralgic pain in the face and indefinite pains about the body, a little cough but no sputum, but no other symptoms apart from a sense of severe illness. A radiograph of the chest was normal, and the urine was sterile and otherwise normal. A blood count showed a leucopenia (polymorphs 60 per cent. of total count of 3,600). Blood culture proved sterile; the Widal test proved negative to the typhoid group; and the Mantoux test was also negative. A little dullness was found at the right base; subphrenic abscess was considered, but exploration proved negative (Dr. Jessiman).

The patient was first seen on May 24, 1938, on admission to a nursing home, being very collapsed after an arduous journey of forty miles, and having a sense of impending death. Physical examination proved negative. On the evening of

May 25 her temperature was 103° F. and pulse 106. On May 26 agglutination to *Br. abortus* was positive in dilutions of 1 in 250 to 1 in 1,000 (Dr. J. H. Ebbs). Prontosil album (1 gramme daily) was given on May 26 and 27. Subsequently the dose was increased to 1.3 grammes daily until May 31, from which date 1 gramme daily was given to June 6. The temperature reached 103° F. during the first three days of treatment, but then fell rapidly to normal in the next three days; convalescence was rapid and apparently complete. On June 10 (after ten days of normal temperature) agglutination to *Br. abortus* occurred only in dilutions of 1 in 25 and 1 in 50. The blood count on that date was: haemoglobin, 78 per cent.; erythrocytes, 4,500,000 per c.mm.; leucocytes, 6,400 per c.mm. (polymorphs 42 per cent, with slight toxic granularity) (Dr. J. H. Ebbs).

The patient went to Yorkshire for a holiday on June 19. Towards the end of the month she developed symptoms of cystitis with a high temperature (103° F.). Dr. J. MacGowan of Shipley saw her in consultation and kindly wrote to me on July 8: "Clinically her illness has been solely due to the cystitis, and had she not given a history of having had undulant fever this would never have entered my head. The cystitis has reacted well to sodium mandelate, and she has been afebrile for about a week." In a specimen of blood taken by Dr. MacGowan during the acute stage of the cystitis agglutination to *Br. abortus* up to 1 in 2,560 and to *Br. melitensis* to 1 in 320 was found by Dr. J. C. Young of Bradford and also by Dr. J. H. Ebbs of Birmingham. The patient has been well since.

Case V

A woman of 50, a patient of Dr. H. V. Jessop of Burton-on-Trent, was first seen on June 22, 1938. She had led an active vigorous life with no illness of significance until six weeks previously. She then felt vaguely unwell and sweated profusely at night, the sweats having a sour, unpleasant smell. Despite this she went for a holiday to the seaside. On her return her temperature was taken for the first time and was found to be 102° F. The fever persisted and was often highest in the mornings. Physical examination was completely negative. The pulse was relatively slow (88 to 96), and the urine was normal. Agglutinations were positive to *Br. abortus* from 1 in 25 to 1 in 900 (Dr. J. H. Ebbs); negative to typhoid and *Salmonella* groups.

Two grammes of prontosil album were given daily from June 22 to July 2; then for three days 2½ grammes daily. From July 5 she took 1½ grammes daily until the 9th, when the drug was discontinued. During the first five days of this treatment there was high continuous fever (from 100° to 103° F.), with severe headache and pains in the limbs. On June 27 physical examination was still negative. On the 28th the temperature fell to normal, and subsequently was raised at times to about 99° F. until July 6, when the fever ended. Her general condition rapidly improved, convalescence being uneventful. A blood count on June 27, after 10 grammes of prontosil, showed no leucopenia (polymorphs 63 per cent. in a total count of 9,900).

In view of the relapse in Case III I advised that prontosil (1½ grammes daily) should be taken during one week of each of the two following months.

Summary

Five cases of infection with *Br. abortus* are reported. One was treated with fouadin alone with apparent benefit (Case I). It was a mild case, but fever had been continuous for four weeks, and the titre of the specific agglutination rose steadily in the week before treatment began.

Case II took prontosil album (3 grammes daily) for three days without improvement, and as she then began to vomit treatment by fouadin was adopted. Dr. Dick considers that she undoubtedly benefited, and her fever declined considerably in five days, though it did not become normal for a fortnight.

Cases III, IV, and V were treated with prontosil alone, and in all of them improvement was rapid and in the most severe one (Case IV) was dramatic. The temperature fell to normal in all of them in less than a week. In view of the tendency to leucopenia in *Br. abortus* infection the dose of prontosil album used was comparatively small; in none of the cases were any toxic symptoms observed, and there was no increase in the leucopenia found in two of them.

Case III had a relapse three weeks after prontosil was discontinued, but it was rapidly controlled by a further course of the drug.

Case IV had acute cystitis during convalescence; this cleared up under treatment with sodium mandelate.

In Cases II and IV the specific agglutinations declined to negligible titres after prontosil treatment; this was not observed in Case I, which was treated with fouadin alone.

In Case IV the specific agglutination rose again to a high titre during the febrile reaction to the cystitis. Topley and Wilson state: "Agglutinins are generally present in a suggestive titre by the end of the second week, and in frank cases of undulant fever they generally rise to 1 in 640 or over. After the attack is over they tend to fall fairly rapidly, and may sink to a low level within three months. There is evidence that in chronic cases they may fall even during the period of active infection."

It would be interesting to know if a fall in the agglutination titre is common after prontosil treatment.

[Since this article was written Case V had a slight relapse early in September. Fever persisted only three days and was rapidly controlled by prontosil.]

REPORT ON FIVE CASES OF BRUCELLA ABORTUS INFECTION

BY

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Infection by *Brucella abortus* is uncommon enough in this country to justify the recording of the occurrence and treatment of five cases in one practice.

History of the Disease and its Mode of Spread

Brucella abortus was first identified by Bang in 1897, and it was shown by him to be the cause of contagious abortion in cattle. It was then called "Bang's bacillus." Kennedy in 1914 demonstrated agglutinins for *Brucella melitensis* in milk and serum of cows in London—which cows were no doubt infected by *Br. abortus*. But it was not until 1921 that Bevan, in Rhodesia, demonstrated agglutinins in human serum. Cases were first reported in England in 1928-9.

It is stated by experienced workers that the usual mode of spread of the disease is by infected unpasteurized milk and cream, but it can also be spread by contact with infected animals, their carcasses, discharges, or excreta. It appears that a healthy cow may continue to yield milk which is infected long after all symptoms of abortus fever have cleared up. The disease may also be disseminated by farm hands, butchers, sausage-makers, and veterinary surgeons: the latter's serum often contains agglutinins, though activity of the disease has never been manifest. Infection in such cases is probably latent. Contact from man to man has never been demonstrated (Beckman, 1938).

Account of the Present Series

Symptoms.—In all five cases the onset was insidious. The patients complained of malaise, sweating, bouts of shivering, loss of energy, loss of appetite, and a feeling of lassitude and of being out of sorts, but none of them could fix a definite date for the onset. They mostly said that for several days, and in some cases weeks, they felt off-colour. Headache and pains in back and joints were fairly constant features.

Clinical Features.—What struck me most was that although these patients had very high temperatures—102° to 104° F.—the pulse rate was relatively slow and they neither felt nor looked desperately ill. None of them showed any signs of anaemia, and in one case which relapsed and in which anaemia was suspected the blood count was normal. In two cases there were patches of dullness in the chest which were of a shifting nature. Tenderness over the gall-bladder was common in all cases, though not very pronounced. There was no anorexia, no enlargement of the spleen or of the liver that I could detect, and no diarrhoea; but there was a tendency towards constipation, probably due to loss of fluid from the body owing to sweating. The temperature was usually highest at about 6 to 7 p.m. (102° to 103°) and normal in the morning. Depression was fairly general, and one patient who recovered rather quickly was very depressed for several weeks afterwards. The depression may have been partly due to the sulphanilamide.

Diagnosis.—The clinical features of the disease are so vague and indefinite that diagnosis is extremely difficult. The long-continued fever without any other definite signs may make one suspicious and may lead to a tentative diagnosis; but the malady may be confused with other conditions—for example, tuberculosis, influenza, bronchial pneumonia, or typhoid, as well as tularaemia, infective arthritis, and Hodgkin's disease; hence one has to seek the aid of the laboratory. In fact, it is only by laboratory examination for agglutinins that the definite diagnosis of the disease can be arrived at. It appears that the organism can also be cultivated from blood, faeces, and urine; but this is successful in a small number of cases only. Blood cultures were tried twice in one of my cases without success. This failure is not to be wondered at, since Sir Weldon Dalrymple-Champneys shows only 16 per cent. of successes in his records. In all my cases the blood serum was positive in dilutions of from 1 in 500 to 1 in 2,500.

Treatment.—All the cases were treated with sulphanilamide, starting on the first day with 22½ grains. On the second day 45 grains were given, this daily dose being kept up until the temperature was normal morning and evening. The dose was then decreased for three days, when it was stopped. In four cases the temperature fell to normal in from seven to ten days; but in one case it rose each evening to 100° for fourteen days, and then kept on gradually coming down for another thirteen days before it remained normal. The sulphanilamide was continued throughout that period. The temperature has remained normal since, and this patient has not had a relapse.

Relapses.—Three cases relapsed. Two relapses took place after the temperature had been normal for about fourteen days and one at twenty-eight days. The clinical features were much the same as in the earlier stages, but the patients felt less ill. Sulphanilamide was again given, and after varying periods (three to six days) the temperature settled down once more and has remained normal since.

Complications from Sulphanilamide.—There was only one patient—a woman aged 39—who showed any idiosyncrasy to it. She received 45 grains daily, becoming cyanosed and showing definite congestive symptoms, with marked tachycardia. In her case the drug was discontinued for two days, and she was then given 22½ grains daily. This was the patient who relapsed after her temperature had been normal for twenty-eight days. Other patients complained about being depressed. Their depression was considerably less when the drug was stopped.

Commentary on the Cases

Five cases of *Br. abortus* infection were treated with sulphanilamide, and it is my opinion that the drug had a definite influence in decreasing the length of the disease, the duration of which is said by Sir Weldon Dalrymple-Champneys to vary from three to thirty-nine weeks, with an average of twelve and a half weeks, though I suppose that five cases are too small a number for much reliance to be placed on the success of the drug. The longest period in any case of mine in which the fever persisted continually was four weeks, the shortest two weeks. In the three relapses, when sulphanilamide was repeated the temperature dropped to normal in from three to six days and has remained normal since. The last of these relapses occurred forty-one days ago. It is said by Gatt (1938) that American workers have not found the drug to have had any influence on the course of the disease, but other practitioners (Lloyd, 1938; Matthews, 1938) believe that the drug does shorten the course of the disease. Moreover, the fact that the temperature settled down in a few days in all three cases of mine that relapsed and were given the drug again is fairly good proof of its efficacy.

Their Mode of Spread

In all five cases that came under my notice the milk was obtained from the same dairy. There was also one other case in another doctor's practice; the milk concerned in this came from the same dairy and at about the same time. The first case occurred in my practice on January 14, 1938, the last was detected on May 5. The fact that six cases were seen in a period of less than four months and that all of these patients obtained their milk from the same dairy may indicate either a fairly heavy infection of the herd or a virulent organism. The dairy in question is one of the best in England, and supplies only T.T. milk. The owner denied that any of his herd were suffering from contagious abortion at the time the first case was discovered, but admitted that he had a cow that aborted in December, 1937. He had her removed from the herd shortly afterwards, and since then no cow had aborted or shown any signs of abortion. The milk from the herd was examined in batches by the North Riding Laboratory, Scarborough, but no growth of the organism was obtained. In view of what has already been said, this is not to be wondered at. Since the outbreak the herd, which is composed of fifty-five cows, all tuberculin-tested, has been inspected by a veterinary surgeon from the Board of Agriculture and Fisheries, and all were found to be healthy and free from any disease of the udder. The question of a human carrier might arise. Needless to say the outbreak caused great alarm to the dairy farmer concerned, as he supplies about 800 bottles of T.T. milk daily to this area, and, moreover, he is one of the chief pioneers of clean milk in the country.

General Commentary

Hitherto only isolated cases have been reported by different practitioners up and down the country; cases

quently five cases in one practitioner's practice must be considered most unusual. The age incidence is more or less in conformity with other people's findings. The sex incidence, however, is well worth noting: I had two males and three females, and another practitioner had one female—that is, four females and two males. Creed states that the relation is two males to one female—mine is the reverse. He also says that the reason why so many males are infected is that they only drink milk spasmodically and not often enough to keep up their immunity. Perhaps it is the females who don't drink milk sufficiently nowadays, in case they lose their figures! There is also one other point: a husband and wife were found to be suffering from the disease. It appears, from what Sir Weldon Dalrymple-Champneys says, that this is the first married couple that has been reported suffering from the disease. They were both ill at the same time. It is said that abortus fever is not transmitted from man to man. Here it may have been. It appears that one attack confers lasting immunity on the individual, and it may be possible that many people become immunized by repeated small doses of infected milk and yet never develop any definite signs of the disease.

I understand that there is a movement afoot by the Board of Agriculture and Fisheries to try to stamp out the disease.

Pasteurization of milk is the only safeguard against abortus fever. This must be done with a proper plant, as home pasteurization, which has been tried by one family, has not been a success, since each member complained that the milk was unpalatable.

I beg to thank Sir Weldon Dalrymple-Champneys for his great kindness and for many helpful suggestions in preparing these notes, and also Dr. Colville, medical officer of health for Bridlington, for reports on the herd and the milk.

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G. Frontali and G. Ferrari (*Minerva med.*, 1938, 29, 133) record their observations on fourteen cases of pellagra, five in men and nine in women. Seven had had from one to six previous attacks, and in seven it was the first attack. All had severe attacks with nervous symptoms, and in ten cases psychical symptoms were also present. Three cases were chronic forms with symptoms of dementia, and belonged to families in which other members had had psychoses associated with pellagra. Seven cases showed forms of amentia with depressive manifestations, and two of these were also chronic alcoholics with delirious ideas and visual and auditory hallucinations. All the patients were treated for periods ranging from thirty days (nine cases) to forty or fifty days (five cases) with nicotinic acid in doses of 160 mg., partly by mouth and partly by intramuscular injection. In four cases the treatment was associated with a diet likely to produce pellagra. The results were the same in all cases. There was: (1) complete cure of the pellagrous dermatitis in one or two weeks; (2) resumption of the normal digestive functions and a gain of 5 to 8 kg. in thirty to thirty-two days; and (3) a slow but sure disappearance of nervous symptoms in three or four weeks' time. As regards the psychical manifestations, the three chronic cases with dementia showed no appreciable change, while the others made a complete recovery.

THE SUPPRESSION OF LACTATION BY
ORAL OESTROGEN THERAPY

BY

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Recent progress in the study of lactation has assigned to the anterior pituitary gland the initiation of yet another physiological process—namely, lactation. A large body of workers have demonstrated that injections of anterior-lobe extracts stimulate lactation in the mammary glands of guinea-pigs, rabbits, ferrets, goats, cats, dogs, sows, cows, and monkeys where previously they have been adequately treated with oestrogens. The literature is very well reviewed by Folley (1938).

It is common knowledge that lactation in the human does not begin until forty-eight to seventy hours after the birth of the child, and is preceded by a gradual engorgement and distension of the breasts, which are stimulated by the mechanical action of suckling; this causes release of the lactogenic hormone from the anterior pituitary (Selye, Collip, and Thomson, 1934). In view of the interrelation and antagonism of the various hormones in the body it is thought that the development of the breasts occurs under the influence of oestrogen and progesterone during gestation. Oestrogen causes growth of the duct system, while progesterone and oestrogen develop the lobule-alveolar system (Nelson, 1936). At parturition, and following the separation of the placenta, the oestrogen-progesterone level falls and the inhibition of the anterior pituitary is removed, with the result that the release of lactogenic hormone stimulates milk formation in the mammary glands (Nelson, 1936).

Clinically this knowledge is of considerable importance from two main aspects: (1) stimulation of lactation; (2) suppression of lactation.

Stimulation of Lactation

This depends upon treatment of cases showing a deficiency of milk secretion with the anterior pituitary lactogenic hormone called "prolactin" by Riddle. So far experiments have almost exclusively been carried out on animals, but Folley (1938) suggests that the extracts used must have contained other pituitary factors. Kurzrok, Bates, Riddle, and Miller (1934) and Ross (1938) claim that there is a slight increase of secretion in women after administration of large doses of prolactin, and that the mothers treated were able to nurse their infants completely on discharge from hospital, whilst the untreated controls had to use artificial feeds. The impurity of the extracts at present available is probably responsible for severe local reactions which follow the injections of the larger doses, and, so far, the stimulation of lactation is of scientific interest only.

Suppression of Milk Secretion

This is a definite clinical application of great importance, but unfortunately it is as yet very little known. Once lactation is established, Folley (1936) has shown, in

the cow, that oestradiol monobenzoate and oestrone concentrate the fatty and non-fatty solid content of the milk. It is suggested that the administration of exogenous oestrin will inhibit the anterior pituitary also and depress the lactogenic principle. Various reports have appeared on this inhibitory action by injections of the follicular hormone in lactating rats (Folley and Kon, 1938; Herold, 1938) and women (Lindemann, 1938; Brea and Gándara, 1937; Adrian, 1938), mostly using quite large doses by the intramuscular route.

It is our object to show that small doses by mouth are perfectly adequate and that a definite advance can be claimed for such simple therapy. Our attention was called particularly to the action of oestradiol benzoate injections in suppressing lactation following attempts to induce labour and for sensitization of the uterus when the foetus was believed to be dead. It was found that after delivery the breasts were devoid of all secretion of milk.

Case A.—Mrs. H., aged 30, 1-para, was admitted at full term on October 7, 1937. Medical induction at 5 p.m. on October 7 and surgical induction on October 11 failed to start pains. Oestradiol benzoate (progyonon) 5 mg. was injected intramuscularly as follows: On October 14 at 7 and 9 p.m.; on October 20 at 12 noon and 4 p.m.; on October 30 at 12 noon, 4 p.m., and 8 p.m. Labour commenced at 12 noon on November 1 of its own accord, and a normal male infant was born at 6.55 p.m. the same day, weighing 6 lb. 13 oz. As a result of this treatment with oestradiol benzoate the breast secretion was absent and the child was put on artificial feeds.

Case B.—Mrs. T., aged 29, 1-para; due May 5, 1937. No movements were felt on March 9, and it was thought that the uterus was becoming smaller. The patient was admitted on March 10, and oestradiol benzoate (progyonon) 5 mg. was given the same day. Medical induction was tried on March 11. On March 13, 5 mg. of progyonon was given at 2, 3, 4, and 5 p.m. A macerated foetus was expelled at 2 p.m. on the 14th with the cord around the neck five times. Breast secretion was absent.

A case of lactorrhoea was treated in September, 1936:

Case C.—Mrs. R., aged 38, had had three children, the youngest of whom was 2½ years old. She came to hospital on September 23 thinking she was pregnant, as her breasts had swollen and were leaking milk. Her periods had been regular from a month after the last baby, which she fed for four to five months. On June 27, 1936, she had noticed that her breasts had become full of milk, and this condition had persisted since. A sample was expressed for analysis, and was found to be normal human milk. Oestradiol benzoate in doses varying from 5 mg. once weekly to 15 mg. twice a week for periods up to a month effected a temporary suppression only. It was found also that small doses of oestrone (1,000 I.U.) given by mouth frequently had the same temporary effect.

Tage Kemp and Pedersen-Bjergaard (1937), in a paper on absorption and excretion of oestrone, state that "the hormone that is administered orally is rapidly absorbed, and is found for a short time in a fairly highly concentrated form in the blood," but it is also very rapidly excreted. "Nevertheless, since oral administration has many practical advantages it will often be preferred. The hormone must, then, be given divided into as many doses as possible during the course of the day, and so far as is possible in a form that will be absorbed slowly." Accordingly a few cases received oral therapy, using progyonon dragees, which contain oestrone and also equilin, equilin, and naturally occurring lipoids. The number of patients available in private practice was small; consequently a series of cases were collected at

Table showing Case Details

| Case | Age | Para | Birth | Indication | Treatment and Results |
|------|-----|------|---------|---------------------------------------|--|
| 1 | 33 | 2 | 22/6/38 | Macerated foetus; prolapsed cord | Tab. ii, 2-hourly for 12 hours then 4-hourly for 3 days. Breast secretion nil |
| 2 | 20 | 1 | 1/5/38 | Stillbirth, 36 weeks | 2/5/38. Tab. v, b.d. 6/5/38. Breasts normal |
| 3 | 41 | 2 | 23/3/38 | Stillbirth | 28/3/38. Tab. v, b.d. Breasts full 29/3/38. Still full, not painful 30/3/38. Breasts comfortable |
| 4 | 32 | 1 | 8/6/38 | Stillbirth, full term | 11/6/38. Tab. v, b.d. 13/6/38. Breasts normal |
| 5 | 18 | 1 | 14/5/38 | Stillbirth, full term | 15/5/38. Tab. v, b.d. 16/5/38. " " Comfortable |
| 6 | 40 | 7 | 31/3/38 | Stillbirth, overdue | 31/3/38. Tab. v, b.d. 4/4/38. Breasts normal |
| 7 | 20 | 1 | 27/3/38 | Stillbirth, full term | 31/3/38. Tab. v, b.d. 1/4/38. Breasts normal |
| 8 | 26 | 1 | 27/3/38 | Stillbirth, 42 weeks | 28/3/38. Tab. v, b.d. 29/3/38. " " Breasts still active 1/4/38. " " 2/4/38. Breasts normal |
| 9 | 39 | 1 | 13/3/38 | Stillbirth, 42 weeks | 17/3/38. Tab. v, b.d. 19/3/38. Breasts comfortable |
| 10 | 33 | 6 | 1/8/38 | A.P.H. and 36 weeks' macerated foetus | 2/8/38. Tab. ii, 2-hourly; 5 doses 3/8/38. Breasts fair, Tab. ii, 2-hourly 4/8/38. Breasts normal |
| 11 | 36 | 2 | 16/4/38 | Stillbirth, full term | 16/4/38. Tab. v, b.d. 17/4/38. " " 19/4/38. Breasts normal |
| 12 | 28 | 2 | 19/4/38 | Stillbirth, full term | 19/4/38. Tab. v, b.d. 23/4/38. Breasts comfortable |
| 13 | 32 | 2 | 7/8/38 | Stillbirth, 32 weeks | 8/8/38. Tab. ii, 2-hourly; 5 doses 9/8/38. Tab. ii, 2-hourly 12/8/38. Breasts soft and comfortable |
| 14 | 25 | 1 | 20/1/38 | Stillbirth, full term | 24/1/38. Tab. v, at night 25/1/38. " " 26/1/38. Breasts normal |
| 15 | 24 | 1 | 13/8/38 | Stillbirth, 35 weeks | 14/8/38. Tab. ii, 2-hourly; 5 doses 15/8/38. Tab. ii, 2-hourly 18/8/38. Breasts still full, Tab. v. 19/8/38. Tab. v, and fluid restriction 21/8/38. Breasts normal |
| 16 | 25 | 1 | 14/8/38 | Anencephalic | 15/8/38. Tab. v, b.d. 19/8/38. Breasts normal |
| 17 | 33 | 1 | 19/5/38 | Stillbirth, full term | 23/5/38. Tab. v, b.d. Breasts heavy 25/5/38. Breasts normal |
| 18 | 21 | 1 | 2/8/38 | Anencephalic | 7/8/38. Tab. ii, 2-hourly; 5 doses 8/8/38. " " 11/8/38. Breasts normal |
| 19 | 26 | 1 | 10/3/38 | Stillbirth, 7 months | 11/3/38. Tab. ii, 2-hourly; 5 doses 12/3/38. " " 15/3/38. Breasts normal |
| 20 | 40 | 5 | 5/5/38 | Stillbirth, full term | 7/5/38. Tab. v 8/5/38. " " 9/5/38. " " 10/5/38. Breasts normal |
| 21 | 39 | 1 | 8/7/38 | Stillbirth | 11/7/38. Tab. v 13/7/38. Breasts normal |
| 22 | 25 | 3 | 21/4/38 | Stillbirth, full term | 22/4/38. Tab. v, b.d. 25/4/38. Breasts soft 26/4/38. Breasts full, Tab. v, b.d. 29/4/38. Breasts normal |
| 23 | 25 | 1 | 1/8/38 | Stillbirth, full term | 2/8/38. Tab. v, b.d. 5/8/38. Breasts normal |
| 24 | 24 | 1 | 13/1/38 | Stillbirth, 37 weeks | 17/1/38. Tab. v, b.d. 24/1/38. Breasts normal |
| 25 | 28 | 2 | 21/6/38 | Stillbirth, full term | 24/6/38. Tab. v, b.d. 26/6/38. Breasts normal |
| 26 | 28 | 2 | 25/7/38 | Stillbirth, full term | 26/7/38. Breasts painful, Tab. v, b.d. 27/7/38. Tab. v, b.d. 28/7/38. Breasts comfortable |

Table showing Case Details (continued)

| Case | Age | Para | Birth | Indication | Treatment and Results |
|------|-----|------|----------|--------------------------------------|--|
| 27 | 27 | 1 | 9/6/38 | Stillbirth, post-mature | 11/6/38. Tab. v, b.d. 13/6/38. Breasts normal |
| 28 | 29 | 1 | 28/7/38 | Stillbirth, full term | 29/7/38. Tab. v, b.d. 31/7/38. Breasts normal |
| 29 | 32 | 1 | 12/6/38 | Stillbirth, post-mature | 13/6/38. Tab. v, b.d. 14/6/38. " " 17/6/38. Breasts heavy 19/6/38. Breasts comfortable |
| 30 | 27 | 1 | 4/1/38 | Stillbirth, post-mature | 7/1/38. Tab. v, b.d. 8/1/38. Breasts engorged. Tab. v, b.d. 9/1/38. Breasts comfortable |
| 31 | 25 | 1 | 22/3/38 | Stillbirth | 22/3/38. Tab. v, b.d. 25/3/38. Breasts normal |
| 32 | 29 | 1 | 7/8/38 | Death of child; haemorrhagic disease | 12/8/38. Tab. v, b.d. 14/8/38. Breasts normal |
| 33 | 20 | 1 | 12/8/38 | Death of child | 18/8/38. Tab. ii, 2-hourly; 5 doses 19/8/38. A little milk 20/8/38. Breasts normal |
| 34 | 30 | 2 | 23/4/38 | Child died at 7 days | 2/5/38. Tab. v, b.d. 5/5/38. Breasts normal |
| 35 | 21 | 1 | 1/8/38 | Child died; spina bifida | 4/8/38. Tab. v, b.d. 7/8/38. Breasts normal |
| 36 | 27 | 3 | 27/3/38 | Child died | 31/3/38. Tab. v, b.d. 3/4/38. Breasts normal |
| 37 | 30 | 7 | 21/1/38 | Child died 7th day | 29/1/38. Tab. v, b.d. 30/1/38. Breasts heavy. Tab. v, b.d. 1/2/38. Breasts comfortable |
| 38 | 32 | 1 | 22/6/38 | Child died 2/7/38 | 3/7/38. Tab. v, b.d. 4/7/38. " " 5/7/38. " " 7/7/38. Breasts normal |
| 39 | 25 | 1 | 14/1/38 | Child died 15/1/38 | 17/1/38. Breasts engorged. Tab. v, b.d. 18/1/38. Breasts normal |
| 40 | 40 | 4 | 25/1/38 | Twins died | 29/1/38. Tab. v 30/1/38. Breasts heavy. Tab. v 31/1/38. Breasts normal |
| 41 | 38 | 2 | 18/3/38 | Died; spina bifida | 30/3/38. Tab. v, b.d. Breasts exhausted 1/4/38. Breasts full. Tab. v, b.d. 3/4/38. Breasts normal |
| 42 | 37 | 1 | 12/7/38 | Child died 13/7/38 | 15/7/38. Breasts painful, emptied. Tab. v, b.d. 16/7/38. Breasts full. Tab. v, b.d. 18/7/38. Breasts comfortable |
| 43 | 24 | 1 | 12/4/38 | Tuberculosis of mother | 12/4/38. Tab. v, b.d. 13/4/38. Breasts normal |
| 44 | 26 | 2 | 13/8/38 | Tuberculosis of mother | 15/8/38. Breasts full. Tab. v, b.d. 17/8/38. Breasts painful 18/8/38. Tab. v, b.d. 19/8/38. Breasts normal |
| 45 | 24 | 1 | 22/6/38 | Tuberculosis of mother | 24/6/38. Tab. v, b.d. 27/6/38. Breasts full. Tab. v, b.d. 28/6/38. Breasts normal |
| 46 | 25 | 1 | 19/3/38 | Mother "chesty" | 31/3/38. Tab. v, b.d. 4/4/38. Breasts comfortable |
| 47 | 24 | 1 | 12/8/38 | Tuberculosis of mother | 12/8/38. Tab. v, b.d. 13/8/38. " " 15/8/38. Breasts full. Tab. v, b.d. 18/8/38. Breasts painful. Tab. ii, 2-hourly 19/8/38. Breasts normal |
| 48 | 30 | 3 | 27/7/38 | Tuberculosis of mother | 31/7/38. Tab. v, b.d. 1/8/38. " " 2/8/38. Breasts full. Tab. v, b.d. 3/8/38. Breasts normal |
| 49 | 34 | 3 | 14/5/38 | Pyrexial cold of mother | 4/7/38. Tab. i, hourly; 10 doses 5/7/38. " " 6/7/38. Breasts comfortable |
| 50 | 29 | 2 | 12/2/38 | Pyrexia of mother and catarrh | 4/4/38. Tab. i, hourly; 10 doses 5/4/38. " " 6/4/38. " " 7/4/38. Breasts comfortable |
| 51 | 41 | 4 | 31/12/38 | Illness of mother | 31/1/38. Tab. ii, 2-hourly 1/2/38. " " 2/2/38. " " 3/2/38. Breasts comfortable |

Table showing Case Details (concluded)

| Case | Age | Para | Birth | Indication | Treatment and Results |
|------|-----|------|------------|--------------------------------|--|
| 52 | 25 | 1 | 27, 12, 37 | Illness of mother | 17/1/38. Tab. ii, 2-hourly 18/1/38. " " 19/1/38. " " 20/1/38. Breasts comfortable and soft |
| 53 | 39 | 2 | 12, 12, 37 | Weaning for adoption | 14/1/38. Tab. ii, every 4 hours 15/1/38. Tab. ii, 4-hourly 16/1/38. Tab. ii, 2-hourly 17/1/38. " " 20/1/38. Breasts comfortable |
| 54 | 21 | 1 | 22, 2, 38 | Weaned 5/3, 38 | 5/3/38. Tab. v, b.d. 8/3/38. Breasts normal |
| 55 | 23 | 1 | 15, 3, 38 | Weaned for adoption | 5/4/38. Tab. v, b.d. 8/4/38. Breasts normal |
| 56 | 34 | 2 | 14, 6, 37 | Weaned for operation on mother | 18/8/38. Tab. v, b.d. 19/8/38. " " 21/8/38. Less milk 22/8/38. Breasts comfortable |
| 57 | 27 | 2 | 26, 7, 38 | Weaned | 6/8/38. Tab. v, b.d. 8/8/38. Breasts normal |
| 58 | 26 | 1 | 4, 8, 38 | Weaned for adoption | 7/8/38. Tab. v, b.d. 8/8/38. " " 9/8/38. " " 15/8/38. Breasts soft 17/8/38. Breasts normal |
| 59 | 24 | 3 | 8, 6, 38 | Breast abscess | 15/6/38. Tab. i, hourly; 10 doses 16/6/38. Tab. i, hourly 17/6/38. " " 18/6/38. " " 19/6/38. Breasts normal and soft |
| 60 | 25 | 1 | 7, 11, 37 | Breast abscess | 20/1/38. Tab. ii, 2-hourly; 6 doses 21/1/38. " " 22/1/38. " " 23/1/38. " " 24/1/38. " " 25/1/38. " " 26/1/38. " " 27/1/38. Comfortable and soft |
| 61 | 29 | 1 | 10, 5, 38 | Breast abscess | 18/8/38. Tab. ii, 2-hourly 19/8/38. " " 20/8/38. " " 21/8/38. " " |
| 62 | 28 | 2 | 4, 7, 38 | Puerperal mania | 20/7/38. Tab. v, b.d. 28/7/38. Breasts full again. 31/7/38. Tab. v, b.d. Breasts normal |

Southmead Municipal Hospital, where facilities were ideal.

The particular indications which made it necessary to suppress lactation are tabulated below, with the number of each type treated in this series.

| | |
|--|----|
| Stillbirth, miscarriage, or monstrosity | 31 |
| Death of child | 11 |
| Disease or illness of mother (tuberculosis, disease of heart, eclampsia, etc.) | 10 |
| Weaning for adoption or operation | 6 |
| Breast abscess | 3 |
| Puerperal mania | 1 |

Method of Treatment

The older method of using belladonna plasters has long since been discarded, and at the present time great reliance is placed on the use of saline aperients such as magnesium sulphate, given frequently, fluids being restricted, as well as binding and supporting the breasts. In the large obstetrical unit of Southmead Hospital it has been found that this gives the nursing staff much extra work: for if lying-in treatment is conscientiously carried out the frequent attention with bed-pans is a great trouble, while the use of considerable numbers of sterile pads is an additional expense. At the same time this treatment is distressing to the mother, and may still further weaken a patient whose resistance is already

reduced by a difficult labour. For these reasons such a simple method as oral follicular hormone therapy is welcomed.

In the beginning two doses of five dragees each were given twice daily. The preparation used was progynon (Schering), and each dragee contained 1,000 I.U. of oestrone. In many cases this dose was found to be sufficient, and rapidly all engorgement of the breasts had ceased and the patients became much more comfortable. Sometimes the treatment was continued for two to six days. Later, with the idea of keeping up a continuous supply of inhibitory hormone, five doses of two tablets each were given two-hourly throughout the day, while some patients received one dragee hourly during the day, and also during the night if they were awake.

Results in sixty-two cases have been consistently satisfactory. The ideal method is to start treatment soon after delivery, giving two doses of five tablets each on the first day, following with five divided doses of two tablets each, two-hourly, on the succeeding day or days if necessary. If treatment is not begun until the third day, or later still, it may be necessary to continue two tablets two-hourly for two to four days. No fluid restriction or aperients are necessary, and even binding of the breasts may be omitted in most cases, the support of a brassiere being adequate. The average effective total dose is twenty to thirty tablets, which for hospital practice represents a cost of approximately 3s. to 4s. 6d. It may be argued that magnesium sulphate is much cheaper, but this is offset by the saving in nurses' time and the cost of sterile dressings, whilst many patients who have experienced both forms of treatment for the suppression of milk have no hesitation in their preference for this oral therapy. The nursing staff are most enthusiastic about the method, which has reduced their labours and at the same time relieved many mothers of anxiety and distress.

Later in the period of lactation this therapy has been found of great value for breast abscess. It is suggested that by suppressing lactation at the onset of engorgement and congestion, with attempts at localization, the duration of the case is shortened considerably, and, if an abscess forms, this can be dealt with much more easily in the absence of active milk secretion. The most noticeable effect is the rapid softening of hard, swollen, congested breasts, with almost immediate relief of discomfort; but if the tablets are given immediately after parturition the breasts remain soft and comfortable. However, some milk may be forcibly expressed for many days, and complete disappearance of all milk in the ducts may take some time.

The dosage found to be effective in this series of sixty-two cases was:

- 5 tablets b.d. for 1 day, successful in 26 cases.
- 5 tablets b.d. repeated for 2 to 3 days, successful in 21 cases.
- 2 tablets every two hours in 5 doses for 1 to 4 days, successful in 12 cases.
- 1 tablet hourly in 10 doses for 2 to 3 days, successful in 3 cases.

The time after the birth of the child when treatment was begun is here shown:

| Time | Patients | Time | Patients |
|---------------|----------|----------------|----------|
| 1st day | 9 | 11th day | 1 |
| 2nd | 16 | 12th | 2 |
| 3rd | 10 | 16th | 1 |
| 4th | 9 | 5th week | 1 |
| 5th | 3 | 6th | 1 |
| 6th | 1 | 11th | 1 |
| 7th | 2 | 12th | 2 |
| 8th | 1 | 13th | 1 |
| 10th | 1 | | |

Breasts were comfortable and soft in two days in eighteen patients, in three days in nineteen, and in four days in fifteen (a total of fifty-two); whilst, of the remain-

ing ten cases, in five days two were comfortable, in seven days five, and in six, ten, and eleven days one each. Thus fifty-two cases (84 per cent.) were comfortable within four days, and in the remaining ten cases a marked relief in tension was noticed but the breasts did not regain normal comfort until a few days later.

Discussion

Experience in a few cases of acromegaly and thyrotoxicosis when attempting to inhibit anterior pituitary function in human beings (Foss, 1937), together with Zondek's statement (1936) regarding the quantity of oestrogen necessary to retard growth and gonadotropic function in rats, makes it difficult to realize that oral oestrone in doses of 20,000 to 30,000 I.U. given over a period of two to six days can inhibit a function of the anterior pituitary. Normally this is only held in check by massive amounts of oestrogen and/or progesterone in the placenta. It is much more possible, in our view, that oestrone acts specifically on the mammary gland, in some way preventing the action of the lactogenic hormone of the anterior pituitary, or even by a direct antagonism to this lactogenic hormone. At present an explanation of this clinical finding cannot justifiably be ventured. It is unlikely that such small doses will in any way influence the chemical constitution of human milk.

We should like to acknowledge our thanks to Dr. S. J. Folley for his helpful criticism, to Dr. R. H. Parry for facilities for carrying out much of this research in the Southmead Municipal Hospital, Bristol, and to Dr. Neumann of Schering, Ltd., for samples of "progynon" dragees which were supplied for the early cases.

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The National Smoke Abatement Society (Chandos House, Buckingham Gate, S.W.1) has published under the title of *Britain's Burning Shame* a survey of the ravages caused by atmospheric pollution. This pamphlet, with profuse illustrations, is presented in simple terms. A foreword by Professor John Hilton emphasizes that smoke, which he describes as aerial sewage, is not a necessary evil. Emphasis is placed upon the ceaseless fight of women against dirt and dust, much of which results from the smoke-laden atmosphere in which the majority of the population is compelled to live. The bare facts here marshalled in simple fashion present a dramatic picture of the smoke menace, which competent authorities have estimated costs us not less than £40,000,000 a year. The smoke pall over towns and cities, often shutting out at least half the sunlight, encourages in children diseases of darkness like rickets. The tarry matter and acids contained in the smoke increase the sufferings of those affected by respiratory disease as shown by the increases in deaths from these diseases during periods of protracted fog. Added to this is the psychological effect upon hundreds of thousands of the population who live in conditions approximating to perpetual gloom.

Clinical Memoranda

Cure or Relief of Cases Misdiagnosed "Angina of Effort"

The diagnosis of angina of effort is by no means easy in every case. The symptoms of fibrositis may simulate it very closely, not only symptomatically but in their response to nitroglycerin.

The curable cases referred to here are those of fibrositis of the chest wall with pain resembling angina, and are relieved immediately by trinitrin tablets. The practitioner labels these cases angina because they are relieved by trinitrin, forgetting that Sir William Gowers used to treat brachial neuritis (that is, fibrositis) with liquor trinitrini and tincture of gelsemium.

The treatment of cases in which the pain is due to fibrositis consists in breaking up the nodules with the fingers, using considerable force. The method is very painful, but after four manipulations the pain is much less. In every case that is diagnosed angina the practitioner should carefully search for nodules or painful areas under the clavicles and over the sternum and costosternal joints. Even if these are not found or a grating sound is not elicited fibrositis is present if there is abnormal tenderness or pain on pressure. To find the nodules most easily the fingers should be placed at right angles to the skin of the chest wall as if they were clawed, and be moved up and down the chest wall. Where the nodules are felt and where tender places are found the whole of the chest, back and front, should be treated, using considerable pressure. This should be done not less than four times a week—once a week would be useless—for eight treatments, and if necessary be repeated after an interval of a fortnight. Sometimes it is difficult to find the nodules or the tender points at the first attempt.

Perhaps these cases of pain in the chest may account for some of the 11.6 per cent. of those referred to by Dr. Geoffrey Bourne and R. Bodley Scott (1938) in which no cardiovascular cause could be found. In my practice I have come across four cases in two years. In all of them the pain was felt chiefly on walking.

CASE I

This patient, a man aged 59, had had acute pain in the chest and the left arm for ten and a half months. In August, 1936, he had taken on an average nine trinitrin tablets daily—that is, a total of 279. Treatment was begun on September 1, 1936, and after four manipulations the daily average of trinitrin tablets taken was one. During the last eighteen months he has had only two tablets, and forty in all since the treatment was begun. The blood pressure, heart, and electrocardiograms were satisfactory. This was a case of fibrositis without heart abnormalities.

CASE II

This case, that of a man aged 65, was diagnosed in July, 1936, as angina. The blood pressure was satisfactory, and nothing of consequence was observed in the cardiovascular system. Electrocardiograms were normal. In October I began treatment, two series of eight being given. Since March, 1937, he has not had to take trinitrin tablets. A case of simple fibrositis with no cardiac abnormalities.

CASE III

Previously seen by his doctor, this patient, a man aged 53, had had his case diagnosed as angina. When I saw him his blood pressure was 240/135 mm. Hg, and his electrocardio-

grams were not normal. In this case I made three examinations before I found fibrositic nodules. The patient has had some twenty-four treatments, and can now walk a few miles. Formerly, though having to go less than half a mile to his work, he had to take a trinitrin tablet and often to travel by taxi. This patient never takes trinitrin now when walking or working. This was a case of fibrositis with cardiac abnormalities, but the pain was apparently due to the fibrositis.

CASE IV

This patient was a woman aged 60 whose heart was apparently normal. No electrocardiograms were taken. Her blood pressure was 240/120. She has had sixteen manipulations and never has to take trinitrin. Evidently in this case the pain was due to fibrositis.

CASE V

A colleague of mine to whom I had spoken of this condition tells me of a lady aged 55 whose case was diagnosed as angina and coronary thrombosis. She was continually having pains, and her husband had been given a gloomy report of her condition. She was sent to a nursing home in October, 1937, and was there six weeks. She remained most of the time in bed at home until July, 1938. This time my colleague, remembering our conversation, looked for and found fibrositis and himself gave her ten treatments. She is now well and free from pain. At one time she took six tablets of trinitrin a day. Hers was a case of coronary thrombosis, but the pains were due to fibrositis.

The first four of these patients are all able to continue at their work.

Conclusions

1. Certain cases with pain in the chest resembling angina of effort, and relieved by trinitrin, are curable. They are not cases of angina, yet are diagnosed as such. Sir William Gowers confirmed the relief trinitrin gives in some cases of brachial neuritis (fibrositis). These are cases of fibrositis without heart abnormalities.

2. There are other cases presenting heart abnormalities (high blood pressure, electrocardiographic changes, etc.), yet the pain is due to fibrositis. If treated the pain on exertion disappears.

3. Fibrositis should always be looked for when the blood pressure and the cardiac system are normal, even if the symptoms resemble angina of effort and the pains are relieved by trinitrin tablets.

4. Diagnosis of angina is serious for the patient: it may bring his work to an end and cause great anxiety to his family. By the treatment described the patient may be relieved if the case is one of simple fibrositis, and the pain disappears in those cases with cardiovascular lesions in which fibrositis is the cause.

5. The doctor should either perform these manipulations himself or carefully supervise them, and so minimize the risk of failure.

Ealing, W.S.

R. HALSTEAD DIXON, M.B.

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We have received the fourth number of the ninth volume of the *Index to the Literature of Food Investigation*, dated March, 1938, which deals with papers received between October 1 and December 31, 1937. It is announced that in future each annual volume will be issued in four quarterly numbers, dealing respectively with papers received up to March 31, June 30, September 30, and December 31. Copies of the latest issue may be obtained from H.M. Stationery Office, London, W.C., price 4s. 6d.

Reviews

BRITISH MOSQUITOS

The British Mosquitoes. By J. F. Marshall, C.B.E., M.A., F.R.E.S. (Pp. 341; 172 figures, 20 plates. 20s.) London: British Museum (Natural History). 1938.

Mr. J. F. Marshall's *British Mosquitoes* takes the place of Dr. W. D. Lang's *Handbook of British Mosquitoes* published eighteen years ago by the Trustees of the British Museum and now out of print. The main purpose of the present work is to bring together all the accumulated information regarding British mosquitoes, and especially to provide up-to-date descriptions and methods for identifying these insects in all stages of their development. Apart from the entomological point of view, it is essential in the interests of public health that we should have this complete and up-to-date work of reference so that the identification of our mosquito pests can be made with accuracy. Accurate identifications mean avoidance of unnecessary labour and expense in control operations.

The collection, selection, and arrangement of the material for the volume have been done logically and successfully. The chapters begin with "How to recognize a mosquito" and pass on to descriptions of external and internal anatomy of all stages. Next comes the main portion, devoted to detailed descriptions of the British species, together with an account of their breeding places and habits. These chapters are well illustrated by photographs and by clear diagrams of diagnostic features. The synoptic keys to species, both for adults and for larvae, are extremely useful for rapid identifications. The final chapters contain information regarding "control," some general remarks on biology, and notes relating to malaria in Britain.

We learn that there are twenty-nine different species in Britain, though not all require human blood as food. The problem of the man-biting and man-ignoring species of the genus *Culex* is discussed in some detail. Entomological literature frequently records that the common mosquito, *Culex pipiens*, rarely, if ever, attacks man, and yet this mosquito has, on many occasions, been accused of causing annoyance to man. Recently it has been shown that two distinct species have been confused under the name *pipiens*. This name is now reserved for the man-ignoring form and the name *molestus* for the man-biting form. Very little is known about the life-history of *molestus* under natural conditions. What is known has been in great part due to investigations made in response to inquiries from medical officers of health and general practitioners; otherwise, this mosquito has been studied only in the laboratory.

Another recent discovery, that *A. maculipennis* is divisible into several "races," is discussed in so far as it affects Britain, where only two of the "races" are found. This discovery helps to solve some of the problems relating to the distribution of malaria, particularly the phenomenon of the disappearance of the disease from an area, though anophelines are still present in large numbers. "The almost complete disappearance of ague (*i.e.*, malaria) from England is only now commencing to be satisfactorily explained." Fortunately, cases of mosquito-borne disease in Britain are now hardly ever recorded, so that suppression or control of mosquitoes in this country is called for not because they are disease carriers but because of the nuisance and annoyance they cause by

their bites. Breeding places and conditions (well illustrated and described) are so different for different species that Mr. Marshall rightly stresses the importance of accurate identification of the offending mosquitoes before starting measures for control. He points out that haphazard scattering of larvicides may do untold harm. He says: "To apply antilarval treatment to innocuous collections of water, while the inhabitants of the district are being bitten by mosquitoes coming from some neighbouring wood or from a coastal marsh two or three miles away, is not only a waste of public money but also diminishes confidence in mosquito-control work generally."

Throughout the book the author indicates where fuller information on related subjects can be found. For instance, in his chapter on control he rightly considers that descriptions of methods, materials, etc., employed in mosquito-control work would be out of place in a book of this nature, and the reader seeking further details is referred to the relevant literature; references to recent studies in insect physiology also occur, but consideration of such advanced work is purposely omitted as being beyond the scope of the present volume. A bibliography containing some two hundred references and an adequate index round off a volume that will be constantly consulted by many whose work includes the investigation of complaints of annoyance caused by mosquitoes.

ENCYCLOPAEDIA OF MEDICAL PRACTICE

The British Encyclopaedia of Medical Practice, including Medicine, Surgery, Obstetrics, Gynaecology, and other Special Subjects. Volume VIII: Leukaemia to Mucous Colic. Under the general editorship of Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D. (Pp. 664 (and 48 pages of index); 52 figures; 13 plates, many in colour.) London: Butterworth and Co. 1938.

The eighth volume of the Encyclopaedia opens with an excellent review of the subject of leukaemia by Dr. Janet Vaughan. In the absence of known aetiological factors, a classification according to the morphology of the blood cells is the most convenient. But the process may begin with a riotous profusion of growth of cells from any stage in blood development, though there are three main types—leukaemias dependent upon hyperplasia of the reticulum of the bone marrow, of the lymphoid tissue, or of the histiocytic cells of the sinus reticulum. All these may occur in an acute or in a chronic form, and not all the leukaemias show abnormal numbers of cells in the circulating blood. These varied types are described and illustrated. Lung diseases in their various aspects occupy an important place in this volume: collapse, circulatory disturbance, infections and their after-effects, and tumours; while there is a useful section on post-operative complications, ranging from bronchitis to lung abscess and pulmonary embolism. Liver disease, too, is dealt with in a series of articles preceded by a summary of liver-function tests. French authors have found the distribution of cholesterol and its esters in the blood a useful guide to liver efficiency, but no test, as Dr. Aitken points out, can do more than assess one of many aspects of liver function. Sir Leonard Rogers clarifies the position of tropical liver in medicine, and Sir Riehard Christophers contributes a full and informative study of malaria, not only the medical aspects being dealt with but also the important problems of parasitology and prophylaxis.

Other system diseases included in this volume are those of the lymphatic glands and vessels, the mediastinum, the motor neurone, and an important contribution on men-

diseases in which Mr. Rock Carling discusses diseases of the lips, tongue, jaws, and palate. Sir Arthur MacNalty's broad discussion of the problems of maternal mortality covers the progress that has been made by private and Government interest in the subject, the improvement of training and of the status of midwives. He emphasizes that the evidence available shows that the maternal mortality, which has been reduced considerably (from 19 per 1,000 live births in the middle of last century to 4 per 1,000 at the present day), and which compares not unfavourably with that of other countries, is capable of further reduction. The prevention of maternal mortality is, however, a complex task, a problem of public health as well as of obstetrics.

As in former volumes, the editors have included articles on general subjects of medicine: the growing relationship of it to the law makes it necessary for the medical practitioner to have at hand reliable guidance on his conduct in relation to the world outside his practice. In this volume there are commendable articles on the functions of the medical witness, his conduct and evidence in courts of law; the duties and responsibilities of a medical examiner in medico-legal matters; the notification of criminal cases, of births and deaths, of infectious disease, of mental illness, and of notifiable industrial diseases; claims for compensation for accident and diseases under the Workmen's Compensation Act, 1925. The other subjects dealt with maintain the high standard which has been set in those volumes of the encyclopaedia which have already appeared.

INJURIES TO KNEE LIGAMENTS

On the Injuries to the Ligaments of the Knee Joint. A Clinical Study. By Ivar Palmer. Acta Chirurgica Scandinavica, Volume LXXXI, Supplementum LIII. (Pp. 282: 97 figures. No price given.) Stockholm: Tryckeri Aktiebolaget Thule. 1938.

Though it may appear illogical to separate ligamentous injuries of the knee from meniscus injuries and intra-articular fractures, there is something to be said for directing attention to this group of injuries that seems to have escaped systematic study. There is hardly any aspect of meniscus injury that has not been thoroughly investigated by British surgeons, and yet, somehow, we have neglected injury of the ligaments of the knee. Dr. Ivar Palmer of Stockholm has written a remarkably complete work based on a study of fifty-eight cases, and he has dealt with the subject from every point of view. It must at once be said that his monograph does not make easy reading. In the first place, 280 pages is a generous allowance for so small a group of injuries, and the approach is such that one cannot gain anything by skimming through the author's paragraphs of careful observation and close reasoning. It is almost impossible to give an informative précis of his work. The monograph is written for the studious specialist.

So far as diagnosis is concerned, one method demands our immediate attention. Palmer believes that the injection of radio-opaque fluid into a joint to demonstrate intra-articular abnormalities is now no longer an interesting clinical experiment. In his hands it is an established method, and his pictures are superb. If anyone doubts the possibilities of this aid to diagnosis he should look at Figs. 71 and 72, the first showing normal cruciate ligaments and the second a gap in the anterior ligament. Arthrography shows not only such intra-articular derangements, but a tear in the capsule is revealed by leakage into the soft parts around the joint. Pellegrini-Stieda "disease,"

although discussed in full, is assigned the unimportant place that it deserves. It is possible that there may be more than one cause for the curious sickle-shaped shadow found in the region of the medial femoral condyle, but there is no doubt that in most cases it is due to bone formation in or about the internal lateral ligament, and that it is a late and often symptomless result of injury.

To British readers the advocacy of open operation for a number of ligamentous injuries will come as a shock. It is agreed that the immediate results of conservative treatment, in injuries to the cruciate ligaments, for example, are on the whole satisfactory. But, asks Palmer, what about the late results? The findings at operation show that anything approaching adequate natural repair is often out of the question, and this is bound to prejudice the late results of conservative treatment. Operative repair is therefore advised. Unfortunately Palmer does not proceed to the necessary proof of his contention, for his cases treated by operation are too recent for him to show the superiority of the late results over those obtained by conservative means. It must never be forgotten that theoretical excellence is no guarantee of the success of an operative procedure, and, conversely, there are many methods, shockingly unsound in theory, that yield splendid and permanent results in practice.

DYSMENORRHOEA

Dysmenorrhoea: its Aetiology, Pathology and Treatment. By Albert A. Davis, M.D., Ch.M., F.R.C.S. (Pp. 254; 34 figures, including a coloured frontispiece. 12s. 6d. net.) London: Oxford University Press. 1938.

Though dysmenorrhoea is one of the commonest gynaecological disorders, and one in explanation of which theories have been propounded for centuries, Mr. Albert Davis has made what is perhaps the first really serious attempt to correlate the existing ideas on the subject. That he has approached his task with great thoroughness may be judged from the almost wearying sequence of references—numbering over five hundred and fifty in all—which the reader encounters on practically every page. Beginning with a historical survey of considerable interest, the author deals with every aspect of his subject, even devoting one whole chapter to "nasal, vicarious, and dermatitic dysmenorrhoea." In view of his belief in the neurogenic theory of the aetiology of dysmenorrhoea, it is perhaps not remarkable that Mr. Davis has devoted a quarter of his book to this subject. But his claim that the theory "is based on a sound theoretical foundation, has the advantage of reasonable clinical and pathological proof, has provided the rationale for sympathectomy, and is, moreover, strongly supported by the results of that operation," may be disputed by some clinicians and pathologists, and might even be challenged by the judicially minded reader after careful weighing of the evidence submitted by the author himself in support of his claim.

The anatomy of the autonomic system is admirably dealt with, as also is the technique of alcohol injection in the pelvic plexuses; but the indications for pre-sacral neurectomy, while pathologically concise, are too indefinite to be of practical assistance to the clinician. The author's analysis of the results of this operation is rather indefinite, despite the fact that with characteristic thoroughness he has reviewed all the published reports up to 1936. In claiming 50 to 75 per cent. of cures in carefully selected cases treated by sympathectomy, Mr. Davis makes no mention of the size of his series, though knowledge of this fact is essential to the reader if he is to assess the true value of the statistics.

The part of the book dealing with the histopathology of the pelvic autonomic system contains most excellent photomicrographs beautifully reproduced and clearly illustrating the points described in the text. The neuro-genic theory largely depends for its pathological proof on the interpretation of these sections. The opinions expressed by Mr. Davis may be perfectly correct; but if, in order to distinguish the pathological from the physiological, it is necessary to assess quantitative changes, the sceptic must be pardoned if for the time being he considers the case for this theory as "not proven."

For all interested in the theory and practice of gynaecology this book contains a wealth of useful and concisely arranged information on all aspects of the difficult subject of dysmenorrhoea.

NEURORADIOLOGY

A Textbook of Neuroradiology. By Cecil P. G. Wakeley, D.Sc., F.R.C.S., and Alexander Orley, M.D., D.M.R.E. (Pp. 336; 229 figures. 25s. net.) London: Baillière, Tindall and Cox. 1938.

The application of radiographic technique to the localization of cerebral and spinal tumours has developed so rapidly of recent years that it is surprising to learn that no book has hitherto been published which deals with this subject as a whole. The *Textbook of Neuroradiology* by Mr. Wakeley and Dr. Orley will go far to fill this gap. Its most valuable chapters are those dealing with the methods which have been devised to demonstrate the foramina in the base of the skull and the exact position of cerebral tumours as shown by ventriculography or encephalography. These methods are most easily carried out by the use of Lysholm's special apparatus, but the authors state that "the projections can be obtained with any flexible radiographic plant." The chapters on diseases of the skull and spine and the diagnosis of cerebral tumours by lateral and antero-posterior views cover well-known ground and add little that is new. Indeed, some of the conditions illustrated have so little bearing on neurology that they might well have been omitted, as might also the short chapter on the cerebrospinal fluid system. The chapter on cerebral arteriography is clear and succinct, but since this method is chiefly used at the present time in the diagnosis of intracranial aneurysms and angiomas it is surprising that all the illustrations in this chapter are from cases of cerebral tumour.

Lesions of the spine and spinal cord receive less space than they deserve. No doubt this ground has been so fully covered in other books on radiological diagnosis that the cursory survey given here may be adequate for its purpose. But it is surprising that no mention is made of the careful studies by Dyke and Davidoff of the separation of the pedicles at the level of intraspinal tumours. The only reference to this is that "erosion and thinning of the mesial border of one or both pedicles" may be seen in the antero-posterior view. In actual experience minor degrees of erosion are not easily seen, and are only revealed by carefully controlled measurement.

If the book as a whole is disappointing it is chiefly owing to a certain lack of balance. The problems that face the neurologist and the neurological surgeon are often cursorily dealt with, whereas there is over-elaboration of details which are more in the province of the general surgeon and physician. No doubt this will commend the book to a rather wider public, but it also detracts from its value to the radiologist who is called in to help in neurological cases.

Notes on Books

The second edition of Drs. PEARSON and HEPBURN's book on *Physiological and Clinical Chemistry* is specially suited to those medical students whose knowledge of organic chemistry is only superficial, for it is unusual among such books in providing a summary of the principles and main facts of that subject, in addition to the chapters on fats, carbohydrates, and proteins. In other respects their volume proceeds on fairly familiar and, it must be added, sound lines. Its least satisfactory feature is an arrangement which entails the complete dissociation of the principles from the practice of many analytical methods. The book is published by Henry Kimpton, and the price is 25s. net.

The Contribution of Alfred Adler to Psychological Medicine, by several authors, is No. 19 of the Individual Psychology Pamphlets (London, C. W. Daniel, 2s. 6d.). It contains a series of essays reviewing Adler's work in relation to philosophy, psychological medicine, organ inferiority, the relation of the sexes, and to general medicine, the last an admirable paper by Sir Walter Langdon-Brown. There are added a short description of Adler's conferences for teachers in Vienna and a personal appreciation of Adler himself. This is an interesting little book and gives the reader a very fair summary of Adler's work, though it is of course too slight to serve as a textbook of his methods. For that, however, the beginner can go to other sources, while the initiated will be pleasantly reminded of what he already knows.

Adventures in Respiration, by Professor Yandell Henderson, which was reviewed on October 15, at page 790, can be obtained in London from Messrs. Baillière, Tindall and Cox for 13s. 6d. net.

Preparations and Appliances

CAIDEFERRUM TABLETS

"Caideferrum" tablets (Glaxo Laboratories Ltd.) contain ferrous iron (25 mg.), a calcium salt (0.5 gramme of metal), and vitamin D (2,000 international units). The tablets are intended for prophylactic use, particularly in pregnancy to protect the mother against deficiency of iron, calcium, or vitamin D. The manufacturers emphasize the fact that the tablets are intended to prevent and not to cure these deficiencies.

EMPIRIN WITH CODEINE

Tabloid empirin (acetyl-salicylic acid) compound with codeine (Burroughs Wellcome and Co.) contains acetyl-salicylic acid, phenacetin, caffeine, and codeine. It is a combination which has, in therapeutic practice, been found effective in relieving pain, even when this is of considerable severity.

PLANTAGO FIBRE FOR CONSTIPATION

"Siblin" (Parke, Davis and Co.) is composed chiefly of highly water-absorbent fibre derived from certain species of plantago. It also contains 50 international units of vitamin B₁ in each teaspoonful. The preparation is intended for the relief of chronic constipation. It has a pleasant taste and is convenient to take. It is not absorbed or broken down in the intestinal tract, is non-irritant, and provides ample faecal bulk with optimum consistency. The vitamin B₁ facilitates improvement of intestinal muscular tone and peristaltic activity.

INTRAVENOUS STROPHANTHIN

"Kombelin" (Coates and Cooper Ltd.) is a preparation of strophanthin (Boehringer). It is supplied in 1 c.c.m. ampoules containing 0.5 mg. of the drug, and is intended for intravenous administration.

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FOOD AND NUTRITION

The results of an inquiry into the food habits and food consumption of British people, undertaken by a firm of advertising specialists, have been brought together in a book called *The People's Food*, by Sir William Crawford and H. Broadley.¹ The inquiry dealt with 5,000 families, comprising 18,500 individuals, of all social classes—wealthy, upper middle, lower middle, skilled working, unskilled, or unemployed—in seven urban centres: London and Birmingham, where economic conditions at the time of the inquiry were good; Leeds and Glasgow, where they were less good; and Cardiff, Newcastle, and Liverpool, where economic conditions were much below the national average. It was assumed that the aggregate figures obtained from such an inquiry would be representative of the bulk of the urban families; in other words, of nearly two-thirds of the population of Great Britain. After dealing with what people eat and drink at breakfast, "elevenses," midday lunch or dinner, tea, "high tea," and evening dinner or supper, with the times at which these meals are taken, with the manner of cooking them, with the buying of family food supplies, and with the prevailing lack of interest displayed by housewives in dietetic subjects, the authors come to the kernel of the matter: "food expenditure and income" and "food consumption and nutritional adequacy." The conclusion reached in regard to expenditure on food is that 17.52 per cent. of the population, or nearly 7,880,000 individuals, are living in homes where the "per caput" weekly expenditure on foodstuffs is below the minimum laid down by the British Medical Association (1933). As to the nutritional adequacy of the food consumed—arrived at by comparison with B.M.A., Stiebeling, and League of Nations standards—the conclusion is reached that between fifteen and eighteen million people consume inadequate quantities of calories, eighteen to twenty million inadequate quantities of protein, twenty-five to thirty-five million inadequate quantities of calcium, twenty to thirty-seven million inadequate quantities of phosphorus, nineteen to thirty-four million inadequate quantities of iron, thirty-seven to forty-four million inadequate

quantities of vitamin A, twenty-four to thirty-eight million inadequate quantities of vitamin B₁, and twenty-one to thirty-three million inadequate quantities of vitamin C; the lower figures being those obtained by adopting "minimum" (B.M.A.), the higher those obtained by adopting "optimum" (League of Nations) standards.

It would seem that only half the working classes achieve the League of Nations requirements in calories and protein; while practically all its members fall very considerably short in their intake of calcium, phosphorus, iron, and vitamins. The middle classes, on the whole, are adequately provided with calories, protein, phosphorus, iron, and vitamin C, according to League of Nations standards, but are probably in need of greater quantities of calcium and vitamins A and B₁. In the wealthy class there is no real shortage, except in regard to vitamin A. "In all probability between twenty and thirty millions are living on diets which are inadequate when compared with the British Medical Association 'minimum' standards." Of these, eight millions have not the means to purchase foodstuffs that will provide this minimum diet, while twelve to twenty-two millions are spending weekly a sum sufficient to purchase these foodstuffs but are not expending their money wisely. "If a larger percentage of the public could be persuaded to adopt at least the British Medical Association diet, the nutritional standard of the nation, and consequently the health of a substantial proportion of the population, would be very considerably improved. If, however, they could be persuaded to base their diets on the still higher standards laid down by the League of Nations this well-being and happiness of the people of the country would be changed almost out of recognition." How is this persuasion to be effected? Sir William Crawford and Mr. Broadley have some valuable suggestions to offer: measures of an economic character to improve the lot of the poorest classes; education, of which enlightened advertising is an important form; further research on many outstanding problems of nutrition; and the establishment of a Food Research Institute to handle the food problems of the future, on which all those interested in health, nutrition, and food are represented. And who should sponsor such a campaign? Those who will derive most benefit from the establishment of a higher standard of diet for the people: industrial concerns, food distributing trades, food manufacturers, insurance companies, and agriculture. It may be doubted, however, whether agriculture, though it would benefit greatly by the establishment of a higher national diet, is at present in a position to sponsor anything. This book again makes clear the urgent

¹ *The People's Food*. By Sir William Crawford, K.B.E., and H. Broadley. London: W. Heinemann, (12s. 6d.)

needed for a national food policy based on the knowledge of nutrition which science has provided during the past thirty years.

"Just as last century the advocates of preventive medicine fought the battle for proper sanitation, so this century they will fight the battle for proper nutrition. Just as to-day sound drains and clean water are the *sine qua non* of civilized life, so will a proper diet come to be regarded as the necessity of all classes of the community. . . . A national campaign is overdue to awake the public to a full understanding of the importance of the different foodstuffs for creating and maintaining healthy bodies. A 'keep fit' campaign cannot achieve success on exercise, fresh air, and sports only, important as these are. It must have as a foundation fully developed and healthy bodies, in the production of which food is, by far, the greatest factor."

The Changing World Library has recently been enriched by the inclusion in it of a book on a cognate subject, entitled *Science and Nutrition*, by Mr. A. L. Bacharach.² It tells, from the chemist's point of view, the story of the remarkable developments in the field of experimental nutrition during the past thirty years; and tells it simply and accurately as it can only be told by one who, as Professor J. C. Drummond says in his preface, "has not only been in close touch with all the important research work of recent years, but who has himself made many valuable experimental studies." The author's main task has been to put before the reader the kind of methods used in the laboratory study of nutritional problems and the kind of knowledge obtained thereby, so that he may be in a position to apply some degree of scientific criticism to the many dietary proposals that are regularly to be found both in the lay press and in the more technical journals. This task has been successfully accomplished. After dealing effectively with the use of animal experiments and with the criticisms that are often levelled against them, Mr. Bacharach provides for those who already possess some knowledge of human nutrition a "refresher course" in classical nutritional science: a course which serves also as an outline for those not in possession of this knowledge or who have forgotten the salient facts. This summary gives a succinct account of the major food constituents—carbohydrates, fats, proteins, and certain mineral elements—the recognition of whose importance belongs to the period of "classical" nutritional theories. The author then proceeds to discuss the "trace" elements, and by an easy transition passes to the vitamins which, "though of highly complex organic structure, do their jobs in quantities of the same order as the trace elements themselves." Finally, he comes to deficiency disease, pointing out the too restricted sense in which this term is generally used, it being often confined to the

vitamin-deficiency diseases, although it must be held to include disease due to shortage of any essential constituent of food. Besides the clear-cut vitamin-deficiency diseases "it must never be forgotten," he says, "that partial vitamin deficiency, and especially partial deficiencies of more than one vitamin, are responsible for much of the general ill-defined bad health or 'mal-nutrition' " to which reference is made in earlier chapters. He stresses the need for the optimum in diet, affirming that one consisting largely of dairy produce, green vegetables, whole wheat, and meat or fish, with the additions of eggs and pulses, is pretty certain to be adequate in all essential dietary constituents, with the possible exception of vitamin D. The chemist, then, in his fragmentation of these natural foodstuffs by refined methods of chemical technique, reaches the same conclusion as those who, by their observations on man and animals, have shown that a diet composed of these natural foodstuffs in due proportion one to another contains all elements and complexes necessary for the efficiency of the function of nutrition and, therefore, for the maintenance of health so far as food is capable of supplying them; always provided that these foodstuffs are produced on soils which are not impoverished.

Mr. Bacharach lays down certain general positions which will be accepted by most of those who have worked on nutritional problems in the laboratory or in the wider field of applied dietetics, or in both. First, that the results of animal experiments are applicable, with due caution, to the problems of human nutrition and health. Secondly, that inadequate feeding in quantity and quality of food is responsible for a vast amount of ill-health and definite disease. Thirdly, that improved dietary conditions would bring incalculable improvements to the health of vast numbers of people. Fourthly, that such improvement could to some extent be brought about by educational methods. Fifthly, that a far greater improvement would result from securing that all who serve the community by working are so remunerated as to make adequate expenditure on food possible for them all. And, sixthly, that such a possibility, whether brought about by a reduction in retail prices or an increase in wage levels, or both, would, in fact, lead to that improvement in diet necessary for general improvement in health. *Science and Nutrition* is the latest addition to a series of books, which includes one entitled *Science Fights Death*, and another entitled *The Nation's Intelligence*. It shows that science fights death—and disease—by revealing the essential constituents of food, their distribution in foodstuffs, their role in nutrition, and the effects of their inadequate supply.

² *Science and Nutrition*. By A. L. Bacharach, M.A., F.I.C.
London: C. A. Watts and Co. (2s. 6d.)

THE RENAL PRESSOR SUBSTANCE

Forty years ago Tigerstedt and Bergman¹ observed that saline extracts of fresh rabbit's kidney, or of the dry residue left from extracting rabbit's kidney with alcohol, produced a prolonged rise of blood pressure when injected into the veins of the anaesthetized rabbit. The active substance, which they named "renin," was obtained only from the cortex of the kidney; it was thermolabile and non-dialysable, and its pressor effect persisted after the spinal cord had been destroyed. Although this work was confirmed and extended by Bingel and Strauss² in 1908, renin attracted little further notice until two years ago. Renewed interest in it has been aroused by two converging lines of work which have focused attention on the kidney as a probable source of some chemical disturbance resulting in raised blood pressure. The first of these was the demonstration by Goldblatt and his colleagues³ that in the dog hypertension, in many features resembling essential hypertension in man, may follow constriction of the renal arteries, and the subsequent demonstration by several workers, among whom are Blalock and Levy,⁴ that this hypertension is brought about by a humoral and not a nervous mechanism. The second was the evidence provided by Prinzmetal and Wilson⁵ and by Pickering⁶ that in persistent hypertension in man excessive narrowing is still exhibited by the vessels of the hand after removal of their sympathetic vasoconstrictor tone. The suggestion therefore arises that this form of human hypertension is due to vasoconstriction of chemical rather than of nervous origin; and again the kidney may be chiefly suspected as the source of such a chemical disturbance.

The idea that certain forms of hypertension are of renal origin is as old as Bright, and it is most surprising that so little work has been done on renin, the discovery of which dates but four years after that of adrenaline. Reference to work on renal extracts during the earlier years of this century makes it clear that many workers sought it, but few were able to obtain pressor responses consistently from renal extracts. A minor reason for this failure is that saline extracts of kidney contain also depressor substances which mask the pressor effects of renin. Both Tigerstedt and Bergman and Bingel and Strauss described methods whereby most of the depressor substances may be removed; the former extracted the kidney with alcohol and, discarding the filtrate, extracted

the dry residue with saline; the latter prepared a total globulin fraction by half saturating a saline extract of kidney with ammonium sulphate. Recently Landis, Montgomery, and Sparkman⁷ have described a third method, in which heating saline extracts of kidney to 56° C. for twenty minutes precipitates depressor material along with most of the protein, the resultant filtrate giving a pure pressor response in the unanaesthetized rabbit. A more important reason for the failure of earlier workers to detect renin is that the pressor action of renin is reduced or abolished by anaesthetics, as Pickering and Prinzmetal⁸ have recently shown; for, of course, it has been, and still is, customary to test extracts for their vasomotor properties on the anaesthetized animal. There is now no doubt that renin is a normal constituent of the renal cortex of most species, and apparently confined to this. Its properties resemble those of a protein: thus it is destroyed by heating for two hours at 60° C., by strong acids and alkalis, and by alcohol at a temperature above 0° C. but not by alcohol at -10° C.; it is non-dialysable and appears chiefly in the pseudoglobulin protein fraction.⁹

As has been mentioned, there is a strong presumptive case for supposing that renin may be the agent responsible for certain forms of human and experimental hypertension. Landis, Montgomery, and Sparkman have shown that in one respect renin is the only chemical substance known whose behaviour is compatible with that of the agent in persistent hypertension in man. Thus in human hypertension the peripheral blood flow appears to be normal, and renin is the only known pressor substance which will raise the blood pressure in the unanaesthetized rabbit without simultaneously reducing the blood flow through its ears. More direct evidence is, however, needed, and several attempts have been made to detect increased quantities of renin in the kidneys of dogs with hypertension due to renal ischaemia, positive results being claimed by Harrison and his colleagues⁹ and by Prinzmetal and Friedman.¹⁰ A solution of this question demands some method for the assay of renin, and the great difficulty has been that the anaesthetized animal responds inconsistently to the substance. Pickering and Prinzmetal have, however, demonstrated that in the unanaesthetized rabbit the response to a given dose of renin is constant provided that sufficient time is allowed between injections for the blood pressure to return to its resting level. They have also found that the renin content of the dry residue left after extracting

¹ *Skand. Arch. Physiol.*, 1898, 8, 223.

² *Disch. Arch. klin. Med.*, 1909, 96, 476.

³ *J. exp. Med.*, 1934, 59, 347.

⁴ *Ann. Surg.*, 1937, 108, 826.

⁵ *J. clin. Invest.*, 1936, 15, 63.

⁶ *Clin. Sci.*, 1935-6, 2, 209.

⁷ *J. clin. Invest.*, 1938, 17, 189.

⁸ *Clin. Sci.*, 1937-8, 3, 211.

⁹ *Proc. Soc. exp. Biol. N.Y.*, 1936, 35, 38; *Arch. intern. Med.*, 1937, 60, 1058.

¹⁰ *Proc. Soc. exp. Biol. N.Y.*, 1936, 35, 122.

rabbit's kidney with alcohol remains unchanged for many months if the preparation is kept cold. Using this preparation as a standard, and finding the doses of standard and unknown solutions which will give similar rises of blood pressure in an anaesthetized rabbit, the renin content of the unknown solution may be assayed in terms of the standard. With this or some other similar method it should be possible ultimately to decide whether the renin content of the kidney is or is not altered in hypertension.

Finally, it may be said that although renin is at present most fancied as the agent responsible for hypertension the problem still remains open. There can, nevertheless, be no question that it is an interesting and hitherto much-neglected substance which must have some place in the economy of the body. What this place is cannot at present be stated, but more will certainly be heard of renin in the years to come.

COMPARATIVE STUDY OF CANCER OF THE ALIMENTARY TRACT

The study of cancer of the alimentary tract in animals and in different races and classes of mankind has revealed contrasts of great interest. Ruddock and Willis¹ describe a carcinoma of the stomach in a dog with the comment that the stomach is one of the rarest sites of cancer in dogs. Gastric cancer is equally, or almost as, rare in other animals. The significance of this contrast with clinical experience is discussed by Wells, Slye, and Holmes.² Their personal observations were made on 142,000 mice of Miss Slye's stock all dying from natural causes and mostly of cancer age. Although, according to earlier reports, there were more than 100,000 cancers in this series, there were no tumours of the oesophagus, only fifteen primary malignant tumours of the stomach, and only nineteen of the intestines; in eleven instances the intestinal tumour originated in a prolapsed rectum. Wells, Slye, and Holmes conclude that the lower animals escape the carcinogenic stimuli which assail the human alimentary tract. This inference needs close scrutiny. The frequency of cancer in the prolapsed rectum supports the essential assumption that the alimentary tract of mice is capable of developing cancer under suitable conditions, but the assertion that cancer can be easily produced experimentally in the stomachs of rodents will not pass unchallenged. Waterman produced squamous carcinomata in the fore-stomachs of mice by administering a carcinogenic substance; other investigators failed to produce tumours of any kind, and confidence in Fibiger's classical experiments on the production of gastric cancer by a parasite has been shaken by the observations of Passey and of Cramer. According to present views, cancer similar to gastric cancer in man might be produced in animals which rarely develop it

spontaneously by applying a stimulus of suitable kind and intensity; but this has not yet been done. Success may depend on finding the appropriate stimulus. Susceptibility to the known carcinogenic agents varies greatly in different species of animals and in different tissues, and it is not certain that the stimuli which produce gastric cancer in man would be effective in mice. In contrasting gastric cancer in man and animals it is important to recognize that the incidence of human gastric cancer is not uniformly high. The greater incidence in the poor as compared with the rich was discussed by Sir Arthur Hurst in his Harveian Oration last year.³ A promising field of investigation has also been opened in the Dutch East Indies. The incidence of gastric ulcer and of gastric cancer in the native Javanese is extremely low, while the incidence of both conditions in the Chinese resident in Java is similar to that in Western countries. Bonne and his colleagues⁴ are investigating the possible causes of this difference. They avoid the seemingly endless dispute as to how often cancer supervenes on ulcer, but believe that ulcer and cancer must have at least one common aetiological factor. Gastritis, in general, and erosions were about equally common in Javanese and Chinese stomachs; it seemed, therefore, that some factor which in Chinese and Europeans converts an erosion into an ulcer was absent from the Javanese. Chronic atrophic gastritis and goblet-cell metaplasia were common in the Chinese; but more material is needed to show whether these are precancerous conditions. A comparison of the habits and diets of the two races is in progress, though the difficulties in the interpretation of observations of this kind are not minimized. These comparative studies may well yield results of great practical importance.

LUNG PHYSIOLOGY AND COLLAPSE THERAPY

The methods so far available for testing the functional capacity of the lungs are either not reliable enough or are too complicated for general use. The difficulties are due largely to two facts: the function of the lung depends on two related but distinct components—the volume of the respiratory exchange and the gaseous blood changes—and certain tests require exertion or movement which it may be impossible or inadvisable for some patients to undergo. An important advance has been made in the method of bronchspirometry, introduced by the late Professor Jacobaeus, which allows the function of each lung to be investigated separately. It calls for expert bronchoscopy and spirometric experience. We drew attention to the matter some time ago,⁵ and a recent account⁶ makes it clear that bronchspirometry offers much hope for the future of thoracic surgery. Kaltreider, Fray, and Philips⁷ have carried out a detailed investigation in twenty cases of pulmonary tuberculosis treated by thoracoplasty. Measurements were made from seven months to ten years after opera-

¹ *Amer. J. Cancer*, 1938, 33, 205.
² *Ibid.*, 223.

³ *British Medical Journal*, 1937, 2, 783.

⁴ *Amer. J. Cancer*, 1938, 33, 265.

⁵ *British Medical Journal*, 1935, 1, 1032.

⁶ *J. thorac. Surg.*, 1938, 7, 235.

⁷ *Ibid.*, 262.

tion. In only two patients were the observations made both before and after the operation. The total pulmonary capacity and its subdivisions were determined, radiographic measurements were taken, and the oxygen saturation of the arterial blood and the morphology of the red blood corpuscles investigated. In order to study the effect of compression of the lungs on the right heart the venous pressure and velocity of the flow of blood were measured. The normal values for the capacity of the lungs (before operation) were predicted from the standing body weight. Thoracoplasty lowered the total and vital capacities; this reduction was roughly proportional to the number of ribs resected, and was greater when the phrenic nerve had also been paralysed. Thoracoplasty also diminished the ability of the patient to expand the chest. An anoxic anoxia in these patients was not associated with polycythæmia, and the morphology of the red corpuscles was normal. The venous pressure was slightly elevated, being higher on the operated side, and the blood velocity was slightly delayed. At rest and during moderate physical exertion patients with thoracoplasty had a rapid and shallow type of breathing compared with normal persons. A correlation was found between their degree of disability and the lowering of the vital capacity and pulmonary reserve. Harter, Overholt, and Perkin¹ determined the lung volume in seventy-two consecutive patients, and in thirty-two of them after thoracoplasty. Lambert, Berry, Cournand, and Richards² carried out a detailed study of the pulmonary and circulatory function of the lungs both before and after thoracoplasty in eleven patients, and conclude that the level of vital capacity is not a good criterion either of functional capacity (dyspnoea) or of operative risk; a more satisfactory index of dyspnoea is the ratio of actual to maximum ventilation. The problems raised in the above papers make it plain that further research is needed to establish collapse treatment of pulmonary tuberculosis on a more rational basis.

SKIN REACTIONS IN TOXAEMIA OF PREGNANCY

It was Zweifel who, in a moment of depression, called eclampsia "this disease of theories," a description which in view of the number and variety of the opinions on its aetiology remains more than justified. The field is, however, somewhat narrowed by the general acceptance of the basis of a circulating toxin, for though such a substance has never been specifically isolated its existence seems certain from the pathological changes found post mortem in the liver, kidneys, and reticulo-endothelial system, all of which excrete toxin. The clinical evidence is also confirmatory—the increase with advancing pregnancy, the reaction to eliminative treatment, the association with placental degeneration, etc. Attempts to identify the toxin biochemically have been unsuccessful, but its essentially allergic nature has recently been demonstrated by Belikoff and Manevitch.³

It appears from their experiments that the serum of eclamptic patients produces a definite local reaction when injected subcutaneously into patients suffering from toxæmia of pregnancy. The reaction is specific for these cases, and is negative in non-pregnant or pregnant non-toxaemic patients. It is thus not only valuable confirmatory evidence of toxæmia, but by appearing actually before the onset of the ordinary clinical signs it allows of earlier diagnosis and prophylaxis of the disease. The technique is to inject subcutaneously into the arm 2 c.cm. of a 10 per cent. solution of the serum in physiological saline; a strongly positive reaction produces an immediate erythema and vesiculation, lesser degrees of toxæmia causing a slight delay. Apart from the diagnostic importance of this work, it is possible that such serum might be used with advantage as a desensitizing agent in known cases of pre-eclamptic toxæmia. Such a property is suggested by the extreme rarity with which eclampsia recurs in the same person (3 per cent. according to Bumm), and though clinical experiment must be delayed until further biochemical assay and standardization provide a reasonable margin of safety, it is possible that this new approach may aid materially in the reduction of the disease.

THE VIRUS OF LYMPHOGRANULOMA INGUINALE

Eight years ago the causal agent of lymphogranuloma inguinale was shown by Helleström and Wassen⁴ to be filterable, and was added to the rapidly growing group of viruses. Even before this, small granules had been described in the cells from inguinal buboes by Gay Prieto (1927), and similar granules were observed and figured by Findlay (1933), who expressed the view that these minute bodies were probably the virus. It was, however, the researches of Miyagawa and his colleagues some two or three years later which constituted the first detailed study of these minute bodies, and it is generally accepted to-day that they are, in fact, the virus. They are very small coccus-like particles measuring as a rule 0.125 μ to 0.175 μ , and they have been observed in virulent material of various provenance. Recently a note appeared by G. M. Findlay, R. D. Mackenzie, and F. O. MacCallum,⁵ announcing that they had observed forms of this virus which resembled those described in psittacosis by Bedson and Bland⁶ in 1932. It is interesting to note that the large form of lymphogranuloma inguinale virus seen by these workers occurred particularly in the early lesions, and that it often showed an appearance suggesting division by fission. Forms intermediate in size were observed; in fact, the different forms and their sequential relationship suggest that this virus passes through the same cycle of development forms as psittacosis. The only other virus in which a similar phenomenon has been observed is that of inclusion conjunctivitis,⁷ although the inclusions seen in trachoma suggest that here also

¹ *J. thorac. Surg.*, 1938, 7, 290.

² *Ibid.*, 302.

³ *Gynecologie*, 1938, 37, 466.

⁴ *Trans. roy. Soc. trop. Med. Hyg.*, 1933, 27, 35.

⁵ *Nature*, 1938, 141, 877.

⁶ *Brit. J. exp. Path.*, 1932, 13, 461.

⁷ *Amer. J. Ophthalm.*, 1934, 17, 1019.

the same thing occurs; and it may not be without significance that these viruses stain readily by Castaneda's method, whereas what one might term "typical" viruses like vaccinia, fowl-pox, herpes, and chicken-pox are not stained by this procedure. The staining method of Castaneda was devised by him for Rickettsia, and some of the appearances presented by Castaneda-positive viruses resemble what is found in the case of Rickettsia. It has in fact been suggested on more than one occasion that these particular viruses are Rickettsia. Lillie⁵ has named the virus of psittacosis *Rickettsia psittaci*. Cuénod and Nataf⁶ have stated that in their opinion the virus of trachoma is a Rickettsia, as is also, according to the view recently expressed by M. J. Caminopetros,⁷ the virus of lymphogranuloma inguinale. It may well be that with increasing knowledge it will be found that the Castaneda-positive viruses and the Rickettsia should be grouped together and separated from the other viruses. At the moment, however, this indiscriminate use of the term Rickettsia is to be deplored. Rickettsia as a generic name is excusable on historical grounds, but it has no true biological sanction. Further, the one positive character possessed by the Rickettsia, apart from their morphology, which admittedly is definitely microbial, is that they all have an arthropod host. Cuénod and Nataf have claimed that the virus of trachoma is infective for lice, but the viruses of psittacosis, lymphogranuloma inguinale, and incidentally the agents described by Coles in South Africa in conjunctivitis of cattle, sheep, and goats, have not been shown to have an insect host; so with the possible exception of trachoma virus there is not even this excuse for calling them Rickettsia.

CARE OF LUNATICS IN NIGERIA

In a recent report⁸ Dr. R. Cunyngham Brown deals with lunacy in Nigeria, the largest and most populous of the four British West African Colonies. After an extensive tour of the Northern and Southern Provinces he estimates that the proportion of mentally deranged people is not less than 2 per 1,000 of the population, and that there are probably some 40,000 persons in Nigeria who are either imbecile, epileptic, or insane. The vast majority of these people remain in their villages, where, on the whole, they are kindly and even solicitously treated, though they naturally suffer from the lack of medical attention and advice. Of this large total of 40,000 only 290 figure in the official returns of 1935 as lunatics or suspected lunatics, including 121 actually certified. An interesting point noted by Dr. Cunyngham Brown is that the incidence of lunacy appears to be just as large among the primitive peoples as among those Africans who have been brought into contact with Western civilization. Institutions for certified lunatics are stated

to be far behind the times, while custodial detention is emphasized at the expense of remedial treatment. He stresses the desirability of the establishment of more asylums, and, in view of the fact that lunacy in Nigeria appears to be increasing, he advocates the provision of ample acreage to permit of further extensions. With regard to lunatics who remain in their villages, the building up of an organization to provide a measure of supervision and medical guidance is suggested. Dr. Cunyngham Brown also recommends the appointment to the medical services staff of a specialist officer thoroughly conversant with this branch of medicine.

A NEW ANTI-MALARIAL DRUG

A new compound, "certuna," a dialkylamino-oxyquinolylaminobutane, has recently been reported by Kikuth¹ as having strong gametocidal action comparable to that of plasmoquine. The malarial parasite has such a complex developmental cycle that it is not entirely surprising that anti-malarial drugs do not have a consistent action on all stages of the parasite. Quinine and atebrin exert a powerful effect upon the asexual forms found in man and dramatically control the clinical manifestations of malaria, but plasmoquine is practically useless for this purpose. Plasmoquine, however, appears to have a devitalizing effect on the infection in that it lessens the frequency of relapse, and it also has a specially selective action on gametocytes; its use is not without interest, therefore, both to the clinician and to the hygienist. Unfortunately it sometimes gives rise to toxic manifestations even in moderate dosage, and it is on account of this toxicity that its value as a prophylactic, since it is also lethal to sporozoites, is in practice nullified. Clinical trials of the new compound "certuna" by Sioli² and others suggest that the new drug is much better tolerated by man than is plasmoquine, and further observations, particularly with regard to its influence on relapses, or to its use as a prophylactic, will be awaited with interest.

In view of the widespread disquiet among members of the medical profession as to the incompleteness of the plans for the organization of medical services and their lack of co-ordination, the Central Emergency Committee of the British Medical Association has asked the Minister for the Co-ordination of Defence to receive a deputation. Sir Thomas Inskip has agreed to receive this deputation on November 8.

The British Postgraduate Medical School announces that the Kettle Memorial Lecture will be delivered at the London School of Hygiene and Tropical Medicine, Keppel Street, W., on Thursday, November 24, at 5 p.m. The lecturer is Professor W. W. C. Topley, F.R.S., and he will speak on "The Place of Pathology among the Medical Sciences."

¹ Nat. Inst. Hlth. Bull., Washington, No. 161, 1933.

² Arch. Inst. Pasteur, Tunis, 1936, 25, 295; 1937, 26, 1.

³ Bull. Acad. Méd. Paris, 1938, 119, 697.

⁴ Report III, on the Care and Treatment of Lunatics in the British West African Colonies, Nigeria. By Dr. R. Cunyngham Brown, C.B.E. To be obtained from the Crown Agents for the Colonies, 4, Millbank, S.W.1. (5s.)

⁵ Klin. Wschr., 1938, 17, 524.

⁶ Ibid., 527.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

SULPHONAMIDE CHEMOTHERAPY IN SURGICAL INFECTIONS—II

BY

A. J. COKKINIS, M.B., B.S., F.R.C.S.

Gonococcal Infection

The gonococcus has always been a difficult organism to eradicate, and although it can be got rid of by sulphonamide therapy in a small fraction of the time taken by other treatments, this is by no means easy. Nevertheless, in a series of more than 600 cases, Dr. McElligott and I have shown that a male patient with gonorrhoea (whether simple or complicated) treated with sulphanilamide can be given a 90 per cent. chance of complete cure in a few weeks if the following principles are faithfully observed: (a) Chemotherapy must not be started until the discharge is at least eight to ten days old (it takes that much time for immunity to develop). (b) It should be preceded and combined with vaccine treatment (with the object of increasing this immunity). (c) It should be continued for three weeks, and the dosage must be adequate (for example, 4 grammes of sulphanilamide daily for an adult male of 11 or 12 stone). (d) Administration must be properly spaced (preferably four doses each day) and absolutely uninterrupted. (e) Relapses should be treated with a second course after an interval of some weeks. (f) The most rigorous tests and three months' observation must be passed before a patient is pronounced cured. Treatment with small doses (such as one tablet three times a day) over short periods is worse than useless; this and other errors of technique may lead to obstinate resistance to subsequent chemotherapy. Owing to the large total dosage required special care must be observed against the more serious toxic properties of the drugs. Minor toxic effects are naturally very common with this dosage, and may constitute an obstacle to effective administration, particularly in female patients.

The above summary applies to sulphanilamide only. In its place we are now using T 693, which promises to produce at least equally good results, but unfortunately without any diminution of the incidence of toxic effects. The only other sulphonamide with a definite action on gonococcal infections is uleron, which we have tried in some 150 cases. The immediate results are often excellent; but whatever method of administration is employed most cases relapse, and continue to do so until a more powerful sulphonamide compound is used.

Coliform Infections

Sulphonamide chemotherapy produces its best results in cases of "primary" urinary infections with *B. coli* and certain other organisms of the coliform group. These are cases of pyelitis, cystitis, or genital infections without an obvious gross cause (for example, a senile prostatic enlargement). Quite small doses and a short period (such as 2 grammes of sulphanilamide daily for six to eight days) suffice to clear up, both clinically and bacteriologically, most cases of "primary" pyelitis or pyelitis of pregnancy. I have noted, however, a tendency to relapse, and in consequence it is now my practice in non-urgent cases to give an autogenous vaccine (three or four times

weekly) for one to four weeks before starting sulphonamide treatment, and to increase the period of chemotherapy to ten to fourteen days; also to give further courses if the pyuria recurs.

Cases of "secondary" urinary infection (such as those complicating an enlarged prostate or a calculus) are much more difficult to cure permanently, but a "cure" is less important than in the former group. The principal treatment here must be directed to the primary cause, whatever this may be, and the chief object of the chemotherapy is a temporary clearing up of the urinary infection as an adjunct to operation. This is most effectively obtained with sulphanilamide or T 693, but patients with this type of urinary infection may be too debilitated to tolerate these toxic drugs easily, and I have often preferred the less complete urinary disinfection obtained with a short four-day or five-day course of uleron (3 grammes daily) or prontosil soluble (10 to 20 c.cm. of 5 per cent. daily). This course should be given during the pre-operative stage of a prostate case, and may be repeated after prostatectomy to deal with the common post-operative exacerbation of the urinary sepsis.

Acute Appendicitis

The repeated discovery of coliform bacilli and non-haemolytic streptococci in acute appendices and in the peritoneal exudate induced me to explore the possibilities of sulphonamide chemotherapy in this disease, and there is now no doubt in my own mind that an indiscriminate use of these compounds in acute appendicitis—and in other urgent abdominal conditions—can be dangerous. An experience of more than forty cases treated in the past nine months, many of them bacteriologically controlled, has led to the following conclusions: (a) Sulphonamide therapy should not be used in the first forty-eight hours of an acute attack of appendicitis, either as an alternative to operation or as an adjunct to it. The only rational treatment for such cases is, and I think always will be, removal of the appendix. Chemotherapy at this stage is definitely unwise, as it may mask a dangerous complication or perhaps interfere with the first stages of the immunity response. (b) On the other hand, I have found sulphonamide compounds to be of real value as an adjunct to operation in the more advanced stage, when the appendix is perforated or necrosed, there is a purulent effusion in the peritoneal cavity, and the immunity response is presumably awakened. In such cases post-operative chemotherapy often rapidly clears up the peritoneal infection, and thus may prevent a prolonged illness, with wound sepsis and more dangerous complications. (c) The most striking results, however, have been obtained in late acute appendicitis with localized lump formation (plastic peritonitis without obvious abscess development). For some years it has been customary to treat these cases by expectant methods, which aim at complete resolution of the inflammatory process before appendicectomy is performed. Unfortunately, this expectant treatment may take several weeks before its object is attained, and sometimes it fails to prevent the development of an abscess, ileus, or other complications. This is the type of case in which sulphonamide chemotherapy seems most successful. Not only does the lump completely resolve and the patient become well often in a few days (without starvation), but abscess

formation and other complications are obviated, and appendicectomy may be safely performed after only a small fraction of the time one had to wait in pre-sulphonamide days.

The compounds mostly used in such cases have been prontosil soluble (10 to 30 c.cm. of 5 per cent. solution daily) and sulphanilamide (2 to 4 grammes daily). The former is particularly suitable for the first few days after an operation, when sulphanilamide often causes very troublesome toxic effects, such as vomiting, prostration, and cyanosis. Best results have been obtained when the chemotherapy is continued for about ten days.

Appendix and Other Abdominal Abscesses

Cases of definite appendix abscess have responded to sulphanilamide at least as well as those with a lump but without evidence of suppuration. Of eight such abscesses treated, every one resolved completely in five to fourteen days, while constitutional symptoms cleared up in twenty-four to seventy-two hours. None had to be drained, and only one developed a relapse (after two months), which was treated by early appendicectomy. The dosage of sulphanilamide has been between 2 and 4 grammes daily, and the period of administration has varied between six and fifteen days.

I have also obtained complete resolution of a large and increasing subphrenic abscess (of appendicular origin) in a desperately ill patient, with ten days' sulphanilamide treatment. The clinical improvement was immediate, while the rapid diminution of the abscess was easily followed by radiography.

Acute Cholecystitis and Cholangitis

The usual causative organisms are again coliform bacilli and streptococci, and the lesions might therefore be expected to respond to chemotherapy. A trial of sulphonamide compounds in six cases of acute cholecystitis and two of acute cholangitis has indeed shown that recovery from the acute illness is very materially hastened by the chemotherapy (Fig. 1). Unfortunately, four of the cholecystitis cases, all with gall-stones, afterwards relapsed and were treated by cholecystectomy. One may conclude that in such cases the chemotherapy is likely to be of only secondary or palliative value.

Acute General Peritonitis

My experience with sulphonamide compounds in acute peritonitis suggests that, when used correctly, chemotherapy may prove of life-saving value, but also that when used indiscriminately it may prove the reverse. The deciding factor again appears to be the immunity response of the patient. Although the cases treated have been comparatively few, they show quite decisively that sulphonamide compounds should not be used as a prophylactic measure against peritonitis in such lesions as perforated ulcer and intestinal strangulation, or after such operations as colectomy. They also suggest that it is unsafe to employ chemotherapy in the very early stage of actual peritonitis—that is, while the effusion is still serous and the immunity presumably unawakened. On the other hand, when the more powerful sulphonamide compounds have been administered to cases of fully developed coliform or streptococcal peritonitis, with either a profuse purulent effusion or an extensive peritoneal oedema, the result has usually been a dramatic and lasting improvement (Fig. 2). Once started, the chemotherapy should be continued in adequate dosage for at least ten days, but it should never be begun until after any removable and unlocalized source of infection has been dealt with by operation.

Infections of the Hand

No condition gives more striking evidence of the bacterial selectivity of sulphonamide compounds. In a fairly large number of septic hands treated no case of pure staphylococcal whitlow has responded. On the other hand, infections from which streptococci had been isolated on the whole responded very well. It is therefore necessary to make a bacterial diagnosis—for example, by aspiration—before chemotherapy is commenced. Streptococcal infections tend to spread along the superficial and deep

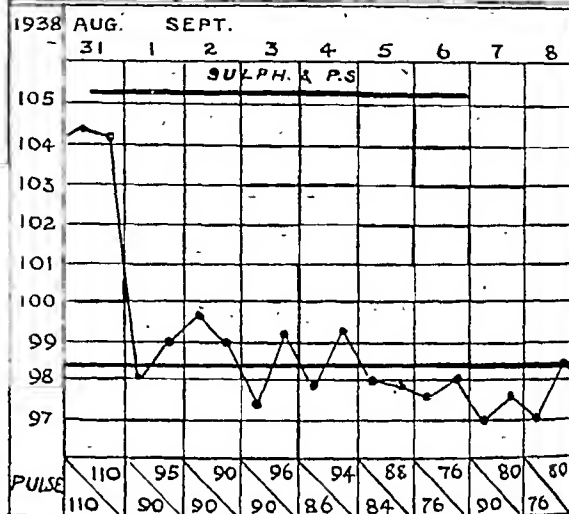


FIG. 1.—Temperature chart of case of acute cholangitis, treated with sulphanilamide and prontosil soluble.

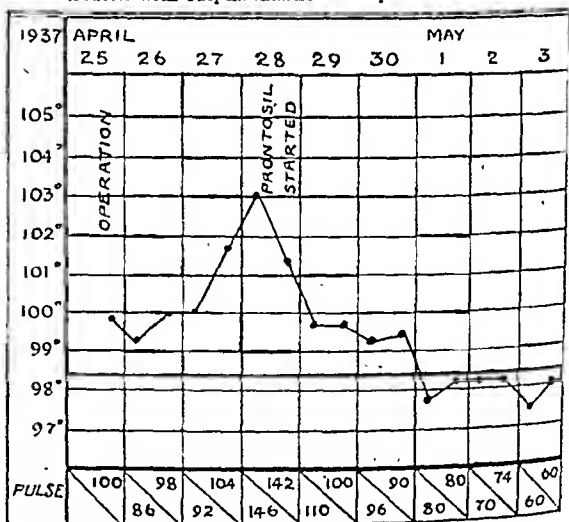


FIG. 2.—Temperature chart of case of streptococcal peritonitis treated with sulphanilamide.

lymphatics, and nearly all the successful cases have been infections of the great spaces of the hand or examples of acute lymphangitis. Tendon sheath infections are mostly staphylococcal, and of six such cases treated with sulphanilamide the only one which showed any improvement was a mixed infection of staphylococci, streptococci, and, strangely enough, *Cl. welchii*. The staphylococcal cases proved equally resistant to ulcers.

Owing to the speed with which streptococcal infections of the hand spread, it is unwise in these cases to wait for immunity, and chemotherapy should be started as soon

as bacterial diagnosis is made. Whenever possible, however, this should be combined with some form of rapid immunotherapy, such as by anti-streptococcal serum. The dosage of sulphanilamide used has been 2 to 4 grammes daily for five to twelve days. In no case should the chemotherapy be employed as an alternative to surgical drainage if there is the least indication for the latter. The only exceptions to this rule are cases of streptococcal lymphangitis, where the primary focus of infection is often insignificant (for example, a puncture of the finger at a septic operation) and where the real danger is a septicaemia. I have seen two such cases, both caused by a haemolytic streptococcus and both already with evidence of blood infection, respond with dramatic suddenness to sulphanilamide. This experience justifies the hope that the new chemotherapy may afford some protection against a danger to which our work exposes us, and by which many a brilliant career has in the past been brought to an abrupt end.

Infections of the Skin and Subcutaneous Tissues

Here again the results of chemotherapy depend entirely on the nature of the infecting organism. Thus, in several cases of carbuncle (staphylococcal) treated with sulphanilamide or uleron there has been no response. On the other hand, very marked improvement has been observed in cases of streptococcal cellulitis, and, of course, in erysipelas.

Infection of Bones and Joints

Osteomyelitis is predominantly a staphylococcal disease, and, as might be expected, sulphonamide chemotherapy produces little or no results in it. Actually, some slight benefit was noted in three cases, one of acute and two of chronic osteomyelitis, but it proved very transient.

Infective Arthritis, on the other hand, is often caused by sulphonamide-susceptible bacteria, and I have obtained striking results with sulphanilamide in both gonococcal and streptococcal cases. Now, with the introduction of T 693, one may reasonably expect to be able to influence pneumococcal arthritis also.

Toxic Arthritis (for example, rheumatoid) belongs to a very different category, and is a condition in which useful research could be done in general practice. I know of several cases treated with repeated courses of sulphanilamide, preceded by and combined with vaccine, in which improvement has been obtained. If possible, autogenous vaccine should be used, but a stock anti-rheumatic vaccine may be employed when there is no obvious focus of infection. Improvement is most likely in the relatively acute cases of rheumatoid arthritis seen mostly in youngish people, and I recommend small doses of sulphanilamide (1.5 to 3 grammes daily) in three or more 14 to 21-day courses, with three to four weeks' intervals, a full course of vaccine being given as well.

Traumatic Surgery

In this branch of surgery my experience with sulphonamide chemotherapy has been rather disappointing. For some time it was hoped that it might be of service in the prevention of wound sepsis (for example, in traffic accidents), but I am now very doubtful if such prophylactic use is of any value. On the contrary, there is reason to believe that it may do harm. It is quite rational, however, to treat an infected compound injury with sulphonamide, if the infection is already established, and provided at least one of the organisms present is known to be susceptible. Striking improvement has been seen in several such cases, particularly when the suppuration has been mostly in the

superficial tissues, and also in one case of clinical gangrene, in which the diagnosis was unfortunately not confirmed bacteriologically.

Conclusion

The more one learns of the new chemotherapy the more one feels that it should be employed only when an infection has become fully established, and, as a general rule, the longer the infection has been in existence the better the results are likely to be. Occasional exceptions are bound to occur, such as when a fulminating infection threatens to overwhelm the patient, and when an attempt to arrest bacterial growth must be made without waiting for the immunity response, which may or may not develop. There is one application of sulphonamide chemotherapy, however, which in my experience has proved quite valueless (and even dangerous), and that is its preventive use against the threat of an impending infection.

PROPHYLAXIS OF THE COMMON COLD

BY

J. B. SHERMAN, M.B., B.S.

Medical Officer, Bournville Works

There are few, if any, medical conditions which cause such severe economic losses to employer and employee as the common cold. The great number of so-called treatments and prophylactics bears testimony to our failure to cope with the problem. One of the difficulties facing the general practitioner is that of being able to treat under strict control large numbers of patients, this being the best method of estimating the value of any form of treatment. In the present state of our knowledge it would seem that methods of prophylaxis offer more hope of success than those of treatment.

In view of the opportunity afforded at these works it was decided to try the effects of some of the better-known prophylactics upon a rather larger scale than usual, and by keeping strict records to obtain some idea as to their comparative values.

The Methods Used

Four methods were chosen as all holding out reasonable prospects of success.

1. *Ultra-violet Irradiation*.—The good effects of this as a preventive of respiratory infections have often been quoted. The apparatus used here was a pair of Watson carbon arc lamps. Exposures were given at a distance of three feet twice a week, working up to a total exposure of fourteen minutes. This was carried on throughout the winter months. No ill effects were noticed.

2. *Vitamins A and D*.—Vitamin A, 6,000 units, and vitamin D, 1,000 units, were given in the form of one capsule (adexolin) a day after a meal. A course lasted throughout the winter. A certain number of patients suffered from nausea and other gastric discomfort, but otherwise no ill effects were noticed.

3. *Dissolved Vaccine*.—As supplied by Glaxo Laboratories this consists of a mixed vaccine of organisms found in the upper respiratory passages. The cell walls of the organisms are dissolved by sodium lauryl sulphate. Four injections were given subcutaneously at five-day intervals, starting with $\frac{1}{2}$ c.cm. and increasing to 1 c.cm. for the three subsequent doses. The immunity conferred was intended to last the whole winter. In patients who already had colds it was found to make them worse. The injections often caused stiffness and pain in the arm, but in only one case was real disability noted.

4. *Entoral Vaccine*.—These were mixed vaccines in a dried form in capsules for oral administration. They were given on an empty stomach—one a day for the first week and then one a week for the whole winter. Apart from causing discomfort to patients who already had colds and causing nausea in others, no other ill effects were noticed. In numbers of patients treated by methods 3 and 4 there seemed to be an increased susceptibility to colds.

5. *Control Group*.—This consisted of 593 patients who received no prophylactic treatment but of course were free to treat any colds they had by ordinary means. Records were kept of all patients and controls by personal cards filled up week by week and collected monthly, so that as far as possible the information was accurate.

Results

The results were tabulated to give an idea of the value of prophylaxis as a whole and of the comparative values of the various methods. Altogether 1,928 patients were observed, of whom 1,655 completed the course. Of this number 593 were controls, so that full results of treatment were obtained of 1,062 patients.

There were two possible effects to be expected from treatment—either a reduction in the number of colds contracted, or a reduction in the severity of colds. Either or both results would affect the loss in working days per employee. As the treatments were purely voluntary it was expected that those who had suffered mostly in previous years would form the majority of those seeking treatment, and this would make results seem less good than otherwise.

It was found, however, from our records that the number of working days lost through colds per employee for the winter of 1936-7 was 2.12 for the control group and 2.24 for the group receiving treatment. It was not, therefore, considered necessary to make any correction for this factor.

1. *Number of Colds*.—As seen in the table the only treatment to produce any reduction in the number of colds per person was ultra-violet irradiation, and this shows a substantial decrease.

2. *Severity of Colds*.—There has been no reduction in the average duration of colds. The number of working days lost per cold does, however, show a definite decrease as a result of all treatments except entoral vaccine. There would therefore appear to be a lessening of severity of colds, if one accepts days lost as an index of severity, and this seems reasonable. Taking the results as a whole, the number of working days lost per person has been substantially reduced by ultra-violet irradiation and slightly reduced by the vitamin treatment.

Comments

It is usually accepted that the good effects of ultra-violet irradiation are due to the formation of vitamin D in the skin. It is of interest to note the distinctly better results from the irradiation as compared with those from the oral administration of vitamin D. The question arises as to whether ultra-violet light acts also in some other way or whether vitamin D given orally is less effective than when formed naturally in the skin.

While the figures given for treatment by dissolved vaccine are not startling, it was found that a large percentage of patients so treated obtained complete relief from colds, although they had suffered during previous winters. Several reports were received of mild chronic catarrhal conditions completely clearing up. Five patients who complained of mild joint pains volunteered their delight at the disappearance of these. The two latter facts may prove of value in some cases from the point of view of treatment.

It was decided, in the case of entoral vaccine treatment, to give only one capsule a week on the score of expense.

Our results with this method might have proved better had we given bigger doses, although a large number appeared to be worse on the given dose. If prophylactic treatment is to be offered to some thousands of employees, as we hope to do, then expense is a definite factor with which to reckon. One might stress the difficulty of making patients take regular daily or weekly treatment over some months.

Summary

An attempt has been made by a large industrial concern to estimate the value of some current methods of cold prophylaxis: 1,655 employees were observed, including controls.

It was found that the only method of real value was ultra-violet irradiation, which reduced both the severity and the number of colds in patients so treated. The method is cheap and easily applicable to large numbers of employees. Its use by big industrial concerns would definitely lower the tremendous economic losses at present caused by the common cold.

Table showing Results of Treatment for Colds (December, 1937, to March, 1938) (Males and Females)

| Type of Treatment given | No. of Persons | No. of Colds | No. of Colds per Person | Average Duration of Cold (Days) | Working Days lost per Cold | Working Days lost per Person | |
|-------------------------|----------------|--------------|-------------------------|---------------------------------|----------------------------|------------------------------|-------|
| | | | | | | 1938 | 1937 |
| Controls .. | 593 | 875 | 1.48 | 6.65 | 0.72 | 1.06 | 2.12 |
| All treatments .. | 1,062 | 1,646 | 1.55 | 7.09 | 0.65 | 1.01 | 2.24* |
| Entoral .. | 283 | 427 | 1.51 | 6.87 | 0.79 | 1.19 | |
| Adexolin .. | 330 | 569 | 1.72 | 7.09 | 0.59 | 1.01 | |
| Dissolved vaccine .. | 213 | 402 | 1.89 | 7.53 | 0.61 | 1.15 | |
| Ultra-violet ray .. | 236 | 248 | 1.05 | 6.76 | 0.63 | 0.67 | |

* Not treated in 1936-7.

I wish to express my gratitude to Messrs. Cadbury Bros. Ltd., whose generosity made this investigation possible, and to Miss Tattersall and Miss Maton for valuable assistance with the records and statistics.

FORLANINI INSTITUTE: SCHOLARSHIP

The Privy Council announces that in connexion with the Carlo Forlanini Health Institute of Rome, a clinic for diseases of the respiratory system and tuberculosis, which organizes annually (from January to April) courses of training in phthisiology for foreign medical practitioners, the National Fascist Institute for Social Welfare offers to British medical practitioners:

1. A scholarship consisting of exemption from fees for registration and attendance at the course, free board and lodging at the Institute, and other facilities, including special railway facilities.

2. Three nominations entitling the holders to exemption from fees for registration and attendance at the training course, and other facilities, including special railway facilities.

Candidates must be qualified medical practitioners of at least three years' standing who have rendered effective service in specialized medical clinics or sanatoria or other scientific institutions for the treatment of tuberculosis. Any publications and attendance at other courses specializing in phthisiology can be considered as claims for preference.

With the concurrence of the Privy Council the British Medical Association has undertaken to receive applications from medical practitioners, who should communicate with the Secretary of the Association at B.M.A. House, Tavistock Square, London, W.C.1, not later than November 1, 1938, giving details of age, qualifications, and experience.

OPENING OF THE NEW SESSION WELSH NATIONAL SCHOOL OF MEDICINE

GENERAL MACARTHUR ON THE WISDOM OF THE OLD LEARNING

The opening sessional address at the Welsh National School of Medicine, Cardiff, was given on October 7 by Lieutenant-General W. P. MACARTHUR, Director-General, Army Medical Services, the text of whose remarks was Chaucer's line:

"And out of oldē bokes, in good feith,
Cometh al this newē science that men lerc."

His object, he said, was twofold: first to try to show how much could be learned in medicine by simple observation, and also that, as Horace expressed it, there were heroes who lived before Agamemnon. Owing to his heavily increased duties in the international crisis he had taken much of his material from previously published papers of his:

General MacArthur began by glancing at the medicine of the early Christian era. In Europe the advance of medicine along scientific lines came to an end with the eclipse of Greek medical learning about A.D. 200, but the light, though much dimmed, continued to burn in the Moslem Empire, with its capital at Bagdad, where they possessed Arabic translations of the ancient Greek experimentalists and added to the sum of knowledge by observations of their own. Rhazes (born A.D. 860) differentiated measles from small-pox, and part of his description was judged by Osler good enough for inclusion in his textbook.

Early Observations on Typhus Fever

After describing with many vivid touches the reaction in Western Europe to the universal epidemic of plague, called to-day the Black Death, General MacArthur discussed another disease which our ancestors had every opportunity of studying—namely, typhus fever, otherwise spotted fever, famine fever, jail fever, camp fever, and, most ominously, hospital fever (the name "typhus" was given to it only in the middle of the eighteenth century). The terrible epidemic transmitted by the louse scourged these islands for centuries, always smouldering somewhere, and ready to flame up in times of war and famine.

On reading old accounts of typhus fever one could not but be struck by the wide clinical knowledge of the disease shown. These old observers knew that the rash might appear on the fourth day or not until the fourteenth, or might not be seen until after death: they were aware that some cases of typhus have no rash at all. It was pointed out a few years ago that in cases of typhus without an eruption a ligature tied around the arm might dilate the damaged vessel sufficiently to produce petechiae distal to the ligature, but this effect of a ligature was known centuries ago. Boghurst, writing of the London plague in 1665, gave a careful differential diagnosis of typhus and plague with tokens. These old writers recognized, further, an atypical variety of typhus fever like Brill's disease, very difficult to diagnose because of its mildness; and they observed that when such cases were crowded together the disease, through what they called the concentration of contagion, assumed its malignant petechial character and grew very mortal. The complications were clearly set out: the deafness; the eye lesions, including the late cataracts; supuration of the parotid and submaxillary glands; orchitis; adenitis; late oedema; gangrene of the skin, of the extremities, of the intestine; even the rare patches of softening in the brain followed by paralyses, and the rare orbital abscesses. Indeed, the speaker

doubted whether there was a single complication given in Daniélopoli's great monograph on typhus which was not already recorded by these old writers.

The Spread of Infection

The observations of these men of a former age on the dissemination of the disease were amazingly accurate. They knew that it was spread by actual contact with the sick, and by clothing, bedding, and so forth contaminated by them, and that naked persons were less dangerous than those who wore clothing. Army physicians of the Dettingen and Fontenoy period were warned not to come into actual contact with typhus cases, but to stand at a little distance, and in examining the pulse to step forward, carefully pick up the patient's wrist, and as soon as possible step back again. They knew that typhus patients thoroughly cleansed and given fresh straw could be nursed among others without danger of contagion, and that if such measures could be instituted and maintained typhus fever would not break out. Even the role of lice as vectors of typhus was considered, and Lind (1716-94), in advocating sulphur as an efficient fumigant for typhus-infected clothing, pointed out that sulphur did not destroy lice, "from which we might be led to imagine that contagion is not propagated by animalcules." In Lind's experience, presumably, the sulphur destroyed the active forms of the lice and put an end to the disease; the more resistant eggs hatched out later, and so the clothing, although disinfected, was certainly not freed from lice.

The recommendations of Lind (who was physician to the Naval Hospital at Haslar during the third quarter of the eighteenth century) to eradicate typhus from the Navy could hardly be bettered to-day. He advocated the provision of depot ships where all men drafted to the Navy would be detained, thoroughly cleansed, and given fresh outfits. Their own clothing, if worth preserving, should be fumigated in a special smoke-room or heated in an oven: no infection, he said, could resist the heat of an oven. The men should be detained in the depot ships until the incubation period of typhus had passed—lest they should have been infected before joining the Navy—and then drafted to their ships. If Lind's counsel had been followed the Navy would have escaped the appalling epidemics of ship fever during the successive French wars, when the fleets used to go into port and land so many thousands of cases of typhus that one wondered that men enough were found to man the fleet. But Lind's voice was but a crying in the wilderness, and typhus persisted in the Navy for another half-century, in conditions summarized by Smollett, himself a naval surgeon, when he wrote that it was surprising not that the sick should die but that any should recover.

Moderns Anticipated

When these old writers forsook the guidance of observed facts for the distractions of their imagination, and entered the world of theory, they soared to transcendental heights of absurdity, but this ought not to lead us lightly to reject something which they said they had observed merely because it ran contrary to what was taught to-day. Some of their statements became intelligible to us only when our own knowledge advanced by another stage. For example, when malaria was introduced as a cure for general paralysis it was found that in the majority of patients infected by a single bite of a single mosquito the disease ran a continued course to begin with, and that the regular and disciplined attacks only occurred later. But in the reign of Charles II Sydenham wrote of intermittent fevers, as he called malaria, that they—

"do not perfectly put on their shapes, for they imitate continued fevers so well that it is hard to distinguish them. But the violence of the constitution being a little quelled, and its strength checked, having thrown off the mask they then openly appear to be intermittents, either tertians or quartans, as indeed they were really at first. And if this be not carefully

observed, we shall be deceived in our prescriptions, much to the prejudice of our patients, while we mistake fevers of this kind, which are of the order of the intermittents, for true and genuine continued fevers."

Bacot, some time before his tragic death from typhus contracted in the course of his experiments, pointed out that he had succeeded in infecting the fleas of common hens with plague, and he made the suggestion that the occurrence of the disease amongst such birds would be a great danger because of their close association with man. This brought to mind a puzzling sentence in a book entitled *Ane Breve Description of the Pest*, by Gilbert Skene, professor of medicine in Aberdeen and physician to James VI of Scotland. He wrote that this "infectioun bringis baith man and beast to death . . . and speciallie quhan the Domesticall foulis becummis pestilentielle it is ane signe of maist dangerous pest to follow."

Sometimes, however, these old observers discarded some theory which we now knew to have been correct because their experiments appeared to disprove it. During the London plague of 1665 a considerable body of opinion held that this disease was not due to a fermentation but to a living organism—"animated Matter," as they called it—which entered the body and threw off a poison there. Nathaniel Hodges carried out an investigation to try to determine the presence of this "animated Matter," but the only evidence he could find to support this theory was an account of one plague patient "who in vomiting threw up a strange figured Insect, which appeared very fierce, and even assaulted such as were busie to observe it, whereupon it was crushed by a rude Hand, so that its shape is not very discernible!"

FRACTURE CLINIC FOR SEAMEN

THE NEW ALBERT DOCK HOSPITAL

The new Albert Dock Hospital at Plaistow—one of the six for which the Seamen's Hospital Society is responsible—was opened by Queen Mary on October 21. It replaces the old building, near the same site, which was condemned as unsafe owing to soil subsidence. In its forty-seven years of existence the old hospital treated more than 375,000 patients from all parts of the world. Apart from its casualty and general hospital work, it was famous as the "workshop" of Sir Patrick Manson, a portrait of whom is in the entrance hall of the new building. Queen Mary during her visit was presented with a paper-cutter fashioned from the teak laboratory bench which Manson used. The new hospital, a pleasant, unpretentious building, has fifty-five beds, and has cost approximately £85,000. Relatively small as it is, it makes an effective contribution to modern hospital architecture.

Its outstanding feature is the fracture clinic. Owing to the number of accidents in dockland, at the gates of which the hospital stands, it was resolved to establish here a fracture clinic and rehabilitation centre as complete and well thought out as orthopaedic science can suggest. Three years ago, when the report of the special B.M.A. Committee on Fractures was published, the medical and surgical staffs of the six hospitals of the Society met and resolved that fracture cases should be concentrated at the Albert Dock Hospital, and that in their treatment the four conditions laid down in that report should be observed—namely, segregation of cases, continuity of treatment, unity of control, and after-care. The unit now installed claims to be the most complete in existence—complete in the sense that the injured man is cared for from the moment he meets with his accident until he is fit to return to his full pre-accident employment. It takes into account, for example, his nutrition. Patients discharged from the wards and continuing to attend the out-patient department and gymnasium receive their meals at

the hospital, because it is recognized that one of the most frequent causes of delayed union and continuing incapacity is under-nourishment. In order to study modern methods in fracture treatment Mr. H. E. Griffiths, surgeon to the hospital, has visited a number of American centres, including Sherman's clinic in Pittsburgh and Darrach's in New York, also Böhler's clinic in Vienna with others in Europe, not with the idea of slavishly copying anything but of ensuring that no modern method or equipment which seemed promising was disregarded.

Avoidance of Shock

The clinic at Plaistow is full of surprises. They begin, indeed, with the arrival of the ambulance, which is a specially constructed vehicle, always kept heated, and with stretchers which can be taken in and out without jerking. The ambulance actually comes into a heated bay of the hospital, adjoining which is a room equipped like a small theatre, where the patient is immediately placed in a radiant heat bath and given saline or blood transfusion as necessary. Thus within five minutes of the arrival of the ambulance all the measures required to prevent shock have been mobilized for the benefit of the patient. From the "shock room" in due course—it may be after several hours, in accordance with the needs of the case—the patient is transferred to the operating theatre or the ward. The operating block consists of two large theatres, and the feature of both of them is the x-ray apparatus adjacent to the table and the dark-room actually built into the theatre. An exposure is made during the operation, and after a matter of seconds—the actual time at the demonstration was eighty-five seconds—the large developed negative is placed in the illuminated panel of the dark-room door in the surgeon's field of view. Sometimes as many as four such exposures may be made during an operation. One feature of the theatre is a Zimmer distractor for bringing into apposition the ends of broken bones.

In the wards the beds are arranged in four pairs and four groups of four. Each bed can be shut off as a complete cubicle if necessary, and each is equipped with pulleys and facilities for every kind of movement. Adjacent to the ward is a dressing-room equipped like a small theatre to which a patient can be taken for privacy during any special dressing. The wards look out on to large sun and rest rooms, and a roof garden on to which beds can be wheeled.

The Rehabilitation Centre

The Nuffield gymnasium or rehabilitation centre, at the time of our visit, was fully occupied with men recovering from fractures, who were engaged in various forms of recreation. These men—out-patients—are invited to remain for the full working day of eight hours, which is spent largely in competitive games. A form of rowing machine has been found useful, also fixed bicycles, ladders, and the like. For five minutes at the end of each half-hour they are called into line and carry out deep-breathing exercises. Mr. Griffiths does not favour occupational therapy in this field. There is a danger, he thinks, that a man with an injured limb, if set to use that limb in avowedly occupational movements, may have his disability emphasized in his mind, whereas if he carries out substantially the same movements in recreation he loses not only the muscular stiffness but also the mental pre-occupation.

Other departments at the hospital include those for electrotherapeutics and massage. Two important non-medical members of the staff are the trainer in the gymnasium, who is a well-known former trainer of a football team and a man of inspiring personality, and the technician in charge of all the splints, apparatus, and plaster used in the hospital. The latter has visited Vienna to study the methods used by his opposite number in Dr. Bohler's clinic.

Reports of Societies

SULPHANILAMIDE: ITS USE AND MISUSE.

At the meeting of the Medical Society of London on October 24, with Dr. C. E. LAKIN in the chair, the subject for discussion was sulphanilamide, its use and misuse.

Sir WILLIAM WILLCOX said that the discovery that sulphanilamide and its derivatives had a specific antibacterial action on haemolytic streptococci was one of the greatest chemotherapeutic advances of recent years, ranking in importance with the discovery by Ehrlich of the action of salvarsan on the *Spirochaeta pallida*. In both these cases the chemotherapeutic substance did not display its full antibacterial action when acting *in vitro*; it was the combination of the drug with blood that enabled the full bactericidal effect to be manifested. The antibacterial effect of sulphanilamide was shown to the fullest extent when, in addition to an adequate blood content of the drug (1 in 10,000 to 1 in 20,000), there were also present in the blood immune substances, whether produced by active or passive immunity.

The number of derivatives of sulphanilamide on the market was considerable. He showed a list of thirteen sulphonamide preparations at present in use under different trade names. The latest was M. and B. 693 or T. 693. Sulphanilamide was of great value in all acute infections due to haemolytic streptococci. The course of scarlet fever at present was so mild that drugs were not required in the majority of cases, but in the more severe type, with complications, the sulphanilamide drugs were most valuable. Cases of erysipelas responded rapidly. Meningococcus infections cleared up in a remarkable way under treatment with sulphanilamide, and the beneficial therapeutic value of the drugs in gonococcal infection was well established. In urinary infections pyelitis and cystitis due to *B. coli* responded, but it was doubtful if sulphanilamide should usually be the primary method of attack, as the toxicity of the preparation was greater than that of mandelic acid, which latter appeared to be the more efficient antiseptic. He also referred to recent work suggesting that T. 693 (the pyridine derivative) had a definite antibacterial effect on pneumococci, especially on Types 1, 7, and 8; this effect was enhanced by the presence of immune bodies from a suitable antiserum.

Misuse of Sulphanilamide

Toxic symptoms of a mild type, Sir William Willcox continued, were extremely common when full doses of these drugs were being taken; they occurred in 50 per cent. or more of cases. The employment of sulphanilamide compounds should be reserved for cases in which the infection was due to a haemolytic streptococcus or some organism known to be vulnerable to the drug. The mere presence of a few haemolytic streptococci in the stools or nasopharynx was not an indication for their use unless there was clinical evidence that these organisms were causing the illness of the patient. Routine use in ordinary mild attacks of pyrexia, such as influenza colds, was to be deprecated. It was important that drugs of the sulphanilamide group should be taken only under medical supervision, and therefore these drugs should be placed under the Fourth Schedule of the Poisons List, so that they could only be obtained by the prescription of a qualified medical practitioner.

Toxic symptoms of such gravity as to cause death were infrequent, but idiosyncrasy had always to be remembered and extreme watchfulness and care should be exercised. Repeated blood examinations, including red and white cell counts, should always be made if toxic symptoms

occurred. Minor toxic phenomena were extremely common, and included general malaise, nausea, anorexia, and simple cyanosis without demonstrable haemoglobin changes: more severe was the cyanosis due to methaemoglobinaemia or sulphaemoglobinaemia. Drug fever might occur after several days' administration of full doses. Grave toxic phenomena included agranulocytosis, which might be accompanied by fever, marked exudative throat changes, severe anaemia with typical alterations in the white count and disappearance of the polynuclear leucocytes, and profound toxæmia. Acute haemolytic anaemia and severe hypochromic anaemia had been observed.

Where severe toxic phenomena appeared the drug should be at once discontinued and appropriate remedies, such as blood transfusion, employed. If the blood showed no abnormal changes and a serious bacterial infection was present administration might be continued with caution, in spite of mild toxic symptoms, the aim being to produce a blood content of sulphanilamide which would assist the natural blood defences to operate on the invading infection. In such cases when mild intolerance to the drug was shown an administration over a period not exceeding three or four days was advisable, and after discontinuance for a short period the administration might, if necessary, be resumed.

Antibacterial Action of the Drugs

Professor ALEXANDER FLEMING took his "text" from a recent annotation in the *British Medical Journal* (October 8, p. 752), which raised two problems of great interest in connexion with sulphanilamide. The first was the standardization of the methods for testing chemotherapeutic drugs, and the second, the association of chemotherapy with immunotherapy. The testing of a chemotherapeutic drug somewhat resembled the examinations for medical qualification: it included two pre-clinical and a final clinical examination. The first consisted of an examination of the power of the chemical to kill or interfere with the growth of a microbe in human blood. The easiest way to do this was by the "slide-cell" technique which had been used in the laboratory at St. Mary's for many years. By this method it could be shown that sulphanilamide in concentrations of 1 in 200 had the power to damage leucocytes, and in concentrations of 1 in 128,000 to inhibit streptococci. In this first examination it was clear that the sulphanilamide group passed with honours. The second examination consisted in injecting the chemical into the body of an animal and then testing the blood at intervals for any enhanced antibacterial power. If this were done with sulphanilamide or T. 693 the blood had an increased antibacterial power which was at its height immediately after injection, indicating that the drug had a direct action on the bacteria, because if it had to be altered in the body to some antibacterial substance the change would take time, as happened with the original protosil. The final examination was the cure of infections of man and laboratory animals by means of the drug and examination of its toxicity to the organisms as a whole. This was a question for those with more clinical experience.

Turning to the other problem raised in the annotation mentioned—the combination of chemotherapy and immunotherapy—he spoke mainly of T. 693. According to his experiments this drug had a very powerful action in inhibiting the growth of the organisms, but its actual bactericidal action was comparatively slight. This meant that the actual killing of the organism had to be done by the natural defences of the body. He showed a chart illustrating the effect of T. 693 on pneumococci in human blood with and without immune serum. With blood plus saline there were innumerable colonies; with blood plus immune serum the colonies were reduced; with blood plus T. 693 in a concentration of 1 in 16,000 there were again innumerable colonies; with blood plus T. 693 in a concentration of 1 in 32,000 plus immune

serum there were no colonies, but when leucocytes were taken out of the blood innumerable colonies reappeared.

Treatment of Pneumonia

In the light of these results it was profitable to discuss from a theoretical standpoint the treatment of pneumonia. The best results seemed likely to be obtained by a combination of chemotherapy (T. 693) and immunotherapy by means of serum or vaccine. The annotation in the *British Medical Journal* suggested that serum therapy should be reserved for severe and desperate cases, but it seemed to him that he would be a bold physician who, on seeing for the first time a case of pneumonia in a middle-aged man, was certain that it would be a favourable case for the use of only one of two powerful remedies, especially when those remedies were complementary. The grounds for withholding serum therapy in cases other than severe and desperate were that it was "expensive, difficult to administer, and apt to cause unpleasant after-effects." There was another way to induce immunity against the pneumococcus to which none of these objections applied. Vaccine therapy was cheap, easy to administer, had no unpleasant after-effects, and was available for every type of the organism. It had been shown in laboratory animals and in man—even in patients suffering from pneumonia—that after a single injection of pneumococcus vaccine antibodies appeared in from twenty-four hours to four days.

Professor Fleming suggested that in pneumonia, if the pneumococcus was of a type for which there was an effective serum, the serum and T. 693 should be given immediately; but if serum was not available, or it was not desired to give it, then an appropriate vaccine should be given, followed later—perhaps after a couple of days—by T. 693. The latter was quickly absorbed, and if the patient seemed to be going downhill it could be given and the action would be obtained within a few hours. But ordinarily it seemed better to give the vaccine and wait until there was a reasonable chance of specific immune bodies being present, and then give the T. 693. There was another reason for the delay—namely, that there was some evidence that the organism established tolerance to the drug. Therefore it was well, if possible, to withhold it until the body had acquired some immunity to the infection.

Puerperal Sepsis

Dr. EARDLEY HOLLAND discussed the work of Colebrook and his colleagues at Queen Charlotte's Hospital on the clinical value of the sulphanilamide group of drugs in the treatment of the haemolytic streptococcal infections of puerperal sepsis. He showed tables illustrating the striking improvement in mortality in 1936 and 1937, when these drugs were given, as compared with the five previous years. During 1930-5 there were 119 cases of septicaemia with or without peritonitis, with eighty-nine deaths, a mortality of 75 per cent. In 1936-7 there were thirty cases with eleven deaths, a mortality of 37 per cent. In regard to peritonitis alone in the former period there were ninety-eight cases with eighty-five deaths, and during the last two years five cases with three deaths. The drugs seemed to diminish the incidence of peritonitis as well as the mortality from it.

A number of people stated that the improvement in haemolytic infections since these drugs came into use was due to a diminution in virulence of the streptococci, and not to any effect of the drug. There was a certain amount of evidence that the organism was less virulent. Scarlet fever, for example, had become a much less serious disease than formerly. In the North-Western Fever Hospital, in which the L.C.C. cases of puerperal infection were segregated, some remarkable figures had been obtained for which he was indebted to Mr. James Wyatt. They showed the proportion of cases of septicaemia due to haemolytic streptococci.

| | | | Cases of Septicaemia | | Cases due to Haemolytic Streptococcus | Percentage |
|------|----|----|-------------------------|-------|---|------------|
| 1932 | .. | .. | 18 | | 14 | 77 |
| 1933 | .. | .. | 17 | | 13 | 76 |
| 1934 | .. | .. | 13 | | 9 | 69 |
| 1935 | .. | .. | 12 | | 6 | 50 |
| 1936 | .. | .. | 13 | | 6 | 46 |
| 1937 | .. | .. | 14 | | 4 | 29 |

These figures might or might not give rise to the inference that the haemolytic streptococcus was becoming a less virulent organism, and it was a point for discussion whether the excellent results in puerperal infections with these drugs were due not only to the drugs but to a diminution in virulence of the organism.

Sulphanilamide in Gonorrhoea

Dr. G. L. M. McELLIGOTT mentioned experiences with the sulphanilamide compounds in the treatment of gonorrhoea at St. Mary's Hospital venereal diseases clinic. Over 1,000 cases had been treated with sulphanilamide and the analysis continued to show good results. They had treated 150 cases with uleron, with not such good results, and 200 cases with T. 693, which gave even better results than sulphanilamide, while proseptasine, used in a few cases, gave no lasting results at all. The treatment was divided into courses of from 70 to 80 grammes over a period of three weeks in adult males of average weight. The optimum dose appeared to be 4 grammes daily for ten to fourteen days, followed by 3 grammes daily for a further week. In the majority of cases one course sufficed to cure. Small doses appeared to be worse than useless, and seemed to make the patient abnormally resistant to further treatment even with large doses. The most important point elicited was that the correct time to start sulphanilamide was after the eighth day of the disease. A sudden improvement in the results of cases treated in the second week could only be explained by the fact that it took that length of time for the body to acquire enough immunity to deal with the organisms whose growth had been arrested by the sulphanilamide. Failures were due to premature chemotherapy, insufficient dosage and period of administration, and early interruption of the treatment. A fairly high proportion of toxic effects followed the use of the two most effective compounds, sulphanilamide and T. 693. Mild effects were shown in 50 per cent. of cases. These included slight headache and giddiness. Moderate effects—vomiting, diarrhoea, skin rashes, etc.—were seen in about 10 per cent. A few serious effects were noted, including an extensive purpuric rash.

General Discussion

Mr. WILLIAM IBBOTSON mentioned the value of anti-scarlet-fever serum given by rectum. He had treated about 100 cases with this serum in hospital. Although he had had encouraging results with the new compounds, the use of this serum, from his experience, ought not to be disregarded. Dr. P. H. MANSON-BAHR said that in the United States, which he had lately visited, "everything is being cured with sulphanilamide and prontosil." Even the small clinics seemed to be continuously employed in estimating the amount of sulphanilamide in the blood of patients. Dr. G. W. GOODHART asked how often one should make blood examinations. As one responsible for pathological investigations, if he were to do all the things he was asked to do his entire staff would be employed on nothing but blood counts. Dr. HORACE EVANS raised the question whether a case of impending agranulocytosis was due to the drug or to the original disease. Dr. C. E. LAKIN said that one very important thing about this drug was the new avenues—if that expression could be allowed—which it had opened up. Although it acted to prevent the growth of organisms and gave the body's resistance a chance to play an important part, it did not injure the tissues. It

believed that still greater achievements with drugs of this series might be expected.

Sir WILLIAM MILLCOX replied to a question on the danger of intravenous injection. It was suggested by the makers that it was not safe to give the azo dyes intravenously, but this was largely a matter of technique, and in careful hands it might be safe.

MULTIPLE CAUSATION IN PSYCHIATRY

At the meeting of the Section of Psychiatry of the Royal Society of Medicine on October 11 Dr. H. CRICHTON-MILLER, on taking the presidential office, delivered an address in which he pleaded for a consideration of multiple aetiology in psychiatry.

Dr. Crichton-Miller gave illustrations of the way in which a resultant factor, whether organic or psychic, might reinforce, or be reinforced by, a purposive or conative factor. He explained that by a resultant factor he meant any deviation from the normal which could reasonably be regarded as a manifestation of inherited characteristics or as the reaction of the organism to environmental influences, and by a purposive factor any symptom which might be taken as subserving an end, whether exhibitionism, evasion, defence, protest, or punishment. For example, the pupillary reflex was invariably resultant, but the blinking reflex might be either resultant or purposive (in other words, involuntary or voluntary), or a combination of the two.

Dr. Crichton-Miller worked out his theme by citing various syndromes in which both resultant and purposive factors appeared. For example, Freud had stated that his own slight attacks of migraine were wont to announce themselves hours before in the forgetting of names, and often at the height of the attack no proper names could be recalled. Here there were evidently two concurrent causal series: one psychic and the other organic; one a defensive adaptation, the purpose of which was to obviate affective pain, the other beginning with an unspecified psychological failure and resulting in migraine. According to Freud's statement, the intensification of the amnesia was a warning that an attack of migraine was impending; in other words, the organic sequence was reinforcing the psychic. The aetiology of migraine remained confused and obscure. In Dr. Crichton-Miller's view it could not be said with assurance that its origin was known and that that origin was purely organic in character. He left the example as a clear-cut presentation of synergy.

Psychic and Organic Factors

He next considered from the same point of view nocturnal enuresis. How far in this condition was it conceded that a purposive mechanism might coexist with a non-purposive? Might a small boy be suffering from threadworms and at the same time (according to the explanation of one school of analytical psychology which interpreted all enuresis in terms of regression to intra-uterine life) be expressing a longing to return to the uterus? In the same way, could an involutional melancholic be suffering from bacilluria and also be expressing a protest against the demands of modern life? To the speaker it seemed clear that the possibility, even the probability, of such cases of multiple aetiology must be admitted. In nocturnal enuresis there was a constant interplay between organic and psychic factors. The problem might also be studied in a case of nightmare. He found it impossible to regard nightmare as being merely stimulated by a morbid organic condition. He would rather say that most nightmares occurred as a result of somatic disturbance, while their content emerged from conative and affective patterns of the psyche. But the aetiology was left so vague as to invite a certain unwarranted assurance in the claims of the psycho-analysts.

Finally, he mentioned war neuroses. The war provided thousands of cases in which physical factors coexisted with fear resulting from war experience. He suggested that in some future war a medical officer giving a diagnosis of war neurosis would be asked to answer how far he supposed that a defence mechanism, conscious or unconscious, entered into the case, how far toxic factors were contributing, how far he considered the man constitutionally incapable of rendering adequate service, and what disposal he recommended—rest with isolation, with distraction, or with occupation, services of a psychotherapist, reclassification, or discharge. Dr. Crichton-Miller concluded:

"What is true of the war neuroses is true of the neurotic disabilities of civilian life. At every point disability, whether resulting from biological or affective causes, is liable to be pressed into the service of a personal aim. . . . What matters to us is that with most of our patients the past and the future are continually in mesh, and no real advance can be made in psychiatry except by those who are sensitive to this constant interaction."

MARINE THERAPEUTICS

At a meeting of the Section of Physical Medicine of the Royal Society of Medicine on October 21 a discussion took place on marine therapeutics.

Dr. K. R. COLLIS HALLOWES of Torquay, who took the chair as the new president of the section, said that classification of the many various marine climates of the British Isles was difficult. Many marine resorts had local characteristics which caused them to differ from other resorts in the same regional group. Conclusions drawn from meteorological data alone might be erroneous. Moreover, individuals reacted in different ways to the same meteorological factors. Some were more weather-sensitive than others, some reacted abnormally but could be re-educated to more normal responses. Marine climates differed from inland climates in various ways. Sun-bathing and sea-bathing were of considerable therapeutic value, but were often abused, and there was need for their careful prescription during convalescence and for therapeutic purposes. Sea-water was a natural mineral water and might be used for all hydrological procedures. Reactions following its use were very similar to those following the use of other waters. The future development of marine resorts for therapeutic purposes required consideration and medical direction, and further research work was essential.

The British Coast-line

Dr. S. WATSON SMITH of Bournemouth divided the climates of Great Britain into two physiological groups: (1) the stimulating, tonic, or bracing, suitable for those needing toning up after illness or operation; (2) the sedative and relaxing, inducing rest of body and mind. Smaller and less artificial places than the popular resorts had a curative value for many. Much had yet to be done in collecting and verifying information on climate; this might be done county by county by local medical men. The "seaside" should include a littoral to embrace valleys and terraced levels rising from the sea. Sea level or propinquity to the sea was not always desirable.

The east coast of Scotland was to be recommended, during the late spring, summer, and early autumn, for the robust after illness or operation; only in midsummer for the delicate. During fine weather it was indicated for hypopnea and neuro-circulatory asthenia.

The east coast of England was useful, in the warmer months, for nervous disorder and disease, especially about middle age; also in convalescence after respiratory catarrhs

and inflammations, in chronic bronchitis and emphysema, bronchitic asthma, and post-influenzal weakness. Contra-indications were hyperpiesis, hyperpiesis with chronic kidney disease, advanced arteriosclerosis, and polycythaemia.

The south-eastern region (Kent and Sussex, to Hampshire) was desirable for delicate children and adults at all seasons, particularly for the young with tuberculosis of bones and joints; also after spa treatment in non-specific arthritis, fibrositis, neuritis, and neuralgia. During the summer it was useful in cases of chronic bronchitis, emphysema, bronchiectasis, pulmonary fibrosis, and disease of circulatory system; contraindications were high blood pressure, thyrotoxicosis, and plethora.

The southern region was to be recommended all the year round in the neuroses, insomnia, thyrotoxicosis, high blood pressure, granular kidney, and chronic respiratory disease, including tuberculosis. In summer the delicate did not do so well on this coast; but at all times children convalescent from juvenile rheumatism did well, as did children with asthma. This was a good coast for permanent residence for those struggling against ill-health.

The south-west coast was indicated for subacute and chronic bronchitis, sinusitis, arteriosclerosis, aneurysm, arterial hypertrophy, angina pectoris, degenerative myocarditis, high blood pressure, and senility; contraindications were low blood pressure, and in the case of sick children except at the beginning of convalescence. Patients with arthritis often did well on the Somerset coast.

The north-west coast was for debilitated persons with functional derangements, emphysema, persisting sinusitis, bronchitis, laryngitis, or rhinitis, and sufferers from delayed recovery after acute illness. Except during fine weather, this coast was better avoided; contraindications were fibrositis, any form of arthritis, and subacute and chronic bronchial trouble.

Sir HENRY GAUVAIN dealt with the marine treatment of surgical tuberculosis and septic bone conditions. He said that he had explored the south coast from the mouth of the Thames to the mouth of the Severn to find the best place for the establishment of the marine branch of Alton. He wanted warmth, abundant sunshine, low level, clear air, flat littoral, sheltered position, and south aspect. He found only one place which had all the desiderata, and that was Hayling Island. Some children, those with pronounced cachexia, were not strong enough to respond to sea stimuli. He and those associated with him at Alton could now instantly determine by looking at the children those suitable for marine treatment. It was the child with good powers of resistance and able to respond to stimuli who would do well. A few days were spent by the children in getting acclimatized, and then paddling was started, later spraying, and finally complete immersion.

In the course of discussion Sir Henry Gauvain was asked to compare his results with those of Rollier at Leysin, and he said that he thought results were more quickly obtained at Hayling Island, but statistical comparisons were fallacious, because most of Rollier's patients could come and go when they liked, whereas the Alton children were hospital patients who remained for their cure. The time taken depended on the constitution of the child, the average for the crippled child was from fifteen to eighteen months.

Dr. M. B. RAY asked what was the effect of sea-water in giving massage douches. Sea-water was probably the hardest water imaginable, and he wondered how the hands of the operator could utilize the hard liquid in giving massage which required relaxation of muscles and a soapy kind of water. Dr. COLLIS HALLOWES said that his experience was that massage could be quite effectively given with sea-water and the results were very satisfactory. He had never heard attendants complain of the effect of sea-water on their hands, and it was exceptional to find any irritation of the skin following Aix or Vichy douches for which sea-water was used.

YELLOW FEVER

A meeting of the Royal Society of Tropical Medicine and Hygiene was held at Manson House on Thursday, October 13, when Dr. FRED L. SOPER of the International Health Division of the Rockefeller Foundation for South America gave an address entitled "Yellow Fever: The Present Situation, with Special Reference to South America." The president of the Society, Lieutenant-Colonel S. P. JAMES, was in the chair and the meeting was attended by His Excellency the Brazilian Ambassador.

Activities of the Rockefeller Foundation

Dr. Soper related how the Rockefeller Foundation embarked in 1915 on a programme of eradicating yellow fever from the Americas by collaborating in the organization of measures directed against the insect vector—*Aedes aegypti*—in the known endemic foci of the disease. These measures strikingly reduced the number of cases in the larger cities and ports, but failed to eradicate the disease completely from certain areas in Brazil. That this was not characteristic of Brazil was suggested by the occurrence in 1929 of two widely separated outbreaks at isolated points in Colombia and Venezuela, and it was ultimately shown that there were two hitherto unknown factors to be considered—namely, rural yellow fever transmitted by *Aedes aegypti* occurring in a localized area of North-East Brazil, and jungle yellow fever, which was widespread and occurred in the absence of *Aedes aegypti*. The rural type was bound up with the nomadic habits of the people, who moved freely from place to place during pilgrimages and periods of drought, and carried with them in their water-jars eggs and larvae of *Aedes aegypti*, which readily found new breeding-grounds in the stores of rain-water collected against the drought. When these facts were determined, extensions of the preventive service to the rural areas produced results similar to those obtained in the cities, and yellow fever rapidly disappeared from the regions in which this work was undertaken; in fact, were it not for the existence of the jungle infection, yellow fever might well have disappeared from the Americas in 1934.

The epidemiology of the jungle infections was, however, quite different from that of the other types, although, clinically, the diseases were exactly similar. Urban and rural *aegypti*-transmitted yellow fever was generally acquired indoors; tended to involve non-immune persons of all ages; was spread along the lines of human travel; and was easily controlled by reduction of the density of the vector. Jungle yellow fever, on the other hand, was acquired in or near the forest during working hours by those whose occupation took them to the woods, and did not involve other members of the household. The infection of man was apparently accidental, occurring in the course of some cycle of infection of which man was not an essential part. Recently forest mosquitos (*Aedes leucocelaenus*, *Haemagogus capricorni*, and species of *Sabethes*) had been captured and shown to be naturally infected, and, furthermore, there was some evidence that certain monkeys commonly became infected. It was difficult, however, to fit all the observed facts into a simple mosquito-monkey-mosquito cycle of which human infection was but an accidental offshoot.

In the face of this problem the only reasonable hope of preventing human infection seemed to lie in individual immunization of exposed populations. During the first nine months of 1938 more than 800,000 persons had been vaccinated with entirely satisfactory results and without serious complications of any kind. Dr. Soper emphasized the valuable knowledge that had been obtained from examination of livers obtained by viscerotomy, the service which he had organized having made over 140,000 examinations. He stated that viscerotomy, anti-*aegypti* measures, and vaccination were the keys to successful control of yellow fever in Brazil. His Excellency the

Brazilian Ambassador then spoke of the happy co-operation between the Federal and State authorities and the Rockefeller organization.

Mouse-protection Test

Dr. G. M. FINDLAY showed how the mouse-protection test had revealed the unexpectedly enormous endemic distribution of yellow fever in Africa. There the disease was both urban and rural, but jungle yellow fever in the Brazilian sense had not been demonstrated in Africa, as so far no rural area had been found in which *Aedes aegypti* was not present. Hepatitis, which in some cases followed the earlier vaccinations, was due to another virus, probably similar to, or identical with, that of epidemic catarrhal jaundice, which had been introduced accidentally into the yellow fever tissue culture. This complication had now been eliminated. Judged by blood tests, immunity lasted two or three years, but tissue immunity might persist longer.

Dr. M. T. MORGAN asked whether the mouse-protection test and the liver examinations could be regarded as satisfactorily specific, and Colonel F. P. MACKIE mentioned that the results obtained by the mouse-protection test suggested a recent silent spread of the disease around Makkah in Africa, although there was a strange absence of clinical evidence of the disease. Sir JOHN MEGAW raised the question whether the virus, if introduced into India, would spread as in Africa and America. Sir MALCOLM WATSON admired the organization for the control of *Aedes*, and expressed the hope that the details would soon be published. With regard to the spread of the disease in Africa he had failed to find *A. aegypti* breeding in trees in Nigeria.

In reply, Dr. SOPER stated that he had every confidence in the mouse-protection test and the pathological examination of the liver as indicators of infection. Jungle yellow fever, he believed, was the older and more permanent form of the disease. With regard to Africa, he thought that if the virus ever reached the east coast the worst might be expected, since every boat headed for India would threaten extension of the disease to that country.

ESCAPE INTO INVALIDISM

The Medical Society of Individual Psychology has arranged for a series of papers upon the subject of psychological "escapes" to be given during the present session. At the first meeting on October 13, with Dr. H. C. SQUIRES in the chair, "escape into invalidism" was discussed.

Dr. GEORGE GORDON read a brief paper to open the discussion. He suggested that it would help to keep the discussion within manageable bounds if the following types of cases were excluded—namely, malingering, anxiety states, and valetudinarianism in elderly people if it occurred as an accompaniment of organic senile changes in the cerebral cortex. He also excluded hypochondriasis properly so called as representing a psychotic illness with delusion, which would be dealt with later in the session. He believed that the profession now recognized the psychogenic origin of hysteria, but drew special attention to another numerous class of patients, who were best described as people who "enjoyed ill-health." He took as the classic prototype of such patients *Le Malade Imaginaire* of Molière, and pointed out that there is no evidence that Argan in this play is the subject of hypochondriacal delusions. He quoted passages indicating Argan's overweening desire to dominate the household in a multitude of ways, and his constant desire to have members of his household perpetually at hand to help him. Argan's constant ailing was a device whereby he achieved assurance that infallible assistance, as represented by the medical profession, would be available at all times. Dr. Gordon pointed out that *le malade imaginaire* was a man imbued with a sense of insecurity

and inadequacy to meet what he believed to be the demands of life. Many people who were reputed to "enjoy ill-health" were persons with a sense of inadequacy. In Dr. Gordon's experience such people were often not endowed with much physiological vigour. Nothing was gained by pooh-poohing the possibility of imperfect health in such cases. . . . "As physicians we can be of the greatest value to such persons by helping them to understand themselves, so that they may face their task in life with such physiological endowment as they possess. We can also encourage them to abandon the desire to achieve a sense of adequacy and security by the domination of others through their own invalidism."

Mental and Physical Pain

Sir WALTER LANGDON-BROWN, in complimenting the opener on the way in which he had defined the issues, brought forward some evidence that the "mollusc" type of escape into invalidism was often subconscious. On another occasion he had defined as necessities for happiness the possession of a definite goal and an emotional interest. When either or both of these were frustrated there was a tendency to compensate by this method of escape. Hippocrates said, "Of simultaneous pain in two places the lesser is obliterated by the greater." Few would doubt that mental pain could be greater than physical pain. Certainly medical men were constantly seeing instances where patients sought a physical pain as a relief to mental pain, for the former could be talked about and would excite sympathy; the latter they preferred to bury in their own bosoms. Then came the magician offering new lamps for old in the form of new pains for old and pains that could be talked about. Physicians should be constantly on the watch for these substitute pains and should seek for the underlying mental or emotional cause. It was clear that in many instances an escape into invalidism enabled the individual to dominate the situation through weakness. Another factor inducing such escape was indecision, for as long as ill-health existed the necessity for solving a problem could be postponed and conflicting factors could be held in balance. A number of cases were reported which illustrated these contentions.

Motivation of Neurotic Illness

Dr. W. R. REYNELL said that the conception of neurotic illness as an escape was no doubt true in many cases, but in others it was a passive negative refusal to co-operate owing to a sense of grievance or other motives. In some the motive of neurotic illness might be regarded as a wish to fall ill as an expression of some unconscious feeling rather than as an escape from something—a wish for self-punishment, self-aggression, as an effort to atone for unconscious feelings of guilt dictated by an infantile conscience. Adler had said that every neurosis could be understood as an attempt to free oneself from a feeling of inferiority in order to gain a feeling of superiority. Did this conception of neurotic behaviour always explain the motives which led to anorexia nervosa, self-inflicted injuries, and even suicide, or states of morbid depression and suffering following loss and disappointment? Neurotics, according to Adler, had sought power and freedom from responsibilities to others; but there was another type very liable to fall into neurotic illness—the peace-loving, gentle, often physically timid and easily discouraged person. Dr. Reynell did not think that the "wish to fall ill" was the same as "an escape into illness."

The escape into nervous invalidism implied the adoption of a bad "style of life," the "pursuit of an inferior goal"—the expression of an "inferiority complex," as Adler described it. Many such patients might be described as "evasive compensators," who evaded difficulties and responsibilities and developed neurotic symptoms instead. The subsidence from, or refusal to rise to, a normal adult state of social co-operation and usefulness

might occur at all ages and might arise from the withdrawal of a stimulus or from disillusionment. The type of neurotic invalidism might be determined by (1) "organ inferiority": damage from organic illness or hypogonadism (hysterical symptoms often followed on organic illnesses); (2) the results of operation or accident; or (3) the symptoms might be symbolical of a state of mind. Whatever the symptoms were, the following had to be determined: (a) *Why did the patient fall ill?* (b) *Why did the patient fall ill when he did, or, as Adler put it, "What shocked him"?* (c) *Why did the patient fall ill in the way he did?*

Dr. EDWARD F. GRIFFITH suggested that life was more difficult in these days and there was a greater tendency to try to escape from responsibilities. This was particularly noticeable in the refusal of many of the younger generation to have children. The older general practitioners were often certain that there must be a physical cause for neurotic illness even if every method of examination had failed to discover it. Often it was extremely difficult for the physician to assess the various factors of causation. He gave examples of neurotic types of illness seen in general practice where either the psychological or the physical origins were finally discovered. In women patients neurotic illness was often made the excuse for a refusal of conjugal relationship or for purposes of domination. The sex life of many married women was unsatisfactory. The cause was not always originally psychological; often it was due to some minor or major physical disability that could be remedied, particularly in cases of frigidity and dyspareunia. He thought that in such cases there should be more co-operation between psychologists and those doctors who made a specialty of sexual disabilities. He mentioned the necessity for inquiring as to the practical expression of emotional feeling—the question of sex technique. An interesting discussion followed in which many members of the Society took part.

maximum of sunlight and cross-ventilation obtained. The crossbar of the H forms on the ground floor an entrance hall walled with glass bricks and very attractive in appearance. It is approached by a ramp, a piece of thoughtfulness for the large proportion of users of the centre who will be sufferers from some physical disability. With the same object all the clinics are on the ground floor and accessible from airy, well-lighted corridors, so planned as to avoid the tunnel-like effect of many such passage-ways. One upright of the H contains the tuberculosis clinic, including consulting-room, surgery, laboratory, and x-ray department, with special accommodation for artificial pneumothorax treatment. The opposite upright contains the women's, dental, and foot clinics. On the first floor are lecture hall, administrative offices, and reception wards, separated by a common kitchen, for men and women who are temporarily de housed for sanitary reasons. The disinfecting and cleansing stations are in the basement with separate access from the rear. Many interesting details take the attention, such as the large continuous ranges of windows, the radiant heat panels concealed in the ceiling, the reinforced concrete walls lined with cork slabs to afford sound and heat insulation, the facing of the concrete with tiles of pale cheerful tints, the open forecourt laid out with grass and shrubs, and the roof terrace. The planning has been such as to allow for all possible flexibility in the disposition of the rooms, and if rearrangement of departments or the installation of fresh equipment becomes necessary partition walls can be removed without major structural alterations. The building has been designed by Messrs. Tecton, the architects responsible for the new buildings at the Zoo and at Whippsnade, and many of the ideas incorporated in the enterprise owe their origin to the chairman of the public health committee of Finsbury Borough Council, Dr. C. L. Katial. The centre is in Pine Street, close to Farringdon Road, and only a short walk from Finsbury Town Hall.

St. John Ambulance Brigade

The second annual week-end conference of the surgeons of the St. John Ambulance Brigade was held in London on October 15–16 under the presidency of Dr. N. Cortis Fletcher, surgeon-in-chief. All districts of the Brigade were represented, including the Priory for Wales and the Irish Free State. Considerable attention was paid to matters relating to the Brigade's work in connexion with the A.R.P. and the local anti-gas certificates. Some aspects of competitions came up for consideration, as did also the revised *Textbook* with demonstrations of loading the stretcher face downwards. The subjects for discussion included diabetic coma, the issue of certificates, the promotion of surgeons, and the general regulations. The guest of honour at the annual dinner on the first day of the conference was Sir Herbert Creedy, G.C.B., K.C.V.O., Permanent Under-Secretary for War.

Research at Birmingham

The City and University of Birmingham Joint Board of Research for Mental Disease has continued its unspectacular but useful work during the past year, and its annual report sets out the progress that has been made. Several more thick sections of brain have been examined for capillary irregularities and the findings correlated with the clinical diagnoses. Work has been started on the relation of chronic septal infections to cerebral capillary irregularities, and a number of brains have been examined after Gram staining. As was to be expected, Gram-positive organisms were found in a few cases only. There is some evidence that Gram-positive organisms lose their positive character after many days, and examinations are now being made of sections of brain stained to show Gram-negative organisms. The capillary stain technique showed areas of ischaemia in nearly all and areas of congestion in the greater proportion of cases. Many specimens also showed haemorrhages, thromboses, or perivascular granules. An endemio-

Local News

ENGLAND AND WALES

Finsbury Health Centre

The new health centre of the Finsbury Borough Council, which was opened by Lord Horder last week, is an interesting departure, from an architectural point of view, among institutions of this kind. It represents a break-away from traditional municipal lines; a design has been worked out on the pavilion principle, having in view no other consideration than the needs of the various public health services to be controlled and organized in the building. These services are a dental clinic, a tuberculosis dispensary service, to which is attached an x-ray department, a solarium for ultra-violet ray treatment (to be given to adolescents or adults requiring it, upon the recommendation of a practitioner), a foot clinic (a new venture, set up in view of the widespread disability arising from minor ailments of the feet), and a clinic for diseases, again of a minor character, peculiar to women, for which there has been up to now no special provision in the borough. The building will also include cleansing and disinfecting stations, a mortuary, and a bacteriological laboratory for the diagnosis of infectious and contagious diseases, the examination of milk, and the like. Thus there will be accommodated under one roof all the health services administered by the local council with the exception of maternity and child welfare. There are two maternity and child welfare centres in the borough, both in comparatively new premises and advantageously situated with regard to the areas they serve, and it has been decided to leave them where they are.

The building corresponds to a wide letter H: by this means congested approaches have been avoided and a

clinical and subclinical dysentery caused a large increase in the total number of specimens examined in the laboratory. Out of 2,037 specimens of faeces examined for typhoid-dysentery organisms, abnormal organisms were isolated in 1,992. The special care which the results indicated is believed to have averted an epidemic. A large number of supposedly non-pathogenic salmonellas were found, especially in the clinical dysentery cases. Aberrant coliform organisms were high in the dysentery cases and below average in the typhoid carriers. Another interesting point is the low incidence of streptococci in the typhoid carrier cases as compared with the average. The research work of the Board is now in process of being transferred from Hollymoor to the new Medical School of the University. When the transfer is complete it is anticipated that Dr. Stanley Barnes, Dean of the Medical Faculty, will take up the position of Honorary Director of Research and Chairman of the Advisory Board.

An Old Medical Charity

A quarterly court of the directors of the Society for Relief of Widows and Orphans of Medical Men was held on October 12, with Mr. V. Warren Low, president, in the chair. The audited accounts for the half-year ended June 30 were presented and approved. From them it was shown that £2,210 had been distributed in grants among the sixty-one widows and five orphans in receipt of relief. The income for the half-year amounted to £2,979, and £250 Consols at 2½ per cent. had been purchased. It was decided that a Christmas present of £5 be made this year to each widow and orphan in receipt of grants, entailing an expenditure of £330. A donation of £2 2s. had been received from the South-West London Postgraduate Association. Grants amounting to £2,208 were voted, subject to the approval of the visitors, for the payment of the half-yearly grants due on January 1, 1939. On October 29 the society celebrates its 150th anniversary, and it is probably one of the first, if not the first, medical relief society to be established. It was founded in 1783, and two members of the same family, father and son, have been secretaries for seventy years. Membership is open to any registered medical man who at the time of his election is resident within a twenty-mile radius of Charing Cross. Election is by ballot. Full particulars and application forms for membership may be obtained from the secretary of the society, 11, Chandos Street, Cavendish Square, W.1.

SCOTLAND

Vital Statistics for Scotland

The report of the Registrar-General for Scotland for 1937 shows that the estimated population at the middle of the year was 4,976,600, of whom 2,396,900 were males and 2,579,700 were females. The population has increased since the census of 1931 by about 133,600 persons, mainly attributable to excess of births over deaths. The number of births registered during the year 1937 was 87,810, including 45,035 males and 42,775 females. This gave a birth rate of 17.65 per 1,000 of the population, slightly less than in the previous year and the lowest recorded except for the year 1933, when the rate was 17.62. The highest birth rate recorded was in 1876, when it was 35.62; since then the general trend with minor fluctuations has been steadily downwards. Deaths registered during the year numbered 68,942, giving a rate of 13.85 per 1,000 of the population. The general trend of the rate has, until the last three years, been steadily downwards, from 23 per 1,000 in 1864 to 12.92 in 1934; since 1934, however, each year has shown a slight increase. The standardized rate shows a direct relation to urbanization, for it was 12.36 in landward areas, 12.95 in small burghs, and 15.08 in the large burghs. Deaths of children under 1 year numbered 7,050, giving an infantile mortality rate of 80.3 per 1,000

births, a diminution of 2.0 as compared with that of the previous year. With regard to causes of death, the principal epidemic diseases accounted for 4,468 as compared with 2,719 in the previous year, the increase being attributed chiefly to an epidemic of influenza in January and February, and to an increase in the number of deaths from whooping-cough. Deaths from diphtheria numbered 426, giving the same rate as before. Scarlet fever, with 123 deaths, and measles, with 119, both showed substantial decreases. Tuberculosis accounted for 3,663 deaths with a death rate the same as for 1936 and 1935. Deaths from malignant disease numbered 7,810, giving a rate slightly less than that for the previous year but slightly more than the previous five years' average. Diseases of the circulatory system accounted for 15,732 deaths, and it is pointed out that in eleven years they have increased from 7,375 to this figure, the largest increases being at ages over 65. Diseases of pregnancy and childbirth numbered 424, being 70 fewer than in the previous year, while deaths from puerperal sepsis, numbering 144, were 51 fewer than in 1936. Deaths from all puerperal causes gave a rate of 4.8 per 1,000 births, of which the rate for sepsis was 1.6.

New Aberdeen Professor

Dr. Robert Stevenson Aitken, F.R.C.P., has been appointed Regius Professor of Medicine in the University of Aberdeen in succession to Professor L. S. P. Davidson, resigned. Professor Aitken is of Scottish parentage and was educated in New Zealand, where he graduated M.B., Ch.B. at the University of Otago in 1923. After acting as house-physician and house-surgeon in Dunedin Hospital he was a Rhodes scholar at Balliol College, Oxford, in 1926. Later he became assistant pathologist in the London Hospital, and assistant physician to the medical unit, London Hospital, in 1930. Since 1935 he has been University reader in medicine and assistant director of the medical department in the British Postgraduate Medical School, London.

Crichton Royal Institution, Dumfries

The directors of this well-known mental hospital on October 18 opened an important addition to the institutional buildings in the shape of an extensive centre, Easterbrook Hall, erected for recreational and therapeutical purposes. The structure, with equipment and furnishings, has cost about £60,000, and contains, in addition to a large hall in which there is a stage and cinema installation, separate sections in which are housed operating theatre, dental surgery, accommodation for x-ray and other electrical treatment, a hydrotherapy section with baths and swimming pool, fully equipped gymnasium, arts and crafts section, hairdressing saloon, library and reading room, and tea room; also facilities for sun-bathing. Dr. M'Cowan, the medical superintendent, said that they were learning the value of recreation and occupation in mental cases, and also how to apply physiotherapy and electrical and light treatment. The primary aim of physical medicine was to build up the patient's physique and defensive mechanism, and psychiatrists had found that this was useful not merely in physical disease but also in nervous and mental disorders. Dr. C. C. Easterbrook, after whom the new building is named, performed the opening ceremony. He said that there had been numerous additions to the institution since the foundation stone of the original Crichton Hall was laid in 1835. Modern hospitals, villas, and nurses' homes had been added as well as the Crichton memorial church in 1897, and, later, a model home farm with tuberculin-tested herd, an artesian water supply, an electric light and power installation, and pathological laboratories. All these had placed the Crichton Institution in a unique position among mental hospitals. The institution comprised three separate departments with distinctive hospital observation and convalescent sections, still further subdivided into units. This enabled a proper classification of patients, which was the first step in all treatment, to be a special feature at the Crichton

Royal Institution. The latest addition for the more specialized forms of physiotherapy and psychotherapy would render the institution unsurpassed in the amenities it offered.

Edinburgh Nursing Scheme

The Scottish Council of the Queen's Institute of District Nursing has devised a scheme of nursing benefits for Edinburgh which began on October 24. There is already in operation a home nursing contributory scheme established by the Institute in 1925 with a membership of over 30,000 in Edinburgh, including employees in factories, shops, offices, and warehouses, who may join in bodies of not less than five persons at an annual subscription of 2s. 2d. paid at the place of employment. The new scheme enables other persons to join individually at a subscription of one penny per week, or 4s. 4d. per annum, which is collected at the place of residence. This subscription entitles members to nursing benefits for themselves or for non-wage-earning dependants, but not to maternity nursing or attendance at operations, which, however, can be obtained for a small additional fee. As regards arrears in payment, the member is out of benefit if more than six weeks without payment have elapsed, but may return to benefit fourteen days after paying the arrears; after twelve weeks without payment membership lapses, although the member may rejoin, but not during an illness. The scheme is not intended to apply to persons who are in a position to employ a private nurse, although persons above the income limit may obtain the nursing service for their indoor domestic staff on payment of 10s. annually.

Glasgow Post-graduate Courses

The winter session of the Glasgow Postgraduate Medical Association opens next month. A series of weekly demonstrations for practitioners on Wednesday afternoons will open at the Stobhill Hospital on November 2, when Professor Noah Morris will speak on deficiency diseases. The demonstrations, covering a wide range of subjects, have been arranged on similar lines to those of previous years. The fee for the course is three guineas. Courses have also been arranged at the Glasgow Eye Infirmary for those interested in ophthalmology, and facilities for the study of clinical obstetrics and ante-natal work are offered by the Royal Maternity and Women's Hospital. A practical course on refraction will be given at the Ophthalmic Institution. A course in radium therapy is offered at the Glasgow and West of Scotland Radium Institute, and at the Glasgow Royal Cancer Hospital if a sufficient number enrol. A course of lectures in psychopathology, with special reference to the neurotic illnesses of children, will be given at the Royal Mental Hospital, Gartnavel, on Mondays at 8 p.m., from January 16 to March 20, 1939. The fee for the course is two guineas. A limited number of clinical assistantships are available at most of the institutions taking part in the work of the association during the winter months as well as at other times of the year. Full particulars can be had from the secretary, Postgraduate Medical Association, the University, Glasgow.

Glasgow University Graduation

Sir Hector Hetherington, the Principal of the University, presided at the graduation ceremony at Glasgow on October 16 and conferred the degree of Doctor of Medicine upon three graduates and those of M.B., Ch.B. upon 103 graduands. In his address he said that the September examinations had taken place during a time of anxiety and strain, and the examiners had been surprised at the remarkably high level achieved by candidates working under such conditions. This showed steadiness of nerve. They now had an assured place in the work that lay ahead, and the opportunity of doing what they could for the safety of this country and its honourable duty in working towards a happier state of international relations.

Correspondence

Civil Medical Organization in War

SIR.—In the recent crisis I, like many others, could not help reflecting upon the personal effect which war, had it come, would have produced, and contrasting this with the outlook at the beginning of the last war. In August, 1914, I was a subaltern in one of the batteries of the H.A.C., and throughout the war I served in the Artillery. In 1914 I entered the war feeling confident that the careful preliminary training through which I had passed would be put to good purpose, and was stimulated by this thought. During the recent crisis, however, the certainty that my professional services would be called upon to the full as soon as war began brought only a sense of overwhelming bitterness. The number of dead and wounded for whom provision would have had to be made has not been publicly stated, but would run into very many thousands in every twenty-four hours, at any rate until a large portion of the population had been evacuated, and for every person wounded there would be one dead. In France and Flanders we were always supported by the feeling that every man in the field was contributing something to the common task. In September, 1938, I could see ahead of me only unending hours spent in rooms filled with operation tables, attempting to repair the terrible wounds produced by bombs. The patients would not be soldiers whose sufferings were to some extent balanced by the losses they had just inflicted on the enemy, but civilians whose very presence in London would be an encumbrance, and in most instances only make the maintenance of its essential services more difficult.

It seems likely that the call which war will make upon the medical profession in London and other of the more vulnerable cities will be greater than upon any other class of the community, only excepting those who will fight in the air. Our numbers are very limited and the task imposed upon us will be immense. Surgical and medical treatment will have to be carried out unceasingly and under conditions far more exacting than any experienced in the last war. Rest during such periods of off duty as are available will be broken by air raid warnings proclaiming the need to be "alert," and even if we could grow enough accustomed to these to ignore them, the noise of gun fire and bomb explosions would make sleep impossible. While the earning of a livelihood by private surgical practice in London will have passed away, our duty to the public will compel us to remain. Dr. Clement Francis in the *Journal* of October 22 (p. 862) draws attention to the uselessness of providing "... the most efficient medical service conceivable if the number of casualties is going to be tens of thousands, all occurring in the space of a few minutes." I believe that it is the duty of the medical profession to spare no effort to convince the public of the very urgent need to plan, first, the speedy evacuation from London of all whose presence is not essential, and, next, protection for those who of necessity must remain, for London will indeed be the front-line. Unless this can be done the casualties are likely to reach proportions which will completely overwhelm the medical services, many of the wounded will be left for long periods untreated, and the dead unburied. The construction of adequate rest-beds, leading out of London, and of shelters within it, should be begun at once.—I am, etc..

R. OGIER WARD, D.S.O., M.C., F.R.C.S.

London, W.1, Oct. 24.

Air Raid Precautions

SIR,—The lesson we as doctors should learn from the present A.R.P. muddle is the futility of working as individuals, or even as hospital units, and the absolute necessity for a central controlling organization to correlate our work.

If war comes it will be the civilian who will be in the front line, and therefore it is the well-proved methods of military evacuation of wounded that ought to be provided for the civil population. Those of us who went through the war are familiar with the long chain of units from first-aid posts in the immediate fighting area to base hospitals far from the centre of attack. It is an organization like this we require for the civil population in any future war. Sir Frederick Menzies makes this quite clear in his letter (*Journal*, October 22, p. 860). As he points out, anyone with practical knowledge of administration knows that there must be "unit control"; in other words, some one central authority must have control of aid posts, ambulance service, and hospitals. This central authority must staff and control all the hospitals, voluntary and municipal, and this authority must apportion the casualties to the hospitals so as to prevent overcrowding or undercrowding.

An attack on a great city like London should be visualized as a battle. There will be the dead; there will be the dangerously wounded; there will be the slightly wounded; and, as in any battle, the slightly wounded will vastly outnumber the rest. It is they who will flood the hospitals if not prevented. Even in the war, with disciplined men, it was not easy to avoid this. All casualties should be sorted out at the aid posts, and these aid posts should be in bomb-proof shelters and properly staffed. Hospitals in the great cities should be clearing stations only. No one in the war ever thought of keeping casualties in the front line. London and all great cities in future wars will be in the front line.

The idea of concentrating numbers of highly skilled men in the great teaching hospitals to handle casualties is absurd. No hospital will be immune from attack. It takes ten years to make a surgeon, and to risk a concentration of technical ability in any building that is vulnerable is doing a disservice to the public.

The experience of Barcelona has shown that a panic evacuation of the civilian population is not necessary if bomb-proof shelters are made. Dr. Clement Francis has pointed out in your columns (October 22, p. 862) that if such shelters are provided now the problem of evacuation is solved. Such shelters would immensely minimize the percentage of casualties in an attack. Such shelters should be provided with aid posts adequately equipped to handle all casualties as they occur, and to evacuate such as need further treatment to hospital. If, then, we had a proper central organization to collect and evacuate casualties from these aid posts we could face air attacks in the future with comparative equanimity.—I am, etc.,

J. JOHNSTON ABRAHAM,
Formerly A.D.M.S., Lines of Communication,
Egyptian Expeditionary Force.

London, W.1, Oct. 22.

SIR,—I absolutely agree with Dr. Clement Francis's letter on air raid precautions. Prepare hospital accommodation of course, but try to prevent there being much need for it by providing sufficient bomb-proof shelters. The effect of the modern high-explosive bomb is devastating, and, in my opinion, the casualties from gas would be negligible by comparison. The only gas that

caused really heavy casualties with a big mortality during the war was chlorine released from cylinders, which could obviously not be used against our civil population. No country is going to bomb with gas extensively when high explosive would cause ten times the damage. I think that the issue of gas masks in remote country villages is a waste of money which should be spent on providing deep shelters for everyone in our large cities.—I am, etc.,

Colchester, Oct. 22.

CYRIL HELM.

Protection Against Gas Poisoning

SIR,—Recent circulars relating to air raid precautions and the use of gas masks emphasize the point that the latter do not protect us against the poisonous effects of common coal gas. It is further pointed out that infants for whom no gas mask is available may be wrapped in a blanket and carried safely in this way through the dangerous zone. The following personal experience not only supports this last statement but goes further and shows that the blanket will also protect against coal-gas poisoning.

In 1902 I was acting as a district medical officer and was also engaged in general practice in a suburb of London. I attended a patient in her confinement, and four months after this event I was summoned urgently to this patient's home to find her and a boy and girl of 6 and 8, respectively, dead in various parts of the room owing to gas poisoning from a leaky meter, but the baby of four months was lying in the bed covered by blankets. The infant was still alive, and suffered no ill effects.

At the subsequent inquest the coroner asked me how I explained the infant's escape, but he disagreed with my suggestion that the blanket performed the function of a filter or mask. It would be interesting to ascertain whether the wool of the blanket is an important factor in these circumstances, and whether an equal thickness of cotton or silk cloth would afford similar protection. It should be possible for chemists engaged in gas warfare work to supply the answer.—I am, etc.,

London, W.1, Oct. 20.

JOHN F. O'MALLEY.

Modern Decline of Breast-feeding

SIR,—I read with much pleasure the valuable paper by Dr. J. C. Spence in the *Journal* of October 8. I hope it will not only be read but digested by those working in nursing homes, maternity hospitals, and teaching centres. In the course of many years' attendance at an infant welfare centre, mothers sent from institutions have often stated that breast-feeding was tried for two days and then given up. But surely, as Dr. Spence points out, one can hardly expect the flow of milk during the first two days. There is another idea that seems to me to be erroneous. Mothers are often advised to give up breast-feeding if they have the misfortune to develop a breast abscess. As a rule breast-feeding can be continued from the opposite side, and the milk will return in the damaged breast when it heals. The last sentence in Dr. Spence's paper may surprise some, but it does not surprise me; knowing that paediatrics has always been the Cinderella of medicine, one would have thought that a course of postgraduate teaching in infant feeding and diseases of children would be one of the most important subjects for instruction.—I am, etc.,

Sheffield, Oct. 17.

H. LEADER, M.B.Lond.

SIR,—I recently visited a New England hospital. It was a pleasant place, well equipped and staffed, in a well-to-do town, and largely used by private patients. There was

much evidence of thoroughly kind and unhurried attention to all. I was shown round by the physician in charge of obstetric work, and we reached the maternity wing shortly after noon. The first baby that I saw was in a duty room lying on its back in a crib, with a nurse standing over it and holding a bottle in its mouth. The physician told me, "This little one was born at 5 o'clock this morning." I asked why it was having a bottle. I was told: "It has to have formula, because its mother hasn't any milk yet." We went next to a two-bedded ward where the babies were each 4 days old. Each mother was lying on her back on one side of the bed with her infant on its back on the opposite side of the bed, and each mother was stretching out a hand across the gap between herself and her infant and holding a bottle in its mouth. The conspicuous thing about these babies was that they were entirely "untouched by hand"; a space was maintained between themselves and their mothers, and the babies lay outside the bed covers which were over their mothers. Outside the ward I asked why they were having bottles, and was told: "They have formula when there is deficient breast milk."

By the time we had finished our tour we had seen every baby in the place. Every one was on formula, and every one was receiving its formula in the same detached manner. Not one baby was at the breast. I then asked, "Do any of your patients breast-feed their babies?" and I received a final reply: "We find that very few American women can feed their babies."

I saw two other departments in the maternity wing—the nursery, a large room full of little cradles which were mostly empty but were filling up again now "formula" was over; and the "circumcision room," where I was told that "We strongly encourage every mother to have her baby boy circumcised before she leaves us."—I am, etc.,

London, N.7, Oct. 18.

ANNA R. GLOVER.

SIR,—Dr. J. C. Spence's paper on the modern decline of breast-feeding proved very interesting. There is, however, an apparent fallacy in the figures he quotes from the studies of Grulee and Sanford in Chicago. There is nothing to indicate that the 20,000 babies whom they investigated were equally well fitted from birth to maintain an extra-uterine existence. Let us assume that the vitality of some of these newborn infants is less than it should be. Are these not just the infants who will fail to make progress on breast-feeding, will be perforce put on to artificial feeding, and whose subsequent demise will be attributed not to lack of inherent vitality but to the evil effects of artificial feeding? This lack of vitality may be found in two groups of cases, possibly not entirely unrelated. The first is that group in which sterility, early miscarriage, stillbirth, neonatal death, and death under 12 months of age may be regarded as varying results of the same basal conditions. To appreciate the conditions existing in the second group one must consider the mother and child as one unit. This unit either is or is not having its adequate amount of vitamins, and as a result is either full of vitality, energy, and a tendency to survive, or has none of these desirable features.

It must strike the family doctor quite often that although breast-feeding is the ideal one cannot expect the infant breast-fed by a thin, flat-chested, anxious, overworked mother to flourish according to the expected standards. Can the food from this mother compare with the modern prepared food which is derived from "well-fed contented cows" (as the advertisement has it), living under what are their ideal conditions? In 1929 the North Kensington

Medical Society drew up a report on the infant mortality rate in Kensington as the result of an investigation by a group of practitioners in the area of the available statistics regarding the deaths of infants up to the age of 12 months. The following sentences may be quoted: "If it is accepted that environmental conditions can so affect a mother that an infant at birth is lacking in vitamins, it seems likely that breast milk will be similarly lacking. Could a more unsuitable person be found to breast-feed this particular infant?"

I cannot agree with Dr. Spence's conclusions that the decline in breast-feeding is due to indifference and to the lack of the doctors' education, since it is a well-known fact (as mentioned in the review of Dr. G. T. Wrench's book *Wheel of Health* in the *Journal* of October 15) "that different individuals show a different susceptibility to dietetic defects, and recently in the laboratory a Mendelian variety of rats has been obtained which succumb to rickets when the vitamin content of the diet is lowered more readily than normal rats. How far can such genetic factors account for differences in physique in different groups of mankind?"

As a general practitioner, I feel I should mention two facts which confirm one's disbelief in the advice usually given to all and sundry as to the desirability of breast-feeding. It is not at all uncommon to encounter cases of rickets in breast-fed babies. It is also a common occurrence for practitioners to find that in the case of an unhappy mother with an obviously unhappy baby the only cause for their many symptoms is that the impossible is being attempted. The change which occurs when the struggle is abandoned, when the baby obtains adequate nourishment and the mother sufficient rest, is dramatic, and the later results of artificial feeding have never in my experience been unsatisfactory. The manufacturers of modern artificial foods are well aware of what is necessary in the make-up of these if they are to produce satisfactory results in practice. I think that the whole position was quite well summed up in one of the findings of the committee of the North Kensington Medical Society: "In suitable cases, where the mother has a natural capacity for breast-feeding and a placid temperament, there is no better method of infant feeding. It seems likely, however, that the environmental conditions under which many mothers attempt to produce breast milk may be as likely to lead to bad results as the somewhat similar conditions which lead to the production of unsuitable cow's milk. Especially is this so if we add the effect of financial and domestic worries to the results of poor feeding, lack of fresh air, and lack of sunlight."—I am, etc.,

London, W.10, Oct. 15.

HORACE A. NATHAN.

SIR,—I would like to thank Dr. J. C. Spence for his excellent article on the decline of breast-feeding (October 8, p. 729). Is it not possible that this decline is in some way connected with the recent rapid rise of municipal child welfare clinics? I run a children's welfare clinic at my house one afternoon a week, and it often happens that I advise a mother to persevere with breast-feeding. Subsequently I have learned that the patient has gone to the clinic and obtained some patent food, usually at a reduced rate. My point is that in my opinion the chief use of these clinics to working-class mothers is merely as a depot for cheap milk. This attitude is definitely encouraged by health visitors, who point this out as an inducement to mothers to attend the clinic; it is probably further encouraged by the staff of the clinics.—I am, etc.,

Carshalton, Oct. 10.

J. SIMON.

Infections of the Hand and Fingers

SIR.—I have followed with interest the excellent articles on infections of the hand and fingers (*Journal*, October 1, p. 715; October 8, p. 754; and October 15, p. 798). I feel, however, that the incisions advised by Mr. Norman C. Lake, as illustrated, call for comment. The "cod-mouth" incision for infection of the pulp is not infrequently followed by marked retraction of the pulp flap and leaves an ugly scar, which interferes with delicate touch. The exceptional use of transfixion of the pulp, unless the incisions be more lateral, would certainly interfere with touch on healing.

The incisions over the middle and proximal phalanges should again be more lateral, for two reasons: infection spreads backwards from the front of the finger on to the dorsum, and the incisions as illustrated might not interrupt this spread; also, in highly infected and semi-gangrenous conditions the tissue between the small incisions may break down, resulting in an infected wound across a flexure (deplored by J. B. Murphy). This lack of respect for "flexure rule" is seen in the distal incision for the tendon sheath of the flexor minimi digiti, and the middle one would certainly cut the ulnar nerve. The upper incision of the tendon sheath of the flexor longus pollicis in a swollen condition of the area endangers the median nerve, and a considerable amount of dissection among important structures is necessary to reach the distended sheath. Surely it is better to be guided by Kanavel and approach from the side.—I am, etc.,

Liverpool, Oct. 17.

R. KENNON.

Thimble for the Surgeon

SIR.—Mr. T. E. Coulson has drawn attention in his note in your issue of October 15 (p. 789) to a most valuable technical procedure which should be further known because it seems that many are still unaware of this method, first described by Sir William de Courcy Wheeler in the *Medical Annual* of 1925, and again described by him in the *Journal* of June 6, 1931. This method of cutting down upon the finger protected by a thimble is the most safe and precise way of making a counter-drainage by a stab incision not only in pelvic abscess but in the course of any laparotomy, and a thimble should find its place in every surgeon's kit of instruments.—I am, etc.,

A. DICKSON WRIGHT, M.S., F.R.C.S.

London, W.1, Oct. 18.

"Salt-water Boils"

SIR.—"Salt-water boils" are an affliction of deep-sea fishermen. The condition is so prevalent and so definite that the term "salt-water boils" conveys a very clear clinical picture to any practitioner who has once seen it, and an equally vivid but painful picture to any fisherman who has once suffered from it. The disorder affects only those men directly concerned in the handling of fish on deck; of these the boatswains are most severely affected by reason of their having to stand with upraised forearms beneath the bag of fish preparatory to releasing the catch on to the deck. It does not affect those not concerned with the handling of the fish—that is, engineers, cooks, and skippers.

Two types of lesion occur, one affecting the radial aspects of the wrists, the other the upper parts of the forearms. The lesions on the wrists result from the constant chafing of the

oilskin sleeve on an area saturated with sea-water, which is hypertonic. The skin becomes thickened and a chronic inflammatory reaction, produced by the constant trauma inflicted by the sharp edge of the oilskin, gives rise to a raised, reddened area on which small pustules form from infection of the follicles. The chronic inflammatory process acts as a barrier to the spread of infection, but if a woollen or flannel sleeve is worn as a protection the traumatic inflammatory change does not occur, with the result that the folliculitis which ultimately supervenes is more severe, and comparable with that which occurs on the upper parts of the forearm. During rain-storms the wrists are soaked with a hypotonic solution and the lesion on each wrist is markedly aggravated. The lesion on the upper part of the forearm consists of a severe folliculitis with an acute inflammatory reaction round the central points of infection. The inflammatory areas coalesce, with the production of a swollen and intensely inflamed forearm. The centre of each inflamed area gradually sloughs and discharges after several days.

No other part of the body is affected and there is generally no constitutional disturbance. The lesions are staphylococcal in origin and no immunity is produced. The scars caused by these "salt-water boils" are as occupationally pathognomonic as the blue scars of the collier.

Although the condition is unquestionably occupational, compensation under the Workmen's Compensation Act is refused (at least in this port) on the grounds that: (1) there is no antecedent history of injury; (2) the lesions are "boils" and therefore outside the Act: the prefix "salt-water" is ignored, as is the significance of its widespread use throughout the British Isles; (3) the condition is not one of "sepsis." The most successful prophylactic I have used so far is acriflavine emulsion (*B.P.C.*). The emulsion is rubbed into the forearms before going on watch; the forearms are washed well with soap and water after coming off watch, and a little of the emulsion is again rubbed in. Many theoretical methods of prevention fail because they are too complicated for tired men to bother with, or are hopelessly impracticable under sea conditions. I would be grateful if practitioners in other fishing ports who see this condition would give me the benefit of their experience, particularly with regard to the questions of compensation and of prophylaxis.—I am, etc.,

Milford Haven, Oct. 17.

W. BURNETT EVANS.

The Treatment of G.P.I.

SIR.—In your annotation on the report on malarial therapy in the *Journal* of October 15 (p. 796) it is mentioned that of between five and seven hundred cases of general paralysis yearly since 1927 about 15 per cent. are said to have been discharged "cured." I presume by the word "cured" is meant a full remission, as the subsequent history of these cases cannot yet be fully ascertained. You also state that "the report does not concern itself with the mechanism of the therapeutic action or with any comparison with other methods of inducing pyrexia." Kraepelin's compilation of 3,079 cases treated with malaria showed a death rate of between 10 and 30 per cent. due to the malaria and a remission rate of about 20 per cent., while of Neymann's collection of 979 cases treated by electropyræxia 27 per cent. showed a full remission with a death rate as a result of the treatment of only 2 per cent.

Surely in view of the extreme seriousness of infecting patients with malaria who are already suffering from serious disease of the central nervous system an authoritative comparison with other methods of treatment is long overdue.—I am, etc.,

St. Mawes, Cornwall, Oct. 17.

B. H. SHAW, M.D.

"Giving up Smoking"

SIR.—The abandonment of tobacco is often indicated on medical grounds, but individual patients differ in their reaction to this deprivation. Some people find the sacrifice a trifling matter, and in most cases the sense of loss vanishes in a few weeks. There remains, however, a certain class to whom the surrender of their accustomed "normalizer" is a real and prolonged ordeal, and in these cases a medical man may be asked for some means of mitigating the distress entailed by the prohibition of tobacco.

In the course of my work on drug addiction I observed that persons who were undergoing the form of belladonna medication associated with my name often lost all desire for tobacco as treatment progressed. I had not intended to produce this result, for, when a dangerous drug has been given up, the minor indulgence of tobacco is beneficial rather than otherwise. Six months ago, however, a number of such patients were invited to co-operate in a simple experiment—namely, that of deliberately refusing the unwanted cigarette and only smoking when they really felt the need. When the mechanical part of the habit was thus diminished by a trifling exercise of will, the need for tobacco soon ceased. More recently several inveterate smokers who had failed to cure the habit for themselves underwent a simplified form of treatment with good results.

If any particular patient knows that the abrupt stoppage of tobacco will be a formidable undertaking, he will have to consider whether it is worth his while to set aside a week for adequate treatment. He will need to keep very quiet over this period, and for the last few days to be more or less confined to bed, for only when rest is fairly complete can a satisfactory result be expected. Minute doses of drugs of the belladonna group (for example, atropine grain 1/1,000 rising to 1/500, orally) are administered every two hours, in such a way that, while the heart-beat is appreciably retarded, no physiological symptoms are observed by the patient. Dryness of mouth and ocular symptoms signify that the dose is too large and must be reduced. On his part the patient must promise never to smoke unless he definitely feels the appetite for it, and must throw away the cigarette that he is not enjoying.

The process is simple, but if the doctor sees his patient once a day to be sure that vagal preponderance (as shown by a slowing of the heart-beat while at rest) is being constantly produced, he will find that tobacco becomes progressively less attractive and finally ceases to be desired. —I am, etc.,

London, W 1, Oct. 18.

G. LAUGHTON SCOTT.

Adult Scurvy

SIR.—I was interested in the paper by Dr. G. H. Jennings and Surgeon Lieutenant A. J. Glazebrook on this subject in the *Journal* of October 15 (p. 784). For every case showing a full clinical picture of the disease one must encounter many persons suffering from subclinical states of the same condition. Happily, a moment's inquiry into the patient's diet will indicate whether further investigation is worth while.

May I instance the case of a man of 29 whom I saw recently, complaining of petechial spots on the legs, blood blisters in the mouth, and a sore tongue. He had had two previous severe attacks of the same spots, diagnosed as "purpura," while serving in the Indian Army, during which period he had developed foul, bleeding, spongy gums, necessitating removal of all his teeth. At

that time he had taken no fruit for some months. Since residing in this country he had noticed two years ago one crop of petechiae on the shins which persisted for a few days. Apart from slight fatigue at the end of his day's round as postman, he had had no further symptoms until the onset of his present oral and skin haemorrhages. He did not care for fruit, and although he occasionally took a fresh vegetable salad with his meals he had, in fact, had no fruit for the past month. Examination revealed a healthy-looking man with petechiae on the legs only up to the line of the garters, though petechiae also appeared on the arms a day or two later. The liver and spleen were not palpable; the blood pressure was 140/82 mm. Hg. No abnormal physical signs were detected in the lungs or heart; the urine contained no blood.

The patient's garters had performed a ready-made capillary fragility test, and a modified Harris and Ray test showed a deficiency of just over 900 mg. of ascorbic acid. No further petechiae appeared after saturation with ascorbic acid, and with regulation of his diet the patient has since been well and has lost his fatigue.—I am, etc.,

Essex, Oct. 19.

R. N. C. SMITH.

SIR.—It is surprising to read that Dr. G. H. Jennings and Dr. A. J. Glazebrook find adult scurvy to be a rare condition. In this city at least it is quite often seen, and the diagnosis can readily be made on clinical grounds if the possibility of its occurrence is borne in mind. The following are brief accounts of the thirteen cases seen at this hospital during 1937:

Case 1.—Male, aged 73; single; admitted June 6, 1937. Haemarthrosis right knee, for one month; purpura right arm; gums normal, no teeth. Deficient diet, little fruit.

Case 2.—Male, aged 74; single; admitted June 21, 1937. Swelling of legs for three weeks; purpuric haemorrhages both thighs. Teeth loose and septic; soft gums. "Not eaten much for some time."

Case 3.—Male, aged 76; widower; admitted June 29, 1937. Three weeks' ecchymosis right ankle and left knee; soft bleeding gums. Eats no fruit and very little vegetable.

Case 4.—Male, aged 42; single; admitted July 3, 1937. "Pyorrhoea six months"; bleeding gums; foetor oris marked. Petechiae on legs, ecchymoses on both feet.

Case 5.—Male, aged 70; single; admitted July 5, 1937. Anorexia; spongy bleeding gums; purpuric eruptions on both feet.

Case 6.—Male, aged 64; married; admitted July 26, 1937. Large ecchymoses over whole of left leg for four weeks. Bleeding gums; complete anorexia; hypochromic anaemia.

Case 7.—Male, aged 62; single; admitted July 31, 1937. Ecchymosis both thighs and legs, also left arm; spongy gums. Does not eat any fruit.

Case 8.—Male, aged 51; married; admitted August 9, 1937. Ecchymosis of legs for one month; many petechiae; soft gums; does not eat any fruit or vegetables.

Case 9.—Male, aged 63; widower; admitted August 9, 1937. Purpuric haemorrhages both legs; dyspnoea; angina. Edentulous; gums normal.

Case 10.—Male, aged 77; widower; admitted August 9, 1937. Large ecchymosis of left leg for one month; bleeding gums. Cannot remember when he last ate fruit or vegetables.

Case 11.—Male, aged 56; separated from wife; admitted August 30, 1937. Large ecchymosis on right leg and foot for four months; bleeding gums; no fruit or vegetables for six months.

Case 12.—Male, aged 62; single; admitted October 13, 1937. Haemarthrosis of the knee for one week; many petechiae; ecchymoses both ankles. Edentulous; gums normal. Does not eat fruit.

Case 13.—Male, aged 60; widower; admitted October 17, 1937. Purpuric eruption and ecchymoses on both legs.

marked hypochromic anaemia. Edentulous; gums normal. "Unable to look after himself."

All these patients made complete recoveries on being given large amounts of orange juice, and extensive laboratory investigations were not considered necessary. The following points may be worth noting:

1. The patients are men past middle age who in most cases have no womenfolk to look after them.
2. A history of a vitamin-C-deficient diet can nearly always be obtained.
3. Haemorrhages in the legs, either ecchymoses, purpuric haemorrhages, petechiae, or haemarthroses, are a constant finding.
4. Bleeding, spongy gums are usual, but in the absence of teeth the gums are normal.
5. Anaemia, usually hypochromic, is common.
6. The condition rapidly clears up on giving orange, lemon, or tomato juice.

A further interesting point is that the great majority of patients first come to hospital in the spring and summer months. In 1936 eight cases were admitted: one in January, two each in June and July, and three in August. In 1937 there were three cases in June, four each in July and August, and two in October. So far this year we have had sixteen cases: one in February, one in March, three each in April and May, four in June, one in July, and three in August. Drs. Jennings and Glazebrook's cases first came to hospital in July and in August. The likely reason for this seasonal incidence is that the price of oranges in April and May is about double the average price during the rest of the year.

I have to thank Dr. H. H. MacWilliam, medical superintendent of the Walton Hospital, for permission to record these cases.

—I am, etc.,

Walton Hospital, Liverpool, Oct. 19.

A. MARTINEZ.

Sulphanilamide for Filarial Lymphangitis

SIR,—For the past few months I have been using sulphanilamide in cases of filarial lymphangitis due to the *Filaria bancrofti*. The treatment of this disease has always been very unsatisfactory, and in some tropical countries, such as Fiji, the condition is very prevalent and causes many tropical residents lifetime misery and ill-health, often with repulsive deformity.

A typical case was that of a man aged 51, an outdoor worker of regular habits. Since the age of 8 he had been the subject of attacks of filarial lymphangitis. The attacks lasted a week and often occurred every month—rarely was the interval between attacks as long as three months. Of late years his left leg had permanently increased in size (elephantiasis). In a typical attack he would be seized with chills and fever, with anorexia and sometimes vomiting. The left leg would become red, swollen, and very painful, and the lymphatic glands of the left groin would enlarge, becoming painful to the touch and requiring hot fomentations to relieve the pain. The lymphatics would become red and inflamed and visible from knee to groin. These attacks would last about a week.

On the other hand, a typical attack treated with sulphanilamide was as follows: on September 21 his temperature was 102° F., the left leg was red, and the patient suffered from chills and was confined to bed. At 6 p.m. he began taking prosectasine, 7½ grains every four hours. On September 22 at 8 a.m. the temperature was normal; the redness of the left leg had disappeared; there was no pain in the groin from adenitis; and he had a good appetite and was able to walk about. On September 23, after taking altogether eight tablets, he was quite well again.

This shows that sulphanilamide has a direct and rapid therapeutic action in the treatment of filarial lymphangitis, and further investigation should be made of its possibilities in this disease.—I am, etc.,

Fiji, Sept. 23.

A. E. BOTSFORD DENOVAN.

The Occipito-posterior Case

SIR,—At the present time there is much thought and discussion regarding the various means by which the standard of obstetrics, as commonly practised, may be raised. It is generally agreed that the education of the medical student is of prime importance in this respect.

With all due regard for the experience of Dr. David Price (*Journal*, September 17, p. 638), I feel that his views are hardly suitable as advice to the student or young practitioner. When using forceps he violates two cardinal principles in that he does not wait for full dilatation of the cervix, nor does he first make an accurate diagnosis of the position of the foetal head.

As resident in various maternity hospitals I have seen several cases sent in as "failed forceps." In five of these the failure was due entirely to disregard of the above rules, not to any other obstetric abnormality. From these cases and others I have gained the impression that many practitioners will attempt any forceps delivery without hesitation, whereas, when confronted with other abnormalities, they realize their limitations and arrange for consultation or removal of the patient to hospital. I would put forth a plea, therefore, for more intensive education of the undergraduate student in the proper understanding and use of the obstetric forceps.—I am, etc.,

St. Michael's Hospital, Toronto,
Canada, Oct. 10.

B. E. MEEK.

Identical Cancers in Identical Twins

SIR,—Your annotation on this subject (October 8, p. 753) contains a statement which should be contradicted. Surely it is untrue to say that "usually, if a cancer develops in one of a pair of identical twins, the other twin has a cancer of the same type in the corresponding organ, either at the same time or soon afterwards." The exact percentage of cases in which concordant cancers develop will be known, at any rate for Germany, when the data now being submitted to the Kaiser Wilhelm Institute for Anthropology in Berlin are finally analysed. In the meantime Versluys (1934) and Weitz (1936) have adduced evidence that concordant cancer in identical twins is exceptional. Error arises because, as German workers have repeatedly pointed out, twin statistics compiled from random cases in the literature are worthless. Luxenburger (1932), for instance, collecting twins with schizophrenia from the literature, found 82 per cent. concordant. Submitting a questionnaire to the superintendents of various mental hospitals, he found 56 per cent. concordant; but when he took the trouble to compile a personal series, finding out from the registries which schizophrenic patients were twins, the percentage of concordance dropped to less than 20.

The likelihood of an identical twin developing cancer when the other member of the pair already has it is quite a practical problem, because several hundred such cases occur every year; they are often distressing, and the practitioner responsible needs guidance. But the theoretical side of the question is even more interesting. Roughly, there are three different types of reaction between heredity and environment. In the first group come diseases like haemophilia, which are more or less independent of the

environment: it is characteristic of these cases that they are uncommon, that identical twins always agree provided they live long enough, and that there is, theoretically, a simple mathematical relation between the proportion of non-identical twins which develop the disease concordantly and the proportion which do not. In the second group come diseases, such as disseminated sclerosis, where heredity is completely unimportant and identical twins show no tendency to concordance at all (Thums, 1936). The third group lies midway between these extremes, and includes the majority of common diseases. In this group heredity and environment are both important, the explanation being that if a disease is due to a single predominatingly important environmental factor such as vitamin D shortage or a badly balanced mineral content of the diet, different individuals will vary in their sensitiveness to the harmful factor, and, providing that the deficiency acts fairly evenly on a population, hereditary variations in sensitiveness will determine which individuals are affected and which escape.

Twin material and certain family pedigrees and animal breeding experiments leave little doubt that some cases of cancer fall into the first group of "inevitable" disease. But if allowance is made for the existence of these cancers there is little evidence that heredity plays much part in the general incidence of cancer. That is a depressing conclusion to reach, because if cancer were due to a few simple carcinogenic factors in our environment we should presumably, like the laboratory mouse (Bonser, 1938, and others), show hereditary variations in susceptibility, and heredity would then be as important in cancer as it is in rickets (Lehmann, 1934). In other words, cancer is theoretically an unpromising problem in preventive medicine.—I am, etc.,

Oxford, Oct. 18.

DENYS JENNINGS.

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Sarcoidosis of Boeck

SIR.—It is to be hoped that Dr. R. Bodley Scott's article on the sarcoidosis of Boeck (*Journal*, October 15, p. 777) will succeed in making more widely known a systemic disease first described many years ago by dermatologists (Besnier, Tenneson, Boeck). Besnier (1889) believed it to be caused by the tubercle bacillus, his patient showing "*le plus remarquable exemple de synovite fongueuse symétrique que l'on puisse observer*." Boeck suggested in his first paper (1899) that "perhaps, later on, they may be found to represent benign forms of so-called pseudo-leukaemic affections of the skin." It was, however, only in 1915 that the first comprehensive report appeared other than in the dermatological literature. It was written jointly by a dermatologist and a physician on seven cases showing the typical lesions in skin, lungs, and partly also in spleen, kidney, and mucous membranes (Kuznitsky and Bitorf). Although in the following years Jüdling's papers (1920, 1928) did much to make the osseous lesions familiar to radiologists and (from 1920 onwards) several cases were reported in ophthalmological journals, it still remains true that "the disease is not even mentioned in the textbooks of internal medicine" (Salvesen, 1935). Schaumann's important contributions (since 1914) also had long remained unnoticed except by dermatologists, and it is only recently that in

more generally accessible journals authoritative articles have been published in which more attention is given to the natural history of the disease and the involvement of internal organs than to its puzzling aetiology (Denmark: Kissmeyer, 1932. Austria: Bergel and Scharf, 1933. France: Pautrier, 1935; Rist, 1937. Sweden: Salvesen, 1935. United States: Longcope and Pierson, 1937. Switzerland: Loeffler, 1937. Holland: Snapper and Pompen, 1938. This list includes only monographs and the first of the more important papers published in these countries).

It is not difficult to add from the recent literature to the case mentioned by Dr. Scott other cases reported as of chronic miliary tuberculosis or tuberculous splenomegaly in which the diagnosis of sarcoidosis would appear to be more probable. In their excellent monograph on chronic miliary tuberculosis Hoyle and Vaizey (1937) have presented a number of cases of sarcoidosis as examples of chronic miliary tuberculosis, although they expressly discuss sarcoidosis in the chapter on differential diagnosis. The tendency to include such cases into the entity of chronic miliary tuberculosis seems to be traceable to the influence of four publications which dealt most exhaustively with the pathology of the condition from a morphological point of view but which seem to have somewhat obscured the actual clinical picture (v. Hansemann, 1915; v. Gebattel, 1920; Askanazy, 1921; Mylius and Schürmann, 1929-30).

A correct diagnosis is of importance with regard to both prognosis and treatment. Some of those cases which later developed pulmonary tuberculosis may have become infected while being treated for the lesions of sarcoidosis in a sanatorium. I myself know of a patient who died from splenectomy; a fuller appreciation of the significance of the symptoms—generalized glandular enlargement (biopsy: numerous tuberculous cell systems); splenomegaly, and partial facial paresis of some years' standing—could have avoided this issue. Another case with splenomegaly as leading symptom has been reported by Dressler (1938), which has the additional interest that the diagnosis was established by sternal puncture; the patient had refused to permit dissection of a lymph gland or puncture of the spleen.

In recent radiological literature a number of cases of atypical tuberculous bone lesions have been reported in which the diagnosis of sarcoidosis or of osteitis tuberculosa multiplex cystoides has been erroneously made (Van Alstyne and Gowen, 1933; Vastine and Bacon, 1935; Connolly, 1938; Thornton, 1938). It seems no longer justified to retain for one of the signs of sarcoidosis a term which is most probably misleading with regard to the aetiology. While some of these cases would seem to belong to the syndrome of "tuberculous cysts and abscesses of epiphyseal lines," described by Kienbock (1930), a recent paper by Buttlinger (1938) gives a good example of unusual "cystoid" bone tuberculosis, which the author properly refrains from classifying under one of the known syndromes.

It would appear that the question of the cause of sarcoidosis will have to be adjourned at least until more (positive or negative) facts are known regarding ultra-microscopical or other forms of the tubercle bacillus. Twenty years ago the finding of Much's granules in sarcoid lesions was reported by several authors, but nobody seems now to attach any significance to these granules. The various findings and hypotheses offered by some authorities as proof of a tuberculous aetiology have recently been presented again by Pinner (1938). No new facts are added by this author, and he does not mention

the many objections brought forward against these hypotheses. Danbolt and Brandt (1938) have described a case of sarcoid-like cutaneous tuberculosis caused by the avian tubercle bacillus, but they do not regard this case as one of the sarcoidosis of Boeck, "as this disease is in our opinion scarcely ever caused by tuberculosis." That "there is no convincing evidence that sarcoidosis is a manifestation of tuberculosis" (Scott, 1938) seems to be the only possible critical attitude to-day.—I am, etc.,

London, S.W.2, Oct. 22.

—HERBERT LEVY.

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Ether Convulsions

SIR,—It appears to me that both carbon dioxide lack and carbon dioxide excess may play their part in the causation of "ether convulsions." It is, of course, true, as Dr. Nosworthy has heroically demonstrated, that gross excess of carbon dioxide in the inspired air will eventually produce convulsions. On the other hand, there is considerable clinical evidence to support the carbon-dioxide-lack hypothesis; for example:

1. Many cases of "ether convulsions" were reported during pure insufflation endotracheal anaesthesia without rebreathing, under which conditions the alveolar carbon dioxide concentration is abnormally low.
2. "Ether convulsions" have many times been stopped by the addition of carbon dioxide to the inspired air.
3. Examination of the urine first passed after an attack has shown a high alkalinity, so that the patient was presumably suffering from alkalosis.

There is no doubt that the subject is a most complex one, and that in the present state of our knowledge we are not competent to explain the mechanism of the causation of this interesting condition.—I am, etc.,

London, N.W.8, Oct. 21.

C. LANGTON HEWER.

Adrenaline Treatment of Asthma

SIR,—May I stress two rather unpleasant sequelae of the treatment of asthmatic attacks by adrenaline. First, the employment of adrenaline during a cold in the head, with the patient up and about, is not seldom followed

by a very rapid spread of infection to the lower bronchial tract. As attacks of asthma are often more persistent during such infections a larger dosage may be resorted to just at these times. Secondly, in cases in which the dose has been gradually increased up to, say, $\frac{1}{2}$ c.cm. every two or three hours the condition may pass into one of continuous dyspnoea and cyanosis, which is unrelieved by adrenaline alone.

It would be interesting to discover the exact cause of this condition and also the frequency of its occurrence in private practice. Can adrenaline in a toxic dosage produce active pulmonary congestion? Are the symptoms those of early cardiac failure due to repeated overstimulation? Finally, are there patients with whom adrenaline is a true drug of addiction, in the sense of antibody production, and in whom the "anti-hormone" is the real toxic factor?—I am, etc.,

Queen Mary's Hospital, Carshalton,
Surrey, Oct. 22.

JOAH BATES.

Medical Re-education

SIR,—In your recent Educational Number (September 3) there was a constructive article of remarkable frankness and clear analysis by Sir Walter Langdon-Brown. His information regarding the proceedings of two committees on the medical curriculum was both illuminating and suggestive—illuminating the cause of the relative confusion of opinion regarding the curriculum and suggestive of the beginning of an answer. It seemed as if human wisdom had failed, to devise a scheme to which all would subscribe for the training of the men who are to be stewards of the nation's health. The survival value of the Empire itself depends on the integrity of its health, if the word is given its most universal connotation.

In our approach to the subject we need a more fundamental conception of the nature of the problems. Sir Walter's article begins with the student at his entry into the medical school. But already the student (I speak from my own fairly recent experience) has many unsolved personal problems. Now the curriculum makes no provision for dealing with these, and he may finish his course no better equipped in this respect than he was at his entry. In point of fact he has generally added other unsolved problems to his psychological make-up. This is unsatisfactory, for we know that in practice we see patients every day whose illness is influenced, or even caused by, those same fears (as Sir Walter noted), family problems, and other emotional compromises to which the practitioner himself is exposed and for which he may have no answer. An example. Every psychologist of the eclectic school at least, and most general practitioners, will agree that the deepest and commonest problem is security, which gives rise to fear when it is threatened. It may be economic or affectional security that is threatened. He is afraid lest he will not have enough, or because someone does (or did) not love him enough. The security problem is common in our profession. We all know what it means. We have often put our security in our reputation—our reputation in the eyes of the very people who come to us for help. But we cannot release them if we are not free ourselves.

Another problem was quoted by Sir Walter Langdon-Brown, and more recently in another reference by Lord Dawson of Penn in his address at the opening of the new medical school at Aberdeen University. He described how, taking the country as a whole, there had been a gradual growth of medical services and hospitals which,

however individually excellent, had become a medley of separate efforts. This same lack of unity, arising from insistence on a point of view, was expressed in Sir Walter's committees, where everyone agreed on the necessity for pruning the curriculum—at the expense of the other fellow's subject!

The answer seems to consist in attaining a new level of thinking and acting by a change in human nature itself. This is the forgotten factor in medical education. The physician must be healed himself. Or his teachers must see that the medical student is equipped in this respect before he is entrusted with the care of people who are similarly sick. The magnitude of the task is great, involving as it does every member of the profession and every student. But the effort would usher in the next great advance in therapy and research. It would enhance the value of the medical service to the community.

The expression "moral rearmament" has recently been the subject of Press articles and correspondence in the *Times*. It seems to me that this approach to the subject of medical education is part of the moral rearmament that our profession needs, and by which an immense contribution can be given to bringing about a settled state of the world.—I am, etc.,

D. B. WATSON, M.B.,
Ch.B., D.P.M.

London, N.11, Oct. 15.

Prognosis of Anxiety States

SIR.—In the interesting article in the *Journal* of September 24 (p. 649) Dr. Arthur Harris quotes Jones as having established the connexion between the anxiety state and sympathetic activity.

I would like to draw attention to an earlier paper by Dr. Walter Misch (*J. ment. Sci.*, April, 1935, 81, 389), in which he describes a series of fifty cases of anxiety state treated with acetylcholine.—I am, etc.,

A. M. B. WALKER, M.R.C.S., L.R.C.P.

London, W.C.1, Oct. 13.

The Services

NAVAL COMPASSIONATE FUND

At the quarterly meeting of the directors of the Naval Medical Compassionate Fund, held on October 14, Surgeon Vice-Admiral P. T. Nicholls, C.B., K.H.P., Medical Director-General of the Navy, in the chair, the sum of £164 was distributed among the several applicants.

DEATHS IN THE SERVICES

Lieutenant-Colonel ARTHUR ROWLAND GREENWOOD, R.A.M.C. (ret.), died at Bexhill-on-Sea on October 11, aged 64. He was born on January 19, 1874, was educated at Middlesex Hospital, and, after taking the M.R.C.S.Eng. and L.R.C.P. Lond. in 1897, entered the Royal Army Medical Corps as lieutenant on June 21, 1900. He became lieutenant-colonel on January 26, 1917, and retired on June 26, 1924. He served in the war of 1914-18, and was mentioned in dispatches in the *London Gazette* of February 17, 1915. He had been a member of the British Medical Association for twenty-one years.

Captain JOHN JOSEPH CLERIC RAINSBURY, R.A.M.C., died on August 13. He was educated at Sheffield University, where he graduated M.B., Ch.B. in 1932. After filling the posts of house-surgeon at the Jessop Hospital for Women and of house-surgeon and ophthalmic house-surgeon at Sheffield Royal Hospital he entered the Royal Army Medical Corps on January 1, 1935, and had recently been placed on temporary half-pay on account of ill-health.

Obituary

L. S. DUDGEON, C.M.G., C.B.E., F.R.C.P.

Professor of Pathology, University of London; Director of Pathology and Bacteriology, St. Thomas's Hospital

St. Thomas's Hospital, the Medical School, and the whole cause of medical education have sustained a crushing blow in the death on October 22, after a few days' illness, of Leonard Stanley Dudgeon; he himself would have scorned the suggestion that anyone was irreplaceable, but in this period of transition which vitally affects the voluntary hospital system and the changing shape of medical education the loss is irreparable.

Dudgeon joined St. Thomas's in 1894; in 1899-1900 he was assistant house-physician and house-physician; he obtained the Membership of the Royal College of Physicians in 1901 and was elected Fellow in 1908. Soon after qualification he became associated with Louis Jenner and was greatly influenced by Professor Shattock—association and influence which led him to become one of the early workers in bacteriology and pathology as specialized subjects. All through his career he set for himself an exceptionally high standard: he quoted Professor Shattock as one who served pathology well in preventing acceptance as fact of work which was non-proven; Dudgeon did not publish the results of his research work until, in his own mind, he was satisfied that his findings were sound and founded on fact. An astoundingly accurate memory was one of his great assets; his opinion and reasoned advice on any subject connected with the hospital were ever at the disposal of his colleagues; his sound judgment made him an invaluable committeeman.



As Dean of the Medical School Dudgeon attended to every detail, and held the full confidence of the staff and lay body. During his deanship the Anatomy Department has been rebuilt; the Library, the Department of Chemistry, and the Sherrington School of Physiology have been largely transformed; and thanks to the generosity of his friends, Mr. Michael and Sir Sidney Herbert, an Institute of Research has been built on the roof of the Medical School. He was an excellent teacher: he enjoyed teaching, and instilled his own enthusiasm into those he taught. A good tactician, he was an exponent of "letting the other fellow talk"; he had the gift of so organizing his time that he found—made—time for everything, and was a supreme example of a favourite adage, "It is only the busy man who has time for everything." Whatever other calls were made upon him, he invariably placed first his engagements in the hospital and medical school, and however inconvenient the time or distance he was always at the disposal of his colleagues and friends who needed his help, personal or professional. His academic distinctions included the Croonian, Horace Dobell, and Erasmus Wilson Lectureships, but his bent was more practical than academic.

In 1903 Dudgeon was appointed Superintendent of the Clinical Laboratory of St. Thomas's Hospital; in 1905

Director of Pathological Laboratories and Bacteriologist; in 1927 Curator of the Shattock Museum. He held a University of London Professorship in Pathology. In 1915 he put aside his appointments and practice and served with great distinction as Colonel A.M.S. Consulting Bacteriologist in Salonika and the Eastern Mediterranean. He was mentioned in dispatches three times, and was awarded the C.M.G. and C.B.E. At the Special Clinical and Scientific Meeting held by the British Medical Association in April, 1919, to discuss problems arising out of the war, he read the opening paper on "The Dysenteries: Bacillary and Amoebic." In 1928 he succeeded Sir Cuthbert Wallace as Dean of the Medical School of St. Thomas's, and for the last ten years played a most important part in the organization and administration of the Voluntary Hospitals Committee: he was chairman of the Deans Committee, a member of the Senate of the University of London, and was a leading figure in early teaching co-operation between the medical schools and the L.C.C. hospitals, rendering great service during the stage of re-adjustment through which the voluntary hospitals and medical schools are passing.

Dudgeon not only studied under Shattock, he studied Shattock, and, as part of the pathologist's outfit, assumed the somewhat brusque mannerisms of the shy, lonely man who was Shattock. Brusqueness was no natural characteristic of Dudgeon; he was a man brimful of humanity and innate kindness, though such a description of himself would have annoyed him intensely. He suffered not gladly those whom he regarded as fools, but he had high ideals of justice, and some of his kindest actions, known only to those who were in his confidence, benefited people whom he had little cause to like but for whom he was sorry. A devoted family man, he had great zest in life; he enjoyed dining out, the company of his fellow-men; and he took a lively interest in outdoor games. He was a contented golfer, a former captain of Beaconsfield Golf Club, and he seldom missed a big match at Twickenham or notable athletic meetings. He was the staunchest of friends to those whom he regarded as friends: he had extraordinarily high ideals in his devotion to his work and whatever he took in hand: he holds high place indeed among those who, during the eight hundred years of the hospital's history, have given the best of their lives to St. Thomas's.

R. J. C. T.

By the death on August 29 last, at the age of 89, of CHARLES WALTER EVANS, at his residence, Matlock House, Bakewell, Derbyshire loses its oldest medical practitioner and the profession another of the old school of respected family physicians. A full obituary notice appeared in the *High Peak News* of September 3, 1938, which set out his local interests and activities over many years. He was born on January 19, 1849, at Winstar, and was the eldest son of Charles Evans, F.R.C.S.Eng., who practised there, the family being a very old Derbyshire family, and also connected with Florence Nightingale. At the age of 3 he went to Bakewell with his father, who had purchased a practice there. He was educated at Derby Grammar School, where he obtained a first class in the London matriculation examination, afterwards studying at University College, London, where he obtained his L.S.A. and M.R.C.S.Eng. in 1876 and M.B.Lond. in 1878. He was apprenticed to Dr. Lomas of Belper before qualification, as was the old custom. Subsequently he held the appointments of house-surgeon to the South London Eye Hospital, the Shrewsbury Eye, Ear, and Throat Hospital, the Warneford Hospital, Leamington, and Gloucester Infirmary. He was assistant medical officer to the Kent County Lunatic Asylum and Three Counties Asylum, Bedfordshire. For a time he was acting medical officer, North-West District

of Chelsea and No. 5 District of London. He was also acting medical officer and public vaccinator, Martley Union, Upton-on-Severn, Worcestershire, and visiting surgeon to the Hospital for Sick Children, Cheltenham. Dr. Evans finally settled down at Bakewell in 1886 on the death of his father, and succeeded him as medical officer of the Bakewell Union Infirmary, a post he held for forty-two years, retiring in 1928, when his son was appointed. He was M.O.H. to the Bakewell Urban District Council for over forty years, held the posts of certifying factory surgeon and school medical officer, and was physician to the Bakewell Dispensary for a long time. He was interested in the foundation of the Bakewell War Memorial Cottage Hospital, and was on the original committee. He had been a member of the Derbyshire Panel Committee for many years, and joined the British Medical Association as long ago as 1877. He had been in failing health during his latter years. He married in 1896 Cornelia Florence Handley Lawton of Manchester, who predeceased him, and is survived by his three sons and two daughters.

We regret to announce the death on September 28 of Dr. ERNEST BONNEY of Kensington, third son of the late Dr. W. A. Bonney of Chelsea. Dr. Bonney was born in 1875, and received his medical education at Charing Cross Hospital. He did brilliantly in the school, taking a number of prizes, and he subsequently held the posts of house-surgeon and house-physician. After a period as house-physician at the Victoria Hospital for Children, Dr. Bonney was appointed resident medical officer at the Kensington Children's Hospital, a post he retained for a number of years, during which time he acquired a considerable knowledge of children's diseases. He became so popular in the neighbourhood that when he retired to take up general practice a public presentation was made to him. Dr. Bonney possessed great ability and was extremely conscientious in his work, never sparing himself in his efforts to do the best for his patients; indeed, he may be said to have worn himself out in their service. He was a man of very varied activities and knowledge, exceedingly well read, especially in matters relating to history, art, and music, and a good singer, a gift which he inherited from his father. He was young both in body and spirit, and the profession is the poorer for his passing. He leaves behind him a widow and a son and a daughter, the former of whom is following his father's steps in the medical profession.

Mr. FRANCIS CHARLES ABBOTT, who died in London on October 6, had lived for some years at The Hermitage, Bletchingley, Surrey. He was born in 1867 the second son of the Rev. R. A. Abbott, and after schooldays at Bruce Castle entered St. Thomas's Hospital, where he won the Cheselden medal and treasurer's gold medal and a university exhibition and gold medal in anatomy and organic chemistry. After taking the M.R.C.S. and L.R.C.P. diplomas in 1888 he graduated M.B.Lond., with gold medal in obstetric medicine, and B.S. in 1890; and at the M.S. examination three years later he qualified for gold medal, having already become F.R.C.S.Eng. He was appointed assistant surgeon, aural surgeon, and lecturer on practical and operative surgery at St. Thomas's, and surgeon to the Evelina Hospital for Sick Children. During the Greco-Turkish War of 1897 Mr. Abbott served as chief medical officer to the National Fund for the Greek wounded, and received a decoration. For his war work in 1914-18, as surgeon-in-charge of Red Gables Hospital, he was awarded the C.B.E. He had been vice-president of the Chelsea Clinical Society and belonged to the British Medical Association for fifty years.

Dr. JOHN WILFRED BIRD, D.S.O., who died at Egham, Surrey, on October 17, aged 66, was a student at Guy's Hospital and qualified M.R.C.S., L.R.C.P. in 1896. After serving as house-surgeon at the Hull Royal Infirmary and clinical assistant at the Royal London Ophthalmic Hospital and the Central London Ophthalmic Hospital, he entered

the Royal Navy, retiring at the end of eight years. He then took up general practice, and became medical officer to the Egham Cottage Hospital and the Windsor Union Infirmary, and police surgeon for the Egham Division. In 1914 he volunteered for foreign service, and held the posts of officer commanding the 2/6 London Field Ambulance and 71st General Hospital, with the rank of lieutenant-colonel R.A.M.C.T. He was mentioned, in dispatches for his services in France, Macedonia, Egypt, and Palestine, and received the D.S.O. After the war Dr. Bird was a member of the Egham Urban District Council for eleven years and chairman for three. He had been a member of the Guildford Division of the British Medical Association since 1921.

The death has occurred at the French army hospital, Val-de-Grâce, after a short illness, of Surgeon General MAURICE CARAYON at the age of 57. His administrative gifts secured his rapid promotion during the great war, when he was attached to headquarters. In March, 1936, he was appointed surgeon general, and since then he had been in charge of the army medical service in the Amiens area.

Professor O. CROUZON, who died recently, was born in Paris in 1874, and was the first to be appointed to the new chair of medico-social aid at the University of Paris. He did much to raise the standard of nursing in France, and contributed important studies on neurological and psychiatric subjects.

EPIDEMIOLOGICAL NOTES*

Acute Poliomyelitis

Rather unexpectedly the incidence of acute poliomyelitis has risen in England and Wales in the course of the last two weeks. Being a disease of hot climates, and in all countries most common during the hot months, a reduction in the incidence was confidently expected to accompany the fall of air temperature observed at the approach of winter. Of the 77 (65) cases notified in England and Wales, 12 (2) were in Oxfordshire, 11 (9) in Essex, and 7 (1) in Leicestershire. Last week the three counties chiefly affected were Essex, Carmarthen, and Lancashire. Other areas affected to a less degree were: Sussex East, 6 (3), 4 each in Carmarthen (6), Glamorgan (2), and London (6)—Fulham, Hackney, Shoreditch, Camberwell—and 3 each in Chester (2), Gloucestershire (0), Lincoln (2), Southampton (2). More than one case was reported from the following centres: Oxford 11, Leicester 7, Harwich 7, Cuckfield 6, 3 each in Stamford and Tendring, 3 each in Chester, Bristol, Middlesbrough, Cardiff, Llanelly Rural, Between July 17 and October 8, when the seasonal increase was first noticed, 806 cases were recorded for England and Wales: of these 135 cases occurred in Essex, 60 in London, 64 in Yorkshire, 54 in Lincoln, 48 in Sussex, and 34 at Swansea. Of the 6 cases notified in Scotland, 2 were in Dunfermline, 1 each in Glasgow, Inverness Borough, Inverness County, and Kirkcaldy.

In Germany during the week ended October 1, cases declined from 375 to 337—the chief centres affected were the following. Cologne district 28 (44), Bavaria 54, Wiesbaden 26, Dusseldorf 21, Württemberg 54, Saxony 27, Hessen 19, Austria 26. In Holland 32 (44) cases were reported during the week ended October 8, 12 (18) of which occurred in the Province of South Holland.

Enteric Fever

During the week under review there was an increase in the incidence of enteric fever in England and Wales—32 (24) in which London shared—11 (5). Two-thirds of the cases occurred in the counties of Lancashire and London. In Lancashire there were 10 (2) cases, distributed thus: Eccles 4 and 1 each in Crosby, Manchester, Bolton, Urmston,

Wardle, and Ashton-in-Makerfield: in London the 11 cases were in Kensington 3, Woolwich 3, Westminster 2, and Hammersmith, St. Pancras, and Stepney 1 each: last week the 5 cases occurred in Fulham, Kensington, Paddington, Wandsworth, and St. Marylebone.

Primary and Influenzal Pneumonia

A further increase in the notifications of primary and influenzal pneumonia was recorded in England and Wales during the week under review—483, compared with 453 in the previous week—but in London there was a decrease—38 (47). The counties with the greatest increases were: Derby 17 (12), Durham 26 (19), Lancashire 92 (70), Middlesex 18 (11), Warwickshire 38 (35). The number of deaths fell considerably in the 126 Great Towns of England and Wales (from 22 to 12), while in London they remained at 2.

Diphtheria and Scarlet Fever

There was a rise in the notifications of diphtheria in England and Wales and in London during the week under review—1,288 (1,166) and 138 (125) respectively. The centres chiefly affected were: Plymouth 15 (10), South Shields 28 (18), Easington 27 (17), Liverpool 65 (16), Manchester 32 (17), Battersea 9 (1), Fulham 8 (1), St. Pancras 9 (6), Tottenham 7 (2), Uxbridge 8 (0), Croydon 12 (7), Bradford 13 (5), Doncaster 10 (2), Leeds 28 (19), Sheffield 30 (14), Swansea 8 (4). In Scotland, also, an increase was recorded: Glasgow 72 (71), West Lothian 15 (8), Edinburgh 12 (19), Aberdeen 13 (9), Lanark County 10 (10). Of the 27 deaths in the 126 Great Towns of England and Wales 3 occurred in Leeds, and 2 each in Harrow, Liverpool, Birmingham. There were 5 (4) deaths from diphtheria in the 16 principal towns of Scotland during the week—2 each in Glasgow and Ayr and 1 in Paisley.

Notifications of scarlet fever in England and Wales and in London rose during the week under review—1,942 (1,734) and 186 (180) respectively; the centres in which the chief increases were recorded are: Stockport 11 (4), Plymouth 11 (2), East Ham 10 (5), Bristol 29 (23), Bexley 6 (0), Liverpool 42 (35), Battersea 10 (5), Bethnal Green 12 (12), Poplar 12 (5), Ealing 8 (4), Newcastle 21 (13), Wolverhampton 16 (4), Merton and Morden 10 (1), Birmingham 48 (31), Middlesbrough 19 (7), Swansea 11 (2). There was one death (in Carlisle) from scarlet fever in the 126 Great Towns during the week. In Scotland the notifications fell from 389 to 355 during the week under review: 1 death—in Paisley—was reported from the 16 principal towns.

Measles and Whooping-cough

There were no deaths from measles in the 126 Great Towns of England and Wales during the week. Of the 26 (24) cases of measles notified in the administrative county of London the chief were in Hackney 4, Wandsworth and Greenwich 3 each, Kensington, Fulham, St. Pancras, Bethnal Green, and Lambeth 2 each. In Scotland the notifications fell from 17 to 8 during the week under review, with no deaths. Of the 3 deaths from whooping-cough in the 126 Great Towns, 1 each occurred in Bradford, Birmingham, and Ipswich. In London 70 (43) cases were notified, distributed mainly as follows: Islington 10, Stepney 9, Lambeth 6, Poplar 5, Camberwell, Deptford, and Battersea 4 each. In Scotland there was a drop in the notifications from 109 to 91 in the week under review; no deaths were recorded.

Cholera: Plague

During the week ended October 15 there were 361 (280) cases of cholera and 161 (135) deaths in the United Provinces of India and 1,455 (1,670) cases and 702 (743) deaths in the Central Provinces; in Bombay Presidency 381 (267) cases were reported and 161 (95) deaths. In China during the same week there were 82 (95) cases and 24 (33) deaths in Shanghai, and 16 (9) cases and 7 (6) deaths in Hong Kong.

In India during the week under review there were 144 (141) cases of plague and 18 (4) deaths reported in the Central Provinces, 33 (37) cases and 26 (31) deaths in Burma, 30 (12) cases and 12 (12) deaths in Madras Presidency, and 13 (11) cases and 4 (8) deaths in Bombay Presidency.

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 15, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 18 | 4 | 2 | — | — | 14 | 1 | 5 | 1 | — | | |
| Deaths | | 2 | 1 | | | | — | — | | | | |
| Diphtheria | 1,288 | 138 | 222 | 51 | 35 | 1,566 | 199 | 280 | 61 | 40 | 1,290 | 229 |
| Deaths | 27 | 5 | 5 | 2 | — | 29 | 3 | 3 | 4 | 1 | | |
| Dysentery | 49 | 13 | 14 | — | — | 37 | 17 | 25 | — | — | | |
| Deaths | | | | | | | | | | | | |
| Encephalitis lethargica, acute | 4 | — | 1 | — | — | 3 | — | — | — | — | | |
| Deaths | | — | | | | | 1 | | | | | |
| Enteric (typhoid and paratyphoid) fever | 32 | 11 | 3 | 15 | 3 | 31 | 1 | 12 | 6 | 1 | 46 | |
| Deaths | 3 | 1 | 1 | — | — | 2 | 1 | — | 1 | — | | |
| Erysipelas | | | 63 | 8 | 3 | | | 84 | 3 | 7 | | |
| Deaths | | 1 | | | | | — | | | | | |
| Infective enteritis or diarrhoea under 2 years | 54 | 14 | 18 | 11 | 1 | 51 | 12 | 20 | 10 | 5 | | |
| Deaths | | | | | | | | | | | | |
| Measles | | 26 | 8 | — | 1 | | | 88 | — | 6 | | |
| Deaths | — | — | — | — | — | 4 | — | — | — | — | | |
| Ophthalmia neonatorum | 96 | 15 | 32 | — | — | 100 | 10 | 27 | — | — | | |
| Deaths | | | | | | | | | | | | |
| Pneumonia, influenza † | 483 | 38 | 3 | 1 | 7 | 747 | 79 | 7 | — | 2 | 661 | 66 |
| Deaths (from Influenza) | 12 | 2 | 1 | — | 1 | 21 | 5 | 4 | 2 | 1 | | |
| Pneumonia, primary | | | 161 | 5 | — | | | 223 | 10 | — | | |
| Deaths | | 9 | 10 | 6 | — | | 24 | 12 | 14 | — | | |
| Polio-encephalitis, acute | 8 | 1 | — | — | — | 3 | — | — | — | — | | |
| Deaths | | — | | | | | — | | | | | |
| Poliomyelitis, acute | 77 | 4 | 6 | — | — | 32 | 7 | 1 | 1 | — | | |
| Deaths | | 1 | | | | | 1 | | | | | |
| Puerperal fever | 5* | 5 | 11 | 1 | — | 1 | 1 | 12 | 4 | — | | |
| Deaths | — | — | | | | — | — | | | | | |
| Puerperal pyrexia | 156 | 10 | 16 | — | — | 169 | 12 | 35 | — | 3 | | |
| Deaths | | | | | | | | | | | | |
| Relapsing fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Scarlet fever | 1,942 | 186 | 355 | 68 | 80 | 2,474 | 161 | 554 | 106 | 91 | 2,475 | 342 |
| Deaths | 1 | — | 1 | — | — | 3 | — | — | — | 1 | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Whooping-cough | — | 70 | 91 | — | 13† | — | 36 | — | — | 5 | | |
| Deaths | 3 | — | — | — | — | 5 | 2 | 1 | — | 1 | | |
| Deaths (0-1 year) | 282 | 43 | 66 | 32 | 10 | 304 | 47 | 76 | 34 | 20 | | |
| Infant mortality rate (per 1,000 live births) | 47 | 35 | | | | 51 | 39 | | | | | |
| Deaths (excluding stillbirths) | 4,196 | 745 | 623 | 172 | 119 | 4,024 | 771 | 612 | 178 | 144 | | |
| Annual death rate (per 1,000 persons living) | 10.3 | 9.5 | 12.7 | 11.6 | 10.5 | 9.9 | 9.7 | 12.5 | 12.1 | 12.8 | | |
| Live births | 6,460 | 1,237 | 892 | 357 | 247 | 6,337 | 1,199 | 865 | 456 | 233 | | |
| Annual rate per 1,000 persons living | 15.9 | 15.8 | 18.2 | 24.2 | 21.9 | 15.7 | 15.1 | 17.7 | 31.1 | 20.7 | | |
| Stillbirths | 286 | 48 | — | — | — | 245 | 49 | — | — | — | | |
| Rate per 1,000 total births (including stillborn) | 42 | 37 | | | | 37 | 39 | | | | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.
† All in Belfast.

‡ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Universities and Colleges

UNIVERSITY OF OXFORD

The Board of Management has elected C. W. M. Whitty, B.M. (Brasenose College), to the Theodore Williams Scholarship in Pathology, 1938.

In Congregation on October 18 the degree of M.A. was conferred by decree upon Edward Stephens Duthie, M.B., M.Sc., Ph.D. (Dub.), May Reader in Medicine and university demonstrator and lecturer in pathology.

UNIVERSITY OF CAMBRIDGE

The Council of the Senate has appointed Professor E. D. Adrian, M.D., F.R.S., a governor of the Darwin Trust until July 30, 1942.

A series of lectures on problems related to the biology and chemistry of food preservation will be given at the Low Temperature Research Station at 5 p.m. each Wednesday from November 2 to November 30.

A public lecture will be given in the lecture theatre of the Physiological Laboratory on Thursday, November 3, at 5 p.m., by Professor Otto Loewi, formerly of the University of Graz. Subject: Action and Discovering of Drugs.

UNIVERSITY OF LONDON

At a meeting of the Senate, held on October 19, the title of Professor in Dental Surgery was conferred on W. E. Herbert, M.R.C.S., L.D.S., in respect of the post held by him at Guy's Hospital Medical School.

The Chester Beatty Scholarship in Radiology of the value of £400 for one year has been awarded to E. P. Allen, M.B., Ch.B. This scholarship was established through the generosity of Mr. A. Chester Beatty for two years to enable students to study radiology in the United States.

The John Marshall Fellowship of the value of £500 a year for two years was awarded to K. C. Eden, M.B., B.S., F.R.C.S. This fellowship was established under the will of the late Miss A. B. Marshall in memory of her father, Professor John Marshall.

KING'S COLLEGE

It has been arranged for Dr. A. Dalcq, professor of anatomy in the Université Libre de Bruxelles, to give a further lecture on "The Formation of the Pronephros and its Causes" at King's College, Strand, W.C., on Thursday, November 10. This lecture is in addition to the one announced in this column on October 8, which will be delivered on November 8.

UNIVERSITY OF LEEDS

On October 19 the Court decided to confer the following honorary degrees on January 17, 1939, when the new Chancellor of the University, the Duke of Devonshire, will be installed:

L.L.D.—Sir James Baillie, ex-Vice-Chancellor of the University of Leeds.

D.Sc.—Dr. J. S. B. Stopford, F.R.S., Vice-Chancellor of the University of Manchester; Sir John Ledingham, F.R.S., director of the Lister Institute.

At a meeting of the University Council Mr. P. J. Moir was appointed Professor of Clinical Surgery, in succession to Mr. L. R. Braithwaite, resigned.

UNIVERSITY OF MANCHESTER

Dr. J. C. Brundret has been appointed assistant lecturer in bacteriology, and Dr. S. G. Abelson chief medical assistant in the Department of Clinical Investigations and Research in succession to Dr. Benjamin Portnoy, who has resigned.

The following candidates have been approved at the examination indicated:

DIPLOMA IN PUBLIC HEALTH.—J. S. Parkinson, Helen E. Smith, R. C. Webster.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates for the degrees of M.B., B.Ch. have satisfied the examiners in the subject indicated:

HONEST.—J. M. Bowen, Mary W. Bowen, *Marjorie E. Bright, C. Davies, *G. R. Davies, G. C. D. Evans, D. B. E. Foster, W. H. Harris, J. C. Herapath, G. E. Hosking, H. R. Hudd, Elizabeth G. Jenkins, H. V. Jones, *C. W. D. Lewis, *G. O. Lewis, Mair

Llewelyn, *R. M. Marshall, C. J. Morgan, Margaret Morgan, Josephine Parnell, Margaret Parry, J. L. Rees, C. Thomas, Margaret R. Wade, Lary M. Williams, W. Williams.

* With distinction.

The following candidates have satisfied the examiners at the examination indicated:

DIPLOMA IN PUBLIC HEALTH.—Part II: R. M. Dykes, E. W. Kinsey.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh held on October 18, with Mr. W. J. Stuart, President, in the chair, the following, having passed the requisite examinations, were admitted Fellows:

A. D. Popat, R. L. Allan, A. T. Andreasen, J. G. Barrett, H. J. Beard, I. N. Blusger, S. C. Bose, W. D. A. Callam, E. D. O. Campbell, C. W. S. Dun, G. B. W. Fisher, E. Flatow, H. F. P. Grafton, R. W. W. Hardie, C. C. Harvey, A. E. Jowett, O. C. Lord, R. I. Mahadevan, G. J. H. Maud, J. S. Maxwell, P. T. Millard, W. J. Moody, M. L. Pan, F. Rahman, M. V. Ramanamurti, D. E. Stephens, S. L. Swartz, J. H. Symington, R. K. K. V. Tampan, R. K. A. van Someren, J. S. Visser, J. L. D. Williams.

At the annual meeting of the College, held on October 19, the following officers were elected for the ensuing year:

President, Mr. W. J. Stuart. Vice-President, Mr. Henry Wade. Secretary and Treasurer, Mr. J. W. Struthers. Representative on the General Medical Council, Mr. Alex. Miles. Conservator of Museum Committee, Dr. A. Logan Turner. Librarian, Mr. S. M. Traquair. Conservator of Museum, Mr. C. F. W. Illingworth.

Medical News

The hundredth dinner of the Aberdeen University Club, London, will be held at the Café Royal on November 17. Any graduates wishing to attend should apply to Dr. Andrew Topping, County Hall, S.E.1.

A sessional meeting of the Royal Sanitary Institute will be held at the Dorothy Café, Sidney Street, Cambridge, on Friday, November 4, at 5 p.m., when Dr. R. D. Tompkins will give an address on "Recent Work in Food Preservation," and a discussion on "The Prevention of Droplet Infection, with Special Reference to Streptococcal Disease" will be opened by Dr. W. H. Bradley.

Owing to the recent international crisis, the meetings of several medical societies in France have been postponed (see *Journal*, October 22, p. 872). The forty-seventh Congress of French Surgery, which was to have been held in Paris in the first week of October, has been deferred to a later date.

Owing to the crisis the second International Congress of Radio-aesthesia, which was to have been held in Paris from October 17 to 19, has been postponed to November 7 to 9. Further information can be obtained from the Secretariat, 9 rue Etex, Paris 18e.

The French Academy of Medicine is prepared to award a prize of 10,000 francs for an original study of the therapeutic properties of olive oil. Entrants for this competition must either give an account of a new curative action on the part of this oil or throw new light on its already known therapeutic properties.

The September issue of the *Bulletin de l'Office International d'Hygiène Publique* includes articles on female employees and tuberculosis in Yugoslavia, renal tuberculosis, tuberculosis in India, standard methods for the preparation of tuberculin, anti-tuberculous vaccine, and immunization against yellow fever.

The October issue of the *British Journal of Dermatology and Syphilis* is a jubilee number (1888-1938) containing retrospective articles by Dr. J. M. H. Macleod, Dr. James H. Sequeira, and Sir Ernest Graham-Little, with portraits of editors of the journal and of celebrated British dermatologists of the past fifty years.

As we go to press we learn with deep regret that Sir Robert Johnstone, who presided over last year's Annual Meeting of the British Medical Association, died at Newcastle, County Down, on October 26.

At the general meeting of the Governors of The Retreat, York, Dr. Arthur Pool was appointed medical superintendent in place of Dr. Neil Macleod, whose resignation was regretfully accepted a few months ago. Dr. Pool for the past five years has been medical superintendent of the South Yorkshire Mental Hospital at Sheffield.

Dr. C. S. Myers, F.R.S., successively Director and Principal of the National Institute of Industrial Psychology since its foundation in 1921, retired from the active direction of its work on October 1. He has, however, accepted the honorary post of its scientific adviser, which will maintain his past contact with the scientific aspects of the industrial and vocational work, and in which he will continue to supervise its research activities and publications.

Dr. L. Haden Guest, M.P., left London for Lagos on October 19 with other members of the Commission which is to report on the interrelationship between Government officials, traders, and natives in the West African Colonies and the general development of resources.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

THE TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

THE TELEGRAPHIC ADDRESSES are

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Atiology Westcent, London*.

SECRETARY, *Medisera Westcent, London*.

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh), and of the Office of the Cumann Doctúirí na h-Eireann (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone 62550 Dublin).

QUERIES AND ANSWERS

Intratracheal Adrenaline for Relief of Asthma

Dr. S. H. KUTAR (London, S.E.18) wishes to know if other readers have tried intratracheal instillation of adrenaline for "hyperacute" cases of asthma, and with what results. He has used this treatment in a very small number of cases with great relief of symptoms and without misadventure. The patients in question are those with much respiratory distress, fighting for breath and gradually becoming more cyanosed, and unrelieved by ordinary measures, even morphine. After preparation of the skin of the lower half of the neck a 5 c.cm. all-glass syringe, with a fairly wide-bored needle, is loaded with 2 c.cm. of 1 in 1,000 adrenaline solution. A point is chosen in the mid-line of the neck about a quarter of an inch below the cricoid cartilage, and the detached needle is inserted at right angles to the anterior plane of the neck, entering the trachea between its first and second rings. The loss of resistance and the peculiar sound of air rushing in and out of the needle indicate that the trachea has been entered. After making sure that no blood emerges from the needle, the syringe is mounted on it and the solution injected quickly. Syringe and needle are at once withdrawn and the puncture is sealed with collodion. The spasm of coughing soon subsides, and within two minutes of injection the breathlessness and distress disappear.

Gangrene of the Colon in an Infant

Dr. L. A. LEDINGHAM (Kirkcaldy) writes: Perhaps the following rather unusual case may be of interest to your readers. The patient was a full-time 8½ lb. male, a lusty infant which had been delivered rapidly and spontaneously. It was breast-fed, and did well, apart from a little regurgitation after feeds, for four or five days, after which time it was reported to be feeding badly in spite of a superabundance of breast milk, and to be rather fretful. By the seventh day the infant had lost 2 lb. of its original birth weight. From the fifth day the abdomen had been rather distended, especially in the hypogastric region, and the stools assumed a very slight greenish tinge and were rather loose. There was no sickness, and examination revealed nothing else abnormal. The child lost weight rapidly and died on the eleventh day. At necropsy the abdominal distension was found to be due entirely to the large bowel, which for some unknown reason was greatly distended and full of practically normal faeces. There was at the hepatic flexure a patch of well-marked gangrene the size of a sixpence, with a small perforation; there was peritonitis involving the paracolic gutter, caecum, appendix, and pelvic organs, with a fair amount of turbid free fluid. The abdominal organs were otherwise macroscopically normal, and the chest contents, apart from a defective closure of the ductus arteriosus, were healthy. I should value any opinions as to the possible causation of this condition and the treatment which might be undertaken in such a case.

Treatment of Pruritus Ani

Dr. C. HORWITZ (London, N.1) writes: I think "J. M." will find that a cure can be brought about easily and rapidly by methods much simpler than those he has employed and proposes to employ. The patient should be instructed to avoid toilet paper, and make use instead of a small soft sponge which has been wrung out in a mild disinfectant such as dettol (1 drachm to a pint of water). The sponge should be thoroughly cleaned and the water changed every second day. The occasional use of toilet paper when the patient is away from home cannot be avoided and does not seem to matter much.

"J. C." writes: Has "J. M." tried "belzema" ointment and soap (sold by Brooks and Warburton, Ltd., 232, Vauxhall Bridge Road, S.W.1)? An extreme case, the worst I have seen, resisting the usual treatment, including x-ray therapy, cleared up entirely on treatment with this soap and ointment.

"A. G." also writes: If "J. M." has not included ung. metallorum in his "innumerable local applications" for pruritus ani, he should try it.

Income Tax

"Back Duty" Paid—Allowances Due

"D." entered into a partnership in August, 1932. His partner was negotiating a "back duty" settlement, and for some years income tax payments were made "oo account" with apparently a subsequent lump-sum payment in settlement of all tax to 1936-7 inclusive. "D." now finds that some life assurance relief was not allowed for in the settlement, and neither was the fact that his wife was receiving £52 per annum from the firm for assisting in violet-ray, etc., treatment. The inspector declines to reopen the settlement.

* It is possible that the terms of the settlement were final and binding, and therefore that "D." has no legal remedy. But we advise him not to leave the matter as it stands. The settlement was negotiated on the basis of certain figures and certain definite allowances. If these have now proved unfair to "D." we think the settlement might be reopened, if not as regards both questions at least as regards the life assurance relief, which can be claimed within six years of the end of the year of assessment concerned. The deduction for the £52 is on a somewhat different footing, as it relates to the computation of the profits and there may have been some give and take over those figures when the settlement was agreed. We advise our correspondent to write, placing the facts before the Secretary, Board of Inland Revenue, Somerset House, W.C.2.

LETTERS, NOTES, ETC.

Spontaneous Version of Transverse Presentation

Dr. A. FRANKLIN (Liverpool) writes: About three weeks ago I was approached by a midwife and asked whether I would visit a patient of hers and give an opinion on her condition. On arriving at the patient's home I found that she was in bed and was informed that the membranes had ruptured naturally at 11 a.m. the same day. The baby was lying with its head in the left iliac fossa and the breech in the right iliac fossa; the foetal heart was distinctly audible below and to the left of the umbilicus. On vaginal examination the os was rigid and rather less than two fingers dilated, and protruding through it into the vagina was the right hand of the baby. I decided to perform internal version and bring down a leg. On returning a short time later prepared to do this, I was surprised to find that version had occurred spontaneously, the position being that of a breech. The woman had had no pains. The head was now lying in the fundus, and on vaginal examination the hand had completely disappeared and the breech was easily recognized. The degree of dilatation of the cervix was still the same as before. Pains began about midnight, the presentation being that of a breech with extended legs. The baby was born alive at 5.15 a.m. and weighed exactly 8 lb. The case appears to be unusual, as spontaneous version occurred after rupture of the membranes and prolapse of the arm.

Acute Spreading Emphysematous Gangrene

Dr. T. J. KILGALLAN (Boyle, Eire) writes: There may be nothing very atypical about this case, but the condition is so rare, at any rate in the West of Ireland, that a report of it may be of interest. The patient, a robust woman, aged 43, had been ill for ten days, during which period she complained of a "swelling" and severe pain in the right side. When I saw her she had a temperature of 103.5° F. and a pulse rate of 110. Her tongue was very dry and dirty and her respirations were fast; she was cyanosed and appeared to be suffering from a profound toxæmia. On examination there was a tumour about the size of a half-melon on the right chest in the posterior axillary line. This was tympanitic on percussion, and evidently contained gas and a small amount of fluid. There was a brawny swelling extending downwards, involving the tissues of the right loin and hip, and upwards, invading the tissues of the shoulder and chest wall as high as the clavicle. The skin over the swelling was a dusky red colour. On palpation the typical crepitations of emphysema could be felt in parts, but especially over the upper chest. Aspiration of the tumour confirmed that it contained gas and a small amount of very foul-smelling dark grey fluid. The lungs and pleura were normal. I much regret that, owing to lack of convenient laboratory facilities, the fluid had not been examined with a view to isolating the causative organism. Apparently this organism entered the chest wall through an unnoticed scratch or abrasion. I felt that treatment of any kind would be of no avail. The patient died four days later.

Children Alone in the Dark

The annual report for 1937-8 of the National Society for the Prevention of Cruelty to Children draws attention to the growing tendency of parents to leave young children alone in houses for many hours, especially at night. This practice may be attributed to changing social conditions. Contributory factors are the lure of the cinema and other amusements, the difficulty of securing domestic servants, and the increasing number of families where parents live with their children without the company of other adults. As a result of old age pensions and the larger number of houses available grandparents, who formerly lived with their descendants, nowadays are able to keep up separate establishments. The report stresses the mental cruelty inflicted upon a young child who wakes alone in a dark deserted house, and points out that profound and prolonged after-effects may supervene. Distressing tragedies may also occur. In the course of the year under review four young children were burned to death at Gravesend during their parents' absence and three at Dunston-on-Tyne. The inspectors of the Society have been uniformly successful in dealing with the parents in these cases, which are usually the result of lack of thought rather than of deliberate neglect.

A Delivery Towel for Midwifery

Mr. ERNEST B. HINDE (Norwich) writes: With reference to the articles on puerperal sepsis in the *Journal* of August 13 (pp. 331 et seq.), it occurs to me that a device which I have found most useful may be equally useful to others. It is a delivery towel. The end of an ordinary towel is turned back and sewn along the edges, so as to make a pocket about 18 inches long. This lies over the abdomen as the woman lies in the left lateral position. The towel is long enough for the other end to hang down over the buttocks. I insert my gloved hand in the pocket and can use pressure as necessary until the head is crowned. Then I withdraw my hand from the pocket and have both hands ready for the delivery of the head. I think this is much better than wrapping one's hand in a towel, which very easily, especially with a restless patient, becomes disarranged.

George III

Dr. JAMES R. WHITWELL writes: The notes of Dr. W. R. Betts on the case of George III (*Journal*, September 24, p. 664) are most interesting. I should, however, like to suggest that he pays His Majesty a compliment which was hardly deserved by saying that he was intelligent. Lecky (*History of England*) certainly does not agree, for he says, "His education was indifferent, and as an adult he was singularly deficient in literary culture." Lord Waldegrave said that he was "a boy of respectable abilities, but great constitutional indolence." J. R. Green (*Short History of the English People*) says, "He had a smaller mind than any English king before him save James II, he was wretchedly educated, and his natural powers were of the meanest sort." Dr. Thomas (Bishop of Peterborough, and his tutor) said, "He is remarkably backward, his stock of general knowledge at aet. 22 [when he ascended the throne] was very slender, he knew no Latin or Greek [most unusual at that time], he wrote English ungrammatically"; he used to swing himself to and fro when talking, and had a trick of ending his sentence with "What! what!" His taste was execrable, according to Madame D'Arblay (*Diary and Letters of Miss Burney*), and he regarded Shakespeare as "sad stuff."

Frederick Page of Newcastle

Professor G. GREY TURNER writes: I have been looking through some numbers of the *B.M.J.* which accumulated while I was travelling to Australia last year. In the leading article on "Spinal Tumours: A Jubilee" in your issue of July 31, 1937 (p. 220) you speak of Herbert Page of Newcastle-on-Tyne and of a rather unhappy prediction which he made concerning the operation of laminectomy. Herbert William Page practised in London, where he was surgeon to St. Mary's Hospital. For years he was prominent as a railway surgeon, and wrote much on spinal injuries. The Newcastle surgeon was Frederick Page, also a railway surgeon; but though ready with his tongue he was reticent with the pen and wrote little.

Christmas Cards

It is not often that help for a deserving charity is forthcoming from the performance of so pleasant and individual a custom as sending greeting cards at Christmas, but the opportunity is once again provided by the Grenfell Association of Great Britain and Ireland. As last year, the association has for sale a number of specially designed Christmas cards, some in black-and-white, and one, entitled "Christmas Eve in Labrador," in full colour. Prices for these cards, which are sold in aid of Sir Wilfred Grenfell's medical work among British settlers in Labrador and Newfoundland, range from 1s. 6d. a dozen to 3s. for half a dozen. Further particulars and a leaflet showing the designs, and other gifts made by the people of Labrador, may be obtained from the Grenfell Association, 66, Victoria Street, London, S.W.1, or, in Scotland, from the Hon. Mr. John Scott MacLay, 21, Bothwell Street, Glasgow.

A Calendar of Medical History

Warner's *Calendar of Medical History* endeavours to discover new phases in the annals of medicine that may lend fresh interest to browsing among out-of-the-way crevices of the past. The practical features have been retained in the 1939 edition, with occasional additions of modern interest. This diary will be available early in December to members of the medical profession only. Those who have found it useful and would like to receive a copy are advised to apply early to Power Road, Chiswick, W.4.

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Canadian Medical Association Journal

Toronto vol. 33 August, 1938.

- Acute Anterior Poliomyelitis. H. H. Hyland, W. J. Gardiner, F. C. Heal, W. A. Oille, and O. M. Solandt.—p. 105.
Human Response to Single Doses of Sulphanilamide. C. C. Lucas.—p. 111.
Pathological Interpretation of Some Surgical Procedures adopted for Relief of Glaucoma. F. T. Tooke.—p. 114.
*Need for Prolonged Artificial Respiration in Drowning, Asphyxiation, and Electric Shock. G. Bates, R. E. Gaby, and W. MacLachlan.—p. 120.
Percutaneous Tuberculin Reaction. H. P. Wright, A. F. Chausson, and R. Allison.—p. 123.
Cardiac Lesions in Adrenal Insufficiency. G. E. Hall and R. A. Cleghorn.—p. 126.
Relation of Pregnancy to Biliary Disease and Control of Vomiting of Pregnancy. J. M. McGown and J. O. Baker.—p. 133.
Changes in Olfactory Mucosa and Olfactory Nerves following Intranasal Treatment with 1 per cent. Zinc Sulphate. C. G. Smith.—p. 135.
Large Solitary Cyst of Kidney. S. A. Wallace.—p. 140.
Recurrent Intra-ocular Haemorrhage in Young Adults (Eales's Disease). S. H. McKee.—p. 142.
Trial Study in 1,500 Cases of Syphilis infected Twenty Years Ago. F. S. Burke and M. Parks.—p. 145.
Significance of Epigastric Hernia. J. C. Luke.—p. 149.
Points of Mutual Interest to General Practitioner and Radiologist. W. A. Jones.—p. 152.
Psychiatrist's Point of View. J. D. M. Griffin.—p. 157.
Value of Correcting Red Cell Sedimentation Rate for Effect of Cell Volume. D. W. Crombie and A. Hamblen.—p. 162.
Miliary Tuberculosis in Newborn Infant. G. M. White and D. F. W. Porter.—p. 165.
Department's Responsibility for Food Protection. R. E. Wodehouse.—p. 167.
Acute Rheumatic Fever with Unusual Complications. H. S. Good and B. Kane.—p. 170.
Simultaneous Bilateral Spontaneous Pneumothorax complicating Bronchial Asthma. G. S. Jeffrey and D. C. Marlatt.—p. 171.
Chronic Acne Vulgaris (Indurata) in Middle-aged Women. A. H. Pirie.—p. 171.
Treatment of Constipation. H. G. Bird.—p. 172.
Paroxysmal Tachycardia. W. F. Connell.—p. 173.
Insulin Therapy in Future of Psychiatry. M. Sakel.—p. 178.
Vitamins in Infancy and Childhood. F. F. Tidball.—p. 179.
Early Vaccination in British North America. R. C. Stewart.—p. 181.

Prolonged Artificial Respiration.—The necessity for prolonged artificial respiration in cases of drowning, asphyxiation, and electric shock is emphasized. A case of electric shock is recorded in which this procedure was carried on for eight hours before the patient was safe. In a series of cases of electric shock studied by one of the authors it was found that when artificial respiration was started within one minute of the shock 90 per cent. of the patients recovered, when there was a delay of six minutes only 10 per cent. were resuscitated.

Deutsche Medizinische Wochenschrift

Berlin vol. 64 August 12, 1938

- Biological Medicine and Nutritional Therapy. S. Bommer.—p. 1169.
Treatment of Chronic Epidemic Encephalitis (Parkinsonism): Bulgarian Cure with "Homburg 650." H. D. v. Witzleben and A. Werner.—p. 1174.
Treatment of Pulmonary Tuberculosis with Lipoid-soluble Silicic Acid Preparation. T. Streit.—p. 1178.
Alternating Relationship between Tonsils and Thyroid Gland. G. Benetato and C. Oprislu.—p. 1181.
Radiological Diagnosis of Bronchiectasis. E. Zapel.—p. 1183.
*Hormone Treatment of Ulcers of Vagina. W. Reiferscheid.—p. 1184.
Treatment of Emaciation. W. Böhm.—p. 1185.
Improvement of Results of Treatment of Malignant Diseases (Operation and Radiological Treatment). F. Nimmacher.—p. 1186.
Recognition and Study of Mediastinal Pleuritis. H. Hennes.—p. 1188.
Heart from Military Point of View. R. Lehmann.—p. 1190.
High Altitude Cures and Stations in Ostmark. F. Hansy.—p. 1193.
*Open Pulmonary Tuberculosis in Children and Adolescents: Contribution to Question of Tuberculosis and Constitution. W. Platt.—p. 1195.

Hormone Treatment.—This study comes from the University Gynaecological Hospital of Würzburg. The author finds the results so encouraging that he considers the hormone treatment of ulcers of the vagina in elderly women superior to any other.

Journal of the American Medical Association

Chicago vol. 3 August 13, 1938

- Further Evaluation of Artificial Pneumothorax in Lobar Pneumonia. F. Blake.—p. 581.
Treatment of Subclinical and Classic Pellagra. T. Spies, W. Bean, and R. Stone.—p. 584.
Hearing Aids from Otologists' Audiograms. A. Hayden.—p. 592.
What Audiometry Can Now Mean in Routine Practice. I. Jones and V. Knudsen.—p. 597.
Experimental Poliomyelitis by Tonsillo-pharyngeal Route. A. Satin.—p. 605.
Physiology and Pathology of Vitamin D. A. Shebl.—p. 614.

Klinische Wochenschrift

Berlin vol. 17 August 13, 1938

- Idiopathic Hypochromic Anemia. W. Thiele and H. Köhl.—p. 1137.
"Flocculation Number" (Flockungszahl) in Blood Serum (Takata Reaction). A. Jezler and P. Boss.—p. 1140.
Polarographic Investigations of Blood Serum in Relation to Erythrocyte Cancer Reaction. C. Tropp.—p. 1141.
Vasopressor Substances in Idiopathic Hypertension in Kaolin Hypertonia in Dogs. H. Vort.—p. 1145.
Compensatory Capacity of Bile Ducts after Operation or Inflammation. G. Bützow.—p. 1151.
*Suitability of Helium for Artificial Pneumothorax. Schedler.—p. 1153.
Unusual Case of Arterial Obliteration. T. Sato.—p. 1154.
Pathogenesis of Acute Myeloblastic Leukemia. F. Lasch.—p. 1157.
Sensitizing Effect of Lactoflavine on Photochemical Transformation of Acetylformic Acid. H. Süßmann.—p. 1157.
Effect of Large Doses of Lactoflavine in Experiments on Animals. W. W. and B. Wroblewski.—p. 1158.
German Pharmacy and Consumption of Drugs. Schrader.—p. 1159.

Helium Artificial Pneumothorax.—The author came to the conclusion that little advantage was gained from the use of helium instead of air.

Lancet

London vol. 2 August 13, 1938

- Cancer Research: Past and Future. E. C. Dodds.—p. 351.
*Sulphanilamide in Gonorrhoea. A. J. Cokkinis and G. L. M. McElhott.—p. 355.
Some Anomalous Hyperchromic Anaemias. M. C. G. Israels and J. F. Wilkinson.—p. 362.
Operative Cholangiography. P. L. Mirizzi.—p. 366.
Adenoid Epithelial Tumour of Submaxillary Gland. M. G. Kint and P. R. Rao.—p. 369.
Lumbar Puncture in Out-patients. D. Erskine and A. G. Johnson.—p. 371.
Gonococcal Ophthalmia treated with 2-(p-aminobenzenesulphonamido)-pyridine. A. M. Michie and M. H. Webster.—p. 373.
Two Testicles in One Inguinal Hernia. D. O. Davies.—p. 373.

Sulphanilamide in Gonorrhoea.—Detailed analysis of some 500 cases in males and 150 in females showed that twenty-one days' suitable treatment by sulphanilamide led to cure in 80 per cent. (males), with about one-seventh the usual rate of complications. A technique is described which must be closely followed. It includes the use of vaccines and excludes use of the drug before the eighth to tenth day. Uleron is thought to be less effective than sulphanilamide, and to carry considerable risk of severe peripheral neuritis.

Medical Journal of Australia

Sydney vol. 2 July 9, 1938

- Ureteral Calculus. K. Kirkland.—p. 35.
Radiological Aspect of Treatment of Ureteric Calculus. D. G. Mantland.—p. 38.
Management of Facial Injuries. C. Osborn.—p. 41.
Appearance of Eyelids in Certain Diseases. T. Mansfield.—p. 49.

Sydney vol. 2 July 16, 1938

- Early Diagnosis of Cancer of Cervix. C. Chapman.—p. 71.
Treatment of Cancer of Cervix Uteri. H. Schlink and C. Chapman.—p. 74.
Casualty Surgery. A. Aspinall.—p. 81.
Manipulative Surgery. W. Hughes.—p. 83.

presence of living tubercle bacilli in obsolete lung lesions. Caseous or calcified material from Ghon foci and hilar lymph nodes was cultivated and injected into guinea-pigs. There was only one positive result. This finding is inconsistent with the hypothesis that endogenous reinfection occurs in adults. There may be histological signs of activity in these lesions although tubercle bacilli are absent; silica is frequently present in excess, and this may account for such changes.

American Journal of Syphilis, Gonorrhea and Venereal Diseases

St. Louis vol. 22 September, 1938

- Present Status of Epidemiology of Gonorrhoea. R. A. Vonderlehr and I. J. Usilton.—p. 537.
Prenatal Syphilis in One of Twins. Case Report. U. J. Wile and D. G. Welton.—p. 544.
Clinical Excretion of Bismuth. VII. Autopsy Distribution of Bismuth in Patients after Clinical Bismuth Treatment. T. Sollmann, H. N. Cole, and K. Henderson with G. W. Binkley, H. Connors, H. Reichle, and D. Seecof.—p. 555.
Sources of Infection in Syphilis. G. V. Kulehar and E. I. Ninnis.—p. 584.
Yearly Admissions of Four Genito-infectious Diseases at Cleveland City Hospital with Special Reference to Syphilis. G. W. Binkley and F. A. Levin.—p. 588.
*Prevention and Treatment of Neurosyphilis by Combined Artificial Fever and Chemotherapy. Results in Seventy-two Cases of Asymptomatic and Clinical Neurosyphilis. A. E. Bennett and M. D. Lewis.—p. 593.
Acquired Syphilis of Infancy and Childhood. Thirty-five Cases. J. R. Waugh.—p. 607.
Syphilis Control in Chemical Industry. G. H. Gehrmann.—p. 623.
Ecthyma of Vulva Simulating Condyloma Latum. H. M. Robinson.—p. 631.
Chancroidal Infections in Female. R. Torpin and R. B. Dienst.—p. 634.
Intravenous Aldersone in Treatment of Neurosyphilis. G. R. Kamman.—p. 638.

Prevention and Treatment of Neurosyphilis.—Routine cerebrospinal fluid examination in the first year of infection reveals asymptomatic neurosyphilis; if this does not yield to ordinary chemotherapy, fever treatment should be given in addition. In ten cases of asymptomatic neurosyphilis treated by the combined method seven showed complete and two partial reversal of the previous cerebrospinal fluid findings. In nineteen cases of general paralysis of the insane similarly treated fourteen showed complete and three partial remission, while two were unimproved. In thirty-one cases of tabes of a severe type sixteen had complete relief, eleven were improved, and four were unimproved. No success was obtained in three cases of Charcot joints. In twelve cases of severe disabling meningovascular syphilis ten had complete and one partial relief, and one was unimproved.

Annales de Médecine

Paris vol. 44 July, 1938

- Normal and Pathological Content of Tyramine in Blood. M. Loeper, A. Lesure, and A. Netter.—p. 85.
Arteriosclerosis of Pulmonary Artery: II. Cardio-pulmonary Syndrome and Sclerosis of Pulmonary Artery. A. Ozsachi and E. Szekelyk.—p. 105.
Role of Thyroid Gland in Regulation of Chlorides in Blood. J. Decourt.—p. 133.
*Role of Liver in Modification of Protein in Suppuration. III. Haemoclastic Shock. I. Blustein.—p. 145.

Liver in Suppuration.—Of seventeen cases in which Vidal's method was tried six positive results were obtained in suppurative cases and one in a patient with cholelithiasis.

Annales d'Oto-laryngologie

Paris vol. 8 July, 1938

- Operative Cure of Obsolete Antro-buccal Fistulae. P. Jacques.—p. 585.
*Otitis Media in Aviators. R. de Guilenac.—p. 588.
Mucous Discharge. Quix.—p. 596.
Voice Disturbances of Resonance. L. Labarraque.—p. 605.
*Pathography of Mucoid Processes as Operative Indication in Acute and Chronic Mastoiditis. L. Baldebeck and J. Leroux-Robert.—p. 613.

Otitis in Aviators.—The author has found that pilots in chase planes are particularly liable to middle-ear disturb-

ances. This is due to the sudden changes in air pressure, as the planes have to climb and descend very rapidly. The intense cold at high altitudes is also a contributory factor. There is a description of the various measures and protective apparatus which help to guard against these complications.

Paris vol. 8 August, 1938

- Contribution to Study of Audiometry. M. Aubry, J. Causse, and L. Chazotte.—p. 689.
Tomography in Cancers of Larynx and Pharynx, particularly in Diagnosis of Tumours of Pyriform Fossa. G. Canuyl and Gunsett.—p. 715.
Tomography in Diagnosis of Rare Foreign Body in Nasopharynx. G. Canuyl and Gunsett.—p. 724.
Latent Petrositis. M. Guillermin, J. Pesme, and R. Coudane.—p. 729.
Technique of Radiographic Examination of Larynx. F. Genz.—p. 731.
*Prognostic Value of Sedimentation Test in Treatment of Tuberculosis of Larynx by Galvano-cautery. Prédescu-Rion.—p. 741.
Case of Paralysis of Glossopharyngeal Nerve due to Deep Ulceration of Tongue. H. Solomovici and M. Sezal.—p. 747.

Sedimentation Test.—The sedimentation rate of the red blood corpuscles is a criterion of tissue destruction. The higher the figure for the sedimentation rate the more active is the tuberculous infection. The author recommends that the test should be applied in all cases of tuberculosis of the larynx before treatment of the lesions by galvano-cautery is undertaken.

Archiv für Ohren-, Nasen- und Kehlkopfheilkunde

Berlin vol. 145 September, 1938

- Question of So-called "Dental" Empyema of Maxillary Sinus. K. Amerhub.—p. 97.
Aetiology and Varieties of Tonsillo-genous Sepsis. A. Linck.—p. 103.
Dangers of Local Anaesthesia in Tonsillectomy: Their Causes and Prevention. A. Linck.—p. 131.
Simplified and Safe Anaesthesia in Tonsillectomy. J. Schübel.—p. 138.
Spontaneous Haemorrhages from Tonsils. A. Linck.—p. 143.
Severe Damage to Mucous Membranes of Upper Air Passages following Application of Uteron. O. Brankel.—p. 150.
Two Cases of Rare Laryngeal Tumours. W. Klose.—p. 154.
Acute Otitis Media and Nephritis. W. Giese.—p. 159.
Acute Otitis Media without "Mastoiditis." A. Linck.—p. 174.
Cases of Recovery from Streptococcal Meningitis of Otorogenous and Rhinogenous Origin. H. R. Gadnlin.—p. 200.
"Otitis" and Other Illusions and Errors in Therapy of Otorrhoea. Laryngology. A. Linck.—p. 216.
Treatment of Acute Otitis Media with "Detoxin" Powder. W. Hartmann.—p. 231.

Archives of Ophthalmology

Chicago vol. 20 August, 1938

- Disturbances of Vertical Motor Muscles of Eyes. A. Bielechowsky.—p. 14.
*Perimetric Studies in Syphilitic Optic Neuropathies. L. L. Sloan and A. C. Woods.—p. 201.
Cancer of Eyelids, Conjunctiva, and Cornea: II. Squamous-cell Epithelioma. H. L. Birge.—p. 254.
Treatment of Staphylococcal Conjunctivitis with Staphylococcus Toxin. Preliminary Note. P. Thygeson.—p. 271.
Mannitol Fermentation as Indicator of Conjunctival Pathogenicity of Staphylococci. P. Thygeson.—p. 274.
Recurrent Retinal and Vitreous Haemorrhages in Young—Eales's Disease: 10 Cases. R. T. Paton.—p. 276.
Ophthalmic Carriage. J. N. Evans.—p. 286.
Topography and Frequency of Complications of Uveal Sarcoma. B. Kronenberg.—p. 290.
Inositol in Ocular Tissues. A. C. Krause and R. Weekers.—p. 299.
Special Treatment for Herpes Zoster. J. R. Walker and B. F. Walker.—p. 314.
Detachment of Retina: Summary of Modern Opinions. T. D. Allen.—p. 315.
New Method of rebuilding Lower Lid. F. Smith and W. L. Husher.—p. 316.
Simplification of O'Connor Cinch Operation. R. O'Connor.—p. 317.

Syphilitic Optic Neuropathies.—The field defects of patients with primary syphilitic atrophy of the optic nerve fall into four categories: (1) concentric contraction of the peripheral field with late visual loss; (2) sector defects with early or late visual loss; (3) central or cecocentral scotoma with normal peripheral fields and early visual loss; and (4) central or cecocentral scotoma with peripheral defects and early visual involvement. Field changes may also precede atrophy of the disk, while homonymous defects are due to cerebral trauma or arteriosclerosis. The lesion in syphilitic atrophy probably lies between the chiasma and the globe.

Archives of Otolaryngology

Chicago vol. 28 July, 1938

- Osteomyelitis of Frontal Bone: Eight Cases. R. McKinney.—p. 1.
 *Pre-operative Management of Acute Streptococcal Mastoiditis. E. M. Atkinson.—p. 10.
 Osteoma of Mastoid Process. S. A. Friedberg.—p. 20.
 Osteoma Growing from Mastoid Cortex. G. M. Coates.—p. 27.
 Plastic Repair after Removal of Extensive Malignant Tumours of Antrum. F. A. Ricci.—p. 29.
 *Improvement of Hearing in Cases of Otosclerosis: New One-stage Surgical Technique. J. Lempert.—p. 42.
 Nasal Allergy. A. H. Rowe.—p. 98.
 Use of Hyoid Bone as Graft in Laryngeal Stenosis. E. A. Looper.—p. 106.
 New Method of Operation for Congenital Atresia of Posterior Nares. J. C. Donnelly.—p. 112.

Streptococcal Mastoiditis.—In acute streptococcal mastoiditis the author advises that operation should be delayed until localization of the infection has occurred. He contrasts the results of immediate and delayed operations, and shows that when expectant treatment is adopted there are fewer complications, a lower mortality, and a shorter period of hospitalization.

Improved Hearing in Otosclerosis.—Sourdille's operation for otosclerosis only gives a temporary improvement because the labyrinthine fistula closes after a time. The author claims that his new operation, which is described in great detail, provides a mechanical means of keeping the newly created fenestra in the external semicircular canal permanently open. The results of operation on twenty-three patients with otosclerosis are described. In nineteen cases a good practical improvement in hearing was obtained and maintained. In four cases in which operation was performed in spite of poor existing bone conduction, no improvement in hearing was obtained.

Chicago vol. 28 August, 1938

- *Cancer of Larynx: Immediate and Ultimate Results of Operation in 102 Cases. H. B. Orion.—p. 153.
 *Objective Tinnitus Aurium. E. A. Bredlau.—p. 193.
 Bronchial Asthma and Nasal Allergy. M. A. Ramirez.—p. 199.
 Cholesteatoma Verum of Right Mastoid. M. D. Friedman and S. S. Quittner.—p. 209.
 Psychiatric Therapy for Dysphonia; Aphonia; Psychophonia; Falssetto. J. S. Greene.—p. 213.
 Influence of Sulphanilamide on Infected Sinuses of Rabbits: Chemical and Microscopical Studies. B. J. McMahon.—p. 222.
 Fulminating Infection of Nose due to *Monilia* or *Aspergillus*. Case Report. C. S. Nash.—p. 234.
 Recovery of Patient with Type III Pneumococcus Meningitis of Otic Origin. J. Gubner.—p. 241.

Cancer of Larynx.—This is a statistical and histological study of 102 cases, tabulated under two headings—laryngectomy and laryngofissure. The recurrence rate in cases of subglottic cancer is very high, and therefore total laryngectomy is preferable to laryngofissure in its treatment.

Objective Tinnitus.—Three cases of this rare condition are reported. The chief causative factor is clonic contraction of those soft palate muscles which regulate the opening and closing of the Eustachian tube. The peculiar clicking sound accompanies alternate separation and contact of the two moist surfaces. Other factors which may produce objective tinnitus are disturbances of the vascular system about the head and neck—for example, aneurysms.

Archives of Pediatrics

New York vol. 55 August, 1938

- Left Upper Abdominal Pain in Effort in Juvenile Rheumatic Disease. V. A. Digilio, J. A. Pescatore, and H. E. Goldberg.—p. 457.
 Scorbic Subperiosteal Haemorrhage complicated by Osteomyelitis and Pyarthrosis. E. Shapiro and M. Morris.—p. 465.
 Prolapsus intussuscepti. I. LeBell.—p. 475.
 *Problems relating to Vaccination of Newborn. L. O. Travis.—p. 482.
 Local Anaesthesia in Children: Tonsillectomy, Adenoidectomy, and Circumcision. M. Mohr.—p. 506.
 Severe Haemolytic Anaemia due to Sulphanilamide. P. Rosenblum and A. H. Rosenblum.—p. 511.

Vaccination of Newborn.—Small-pox is most fatal in the early years of life, but an infant under the age of 3 months is not likely to develop the disease even in an epidemic. Vaccination after exposure must be done early to be of value. All infants should be vaccinated early, and nearly all can be vaccinated successfully if a sufficient number of attempts are made. The use of glycerinated calf lymph has done much to obviate such dangers as erysipelas and syphilis. The only contraindications are eczema, which seldom appears before the infant is 6 months old, and much debility. Post-vaccinal encephalitis is discussed.

British Journal of Radiology

London vol. 11 October, 1938

- Epidermal Tumours of Skin. I. G. Williams.—p. 641.
 Case of Carcinoma of Caecum causing Intussusception, with Special Reference to Roentgenological Features. A. G. G. Melville.—p. 649.
 Presidential Address to British Association of Radiologists. R. M. Beath.—p. 657.
 Radiotherapeutic Treatment of Certain Granulomata. R. McWhirter.—p. 664.
 Peptic Ulcer of Greater Curvature of Stomach. F. S. P. v. Buchern.—p. 667.
 Symptomatic Pericarditis: Two Cases. E. L. Ruben and M. H. Pappworth.—p. 671.
 X-Ray and Gamma-Ray Protective Values of Building Materials. G. W. C. Kaye, W. Binks, and G. E. Bell.—p. 676.
 On Existence of Critical Intensity. W. H. Love.—p. 686.

Bruns Beiträge zur Klinischen Chirurgie

Berlin vol. 168 August 31, 1938 'Heft 2

- Clinical and Operative Features of Tumour-like Hypertrophic Gastritis. H. Floercken.—p. 177.
 Macrocytrophilia Fibromatosa Progressiva. R. Herget.—p. 184.
 Results of Surgical Treatment of Bladder Growths at Department of Surgery at Königsberg. I. Pr. F. Oswald.—p. 193.
 Late Complications of Collapse Treatment. I. Korth and A. Heymer.—p. 210.
 Operative Treatment of Vascular Tumours of Spinal Cord. O. Voss.—p. 229.
 Massive Haemorrhage into Kidney Bed caused by Renal Sarcoma. A. v. Lazarevich.—p. 241.
 Clinical Value of Arteriography of Lower Extremity. H. Sprengell.—p. 246.
 Action of Sodium Fluoride on Experimental Osteodystrophy and Disuse Atrophy. J. Marx.—p. 261.
 Is Spontaneous Air Embolism Possible from Opened Extremity Veins Remote from Heart? W. Lambrecht.—p. 267.
 Significance of Determination of Basal Metabolic Rate for Operative Indications in Graves's Disease. W. Nell.—p. 272.
 Internal and External Secretion of Pancreas in Diseases of Biliary Passages and its Significance for Operative Treatment. H. Gressmann.—p. 284.
 Changes in Tuberculous Knee-joints known as "Lipoma Arborecens." E. Calderon.—p. 304.

Canadian Public Health Journal

Toronto vol. 39 August, 1938

- Some Public Health Needs in Nova Scotia. C. E. A. deWitt.—p. 373.
 Progress in Housing and Health. R. St. J. Macdonald.—p. 377.
 *Cancer in Ontario. A. Hardisty Sellers.—p. 387.
 *Laughlin Test for Syphilis. F. G. Laughlin.—p. 396.
 Reallocation of Non-resident Births and Deaths. E. J. Picton.—p. 401.
 Antitoxin Response in Guinea-pigs Deficient in Vitamin C. G. D. W. Cameron.—p. 404.

Cancer in Ontario.—This is a statistical review of the cancer problem in Ontario, where this disease ranks second as a cause of death, being responsible for 11.8 per cent. of all deaths. The death rate rises rapidly with age—60 per cent. of deaths under 70 years and 34 per cent. under 60 years are due to cancer. More than half the deaths are attributable to cancer of the digestive system. In females cancer of the breast ranks first in numerical importance, in males gastric cancer. In over a quarter of all cases the primary cancer is "accessible." The general evidence suggests that incidence of cancer is not increasing, and that one-third of the apparent increase may be attributed to "ageing" of the population.

Laughlin Test.—This is a comment on the utility of the test first described in the *Canadian Medical Association Journal* of August, 1935. It is a precipitation rather than an agglutination test, is performed on slides, and the result may be read with or without a microscope. An antigen and two reagents are required, one a "stock" or stable reagent, and a test or "active" reagent.

which is to be recently prepared from stock, the process being described. It is claimed that this test possesses the advantages of simplicity, speed, stability of its reagents, and adaptability to emergencies.

Folia Haematologica

Leipzig vol. 60 1938 Helt 1

- Investigations of Multiple Myelomata. W. Curtze.—p. 1.
Normal and Pathological Splenograms. T. Temka and M. Kubicek.—p. 18.
Relations between Genesis of Leukemia and Tumours in Fowls. M. Piskovsky and L. Doljanski.—p. 38.
*Basal Metabolic Rate of Chickens affected with Fowl Paralysis. Transmissible Fowl Leucosis, and Certain Spontaneous Neoplasms. C. Olson and H. H. Dukes.—p. 57.
Investigations of Stickiness of Living Leucocytes as Bioclimatic Method of Work. F. W. Bayer and E. v. Philippsborn.—p. 69.
Studies of Species Specific Reaction of Haematopoietic System: IV, Goat. D. Wirth and S. Ritter.—p. 85.
Panmyelopathic Crisis of Blood. H. Otto.—p. 90.

B.M.R. in Chickens.—Haldane's gravimetric method, which was used in these experiments, gave the basal metabolic rate of chickens, 75 to 130 days old, as somewhat higher than that reported in the literature. In chickens affected with fowl paralysis it was found to be normal; birds with transmissible fowl leucosis had a moderately elevated rate. In cases of fibrosarcoma the basal metabolism was not greatly increased. In three cases of lymphocytoma (one atypical) and in one case of myelomata it was, on the other hand, considerably increased.

Fukuoka Acta Medica

Hukuoka vol. 31 July, 1938

- Some Contributions to Studies on Gastric Ulcer Due to Bile Acids (Eng.). T. Yosida.—p. 133.
Investigations of Lymphatic System of Tonsils (Ger.). H. Mukasa.—p. 134.
Glycolysis and Glycogenolysis in Blood, Muscle, and Sarcomatous Tissue and in Liver of Normal and Sarcoma-bearing Rabbits (Ger.). H. Maruyama.—p. 136.
Estimation of Digitalis in Rats and Mice (Ger.). J. Kawahara.—p. 139.
Second Intermediate Hosts of *Chlororchis sinensis* (Cobbold) in Hukuoka Prefecture (Eng.). K. Okabe.—p. 140.

Hukuoka vol. 31 August, 1938

- Glycolysis and Glycogenesis in Brain and Blood in Various Psychotic and Non-psychotic Conditions (Ger.). H. Maruyama.—p. 145.
Circulation of Digitalis in Rats and Dogs (Ger.). J. Kawahara.—p. 147.
*Results of Experimental Investigations on Egg-clearing Reaction (Ger.). R. Tihara.—p. 148.
Thermochemical Studies of Enzymatic Action (Ger.). M. Tsihama.—p. 150.

Egg-clearing Reaction.—Eczematous children who were washed with egg protein more frequently gave a serum precipitation reaction with the white of an egg than did other children. This observation was confirmed by experiments on rabbits.

Journal of Biological Chemistry

Baltimore vol. 124 June, 1938

- Enzymatic Synthesis of Peptide Bonds. M. Bergman and H. Fraenkel-Conrat.—p. 1.
Asymmetric Course of Enzymatic Synthesis of Peptide Bonds. M. Bergman and O. K. Birtens.—p. 7.
Spectrophotometric Determination of Equilibrium in Oxidation-reduction Systems. Potential of Cytochrome C. E. Stoltz, A. E. Sidwell, jun., and I. R. Hogness.—p. 11.
Spectroscopic Evidence for Existence of Carboxycytochrome C. A. M. Altschul and I. R. Hogness.—p. 25.
Protein Content of Organs and Issues of Body after Administration of Thyroxine and Dinitrophenol and after Thyroidectomy. T. Addis, D. Kornofsky, W. Lew, and I. J. Peo.—p. 33.
Rate of Citric Acid Formation following Injection of Sodium Salts of Certain Dehydroxy Acids. A. H. Smith and J. M. Olsen.—p. 43.
Osmotic Pressure, Molecular Weight, and Stability of Gladin. N. F. Burk.—p. 49.
Effect of Phosphorus on Serum Phosphatase Activity. R. K. Anderson and R. H. N. S. S.—p. 71.
*The Course of Elevation of Serum Phosphatase in Jaundice. S. Freeman, A. P. S. S., and A. C. Ivy.—p. 79.
*The Course of Human Strain H-17, of Tubercle Bacillus, II. A. E. O. Menzel and M. Heideberger.—p. 89.
*The Serum Extractives of Nervous Muscle. D. W. Wilson and W. A. Wolf.—p. 103.
*The Role of Ethanol Red, D-Jest, and Other Substances in Plasma. W. W. Smith and H. W. Smith.—p. 107.

- Reaction of Epiphyseal Cartilage in Normal and Rachitic Rats. I. A. Pierce.—p. 115.
*Isolation of Factor 1 in Crystalline Form. S. Lepkovsky.—p. 125.
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*Quantitative Studies of Effectiveness of Ultra-violet Radiation of Various Wave-lengths in Rickets. A. Knudson and F. Benford.—p. 287.
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Fat Metabolism in Dog following Liver Injury produced by Carbon Tetrachloride. I. C. Winter.—p. 339.
Photo-electric Method for Determination of Sodium in Serum and Urine by Uranyl Zinc Acetate Precipitation. W. S. Hoffman and B. Orwood.—p. 347.

Serum Phosphatase in Jaundice.—Whether jaundice was present or not, the serum phosphatase in dogs was increased in several forms of liver injury and biliary obstruction. Generally, obstructive jaundice gave a higher serum phosphatase than a hepatitis. A rise in serum phosphatase was a more sensitive indication of hepatic injury than a rise in serum bilirubin. The authors infer that biliary phosphatase originates in the liver, and that in liver disease a high serum phosphatase indicates the leakage of biliary phosphatase into the blood stream.

Crystalline Factor I.—The alcoholic extract of a concentrated baryta-free solution of the baryta eluate of the fuller's earth absorbate from rice bran extract was treated successively with baryta, mercuric chloride, and lead oxide, and then cleared of these metals. From the resulting solution Factor I was obtained as phosphotungstate, which crystallized in the form of square plates and from which a solution of free Factor I was obtained by treating with baryta. After concentration of this solution and treatment with alcohol and acetone, Factor I crystallized in colourless needles in rosette or fan shapes. The crystals readily cured acrodermatitis in rats, with simultaneous resumption of growth. Being colourless and not absorbed by lead sulphide, Factor I does not resemble flavin phosphoric acid.

Inhibition of Benzidine Reaction.—Ascorbic acid in sufficient concentration inhibits the benzidine reaction with haemoglobin. Added to a positive test mixture it reverses the reaction and gives a colourless mixture. These effects are produced by ascorbic acid, although in a weaker manner, etc.

when it has been oxidized by potassium permanganate. For clinical work the interference of ascorbic acid may be prevented by performing the benzidine test on the ether extract of acidified urine.

Ultra-violet Light and Rickets.—Of ultra-violet light of six different wave-lengths, light of wave-length 2804 Å.U. was most effective and light of wave-length 3128 Å.U. was least effective in curing rickets in rats. Antirachitic efficiency roughly follows the absorption curve of ergosterol and is roughly inversely proportional to erythema effectiveness.

Nicotinic Acid and Chick Dermatitis.—Nicotinic acid and its amide failed to prevent or cure dermatitis in chicks fed on a heated ration of natural grains and casein, and had no marked influence on the growth of chicks on a modified Goldberger diet. Liver extract, however, contained an anti-dermatitis factor which is distinct from vitamin B₁, vitamin B₂, riboflavin, nicotinic acid, and factor W.

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Steps in Concentration of Vitamin B₁₂ G. A. Emerson, A. Mohammad, O. H. Emerson, and H. M. Evans.—p. 377.

Studies on Ketosis XIV. Ketolysis versus Antiketogenesis as Explanation for Action of Carbohydrate on Ketonuria H. J. Deuel, jun., L. F. Hallman, and S. Murray.—p. 385.

Proteolytic Enzymes of Bacteria. I. Perturbances of *Leuconostoc mesenteroides* J. Berger, M. J. Johnson, and W. H. Peterson.—p. 395.

Lipemia in Rabbits Infected with *Streptococcus viridans* E. M. Boyd, J. H. Orr, and G. B. Reed.—p. 409.

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*Is Cobalt of any Significance in Treatment of Milk Anaemia with Iron and Copper? E. J. Underwood and C. A. Elvehjem.—p. 419.

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Chemical Studies of Suprarenal Cortex. IV. Structures of Compounds C, D, E, F, and G. H. L. Mason, W. M. Hoehn, and E. C. Kendall.—p. 459.

Chemical Studies of Suprarenal Cortex V. Conversion of Compound E to Series which contains Four Atoms of Oxygen and to Androstosterone by Action of Calcium Hydride. H. L. Mason.—p. 475.

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Synthetic Mannose-1-phosphoric Acid and Galactose-1-phosphoric Acid. S. P. Colowick.—p. 557.

Built-up Films of Steroid Compounds H. Sobotka and E. Bloch.—p. 559.

*Urinary Cholesterol in Cancer. E. Bloch and H. Sobotka.—p. 567.

Cobalt in Anaemia.—Cobalt is a general contaminant of iron compounds. In view of recent work demonstrating that cobalt is active in exceedingly small quantities, and since comparatively large doses of this element may play a part in inducing polycythaemia, the possibility that cobalt might be concerned in some way in the treatment of milk anaemia of the rat with common iron salts plus copper was investigated. No increase in growth or haemoglobin regeneration was obtained in rats fed on whole cow's milk plus copper, manganese, cobalt, and purified cobalt-free iron as compared with rats on a similar diet without added cobalt. Underwood and Elvehjem conclude that the small amounts of cobalt which contaminate all iron salts play no significant part in the treatment of milk anaemia in the rat.

Urinary Cholesterol in Cancer.—Tumour tissue is richer in cholesterol than any parenchymatous organ, except perhaps the brain. Urines from cancer patients contain about ten times as much cholesterol as urine from normal controls. Hypercholesterolemia occurs also in kidney disease, and possibly during pregnancy. Normal cholesterol values are found

in cachectic patients with such other diseases as tuberculosis and cardiac disease. Two possible causes for the appearance of cholesterol in urine in cancer are discussed, and the authors seem to prefer the explanation which suggests that this hypercholesterolemia is due to the destruction of tumour tissue rich in cholesterol.

Journal of Industrial Hygiene and Toxicology

Baltimore vol. 20 September 1938

Method for Analysis of Dust and Fumes for Lead and Zinc. S. Meskowitz and W. J. Burke.—p. 257.

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Journal of Infectious Diseases

Chicago vol. 63 July-August, 1938

Cause of Anaemia in *Bartonella* Infection of Rats D. Weinman.—p. 1.

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*Further Observations on Bacteriophage Action in Presence of Blood. W. J. MacNeal, M. A. McRae, and R. A. Colmers.—p. 25.

Vitamin C and Resistance of Guinea-pigs to Infection with *Bacterium necrophorum* N. B. McCullough.—p. 34.

Regeneration of Malari Splen in Canary after Infarction and after Burning W. Bloom and W. H. Taliaferro.—p. 54.

Influence of Ascorbic Acid on Anaphylaxis in Guinea-pigs. S. Raffel and R. R. Madison.—p. 71.

Further Studies of Experimental Gonococcal Infection in Mice and their Protection by Sulphanilamide. A. Cohn and L. R. Peizer.—p. 77.

Observations on Inactivation and Reactivation of Bacteriophage. Studies in Bacterial Metabolism. C. X. A. I. Kendall and C. A. Colwell.—p. 81.

*Possible Mechanism of Lowered Resistance to Pneumonia. W. J. Nungester and R. G. Klepper.—p. 94.

Excretion in Urine of Ovalbumin and of Blood Proteins after Intravenous Injection of Crystallized Ovalbumin. F. A. Briggs.—p. 103.

Improved Medium for Storage of *Aeromonas necrophorum* Cultures. E. A. Tunnell.—p. 113.

Bacteriophage Action of Prostatic Fluid in Dogs G. P. Youmans, J. Liebling, and R. Y. Lyman.—p. 117.

Study of Haemolytic Properties of Streptococci on Various Blood Agar. D. A. Dance and T. J. Murray.—p. 122.

Effect of Simultaneous Inoculation with Various Micro-organisms on Pathogenesis of St. Louis Encephalitis in Mice. E. A. Cook.—p. 127.

Bacteriophage Activity in Blood.—The lytic action of bacteriophage is not exerted *in vitro* in the presence of blood, but treatment with bacteriophage has nevertheless been found effective in some forms of septicaemia. Experiments are reported here in which bacteriophage exerted an opsonic effect, and it is suggested that this mechanism may be responsible for such therapeutic successes.

Lowered Resistance to Pneumonia.—An excess of mucin in the bronchi favours the multiplication of pneumococci and may be a factor determining the onset of pneumonia. It was found in experiments on rats that severe chilling or alcoholic intoxication inhibits closure of the glottis, thereby favouring the aspiration of mucin. It is suggested that this mechanism may form part of the basis of what is vaguely described as "lowered resistance" to pneumonia.

Journal of Laryngology and Otology

London vol. 53 September, 1938

*Pathology of Nasopharyngeal Tumours. D. F. Cappel.—p. 558.

Some Observations on Relation between Tests by Voice, Gramophone Audiometer, and Pure-tone Audiometer. J. A. Keen.—p. 581.

Labyrinthine Destruction in Treatment of Vertigo by Injection of Alcohol through Oval Window. A. J. Wright.—p. 594.

Nasopharyngeal Tumours.—The author has studied 122 cases of new growths from the nose and throat, and describes their classification. One rare case was a malignant rhabdomyoma. The main discussion concerns lympho-epithelioma and their reaction to radiation therapy.

Journal of Pediatrics

St. Louis vol. 23 August, 1938

- *Subphrenic Abscess in Children. W. E. Anspach.—p. 157.
Pneumatosis of Intestine in Infancy. W. W. Botsford and C. Krakower.—p. 185.
Significance of Conditions of Exposure in Study of Measles Prophylaxis. S. Karetitz and R. F. Karetitz.—p. 195.
Atelectasis of Lungs in Newborn Baby, resulting from Lesions of Nervous Centres. R. Debre, J. Marie, M. Lamy, and de Font-Reaulx.—p. 208.
Serum Treatment of Pneumonia in Children. R. L. Nemir.—p. 219.
Myotonia Congenita. W. A. Hawke.—p. 236.
*Ripe Bananas as Complementary Feeding in Infants. J. D. Craig.—p. 239.
Treatment of Tuberculosis of Spine by Spinal Fusion. W. E. Swift.—p. 245.

Subphrenic Abscess in Children.—Ten cases in children are reported in detail. The x-ray examination is an important adjunct to the history and clinical findings, and seldom fails to make the diagnosis clear. Fixation of the diaphragm is the earliest sign, and later there is an accumulation of fluid, which tends to remain small. The majority of cases follow appendicitis, though there is often an interval between the two diseases and the abscess is generally on the right side. Empyema may accompany the subphrenic abscess, due to infection through the diaphragm. Spontaneous recovery may occur without drainage.

Ripe Bananas.—A large number of infants were fed with ripe bananas and the results noted. All the infants were underfed or had suffered from enteritis. The advantage of the banana is that it is very easily assimilated and is thus useful in supplementing the ordinary milk feeds. The article suggests that the banana should be used more widely for complementary feeding in this way.

Medical Clinics of North America

Philadelphia vol. 22 July, 1938

Symposium on Medical Emergencies:

- Introduction. E. G. Bannick.—p. 881.
Medical Aspects of Gastro-intestinal Emergencies. G. B. Eusterman.—p. 883.
Some Cardiac Emergencies. F. A. Willis.—p. 895.
Emergencies arising in Anaemias and Blood Dyscrasias. B. E. Hall, M. M. Hargraves, C. H. Watkins, and H. Z. Giffin.—p. 907.
Diagnosis and Treatment of Extracardiac Vascular Emergencies. E. A. Hines, jun.—p. 937.
Renal Emergencies. M. W. Binger.—p. 949.
*Common Emergencies arising in Course of Hepatic Disease. H. R. Butt.—p. 967.
Diagnosis and Treatment of Emergencies associated with Disease of Some of the Ductless Glands. E. J. Kepler.—p. 979.
Common Emergencies resulting from Contact with Certain Physical Agents. E. C. Elkins.—p. 1009.
Differential Diagnosis of Abdominal Pain. A. E. Brown.—p. 1031.
Functional Disturbances of Digestion. W. C. Alvarez.—p. 1045.
Roentgenological Investigation of Small Intestine. H. M. Weber and B. R. Kirklin.—p. 1059.
Some Practical Problems of Diseases of Colon. E. G. Wakefield.—p. 1073.
Association of Chronic Ulcerative Colitis (Colitis Gravis) with Hepatic Insufficiency. Four Cases. M. W. Comfort, J. A. Bergen, and C. G. Morlock.—p. 1089.
Medical Aspects of Chronic Sinusitis. H. I. Little.—p. 1099.
Diagnosis of Lesions of Spinal Cord. H. W. Weltman.—p. 1111.
Recognition of Latent Cardiac Insufficiency. H. L. Smith.—p. 1129.
Treatment of Failing Heart. F. A. Willis.—p. 1137.
Clinical Significance of Lead IV of Electrocardiogram. A. R. Barnes and D. I. Wolfram.—p. 1147.
Some Notes on Diagnosis of Conditions associated with Ascites. A. M. Snell.—p. 1165.
Chemotherapy of Infections of Urinary Tract. E. N. Cook and W. F. Itirsch.—p. 1177.
Non-specific Prostatic Infection and its Relation to Other Foci of Infection. L. G. Stehler.—p. 1181.
*Complications of Elderly Diabetic Patient. E. H. Ryncarson.—p. 1187.
Post-partum Haemorrhage. L. M. Randall.—p. 1197.
Treatment of Post-partum Thrombophlebitis. N. W. Barker and L. M. Randall.—p. 1205.
Treatment of Non-convulsive Toxicemias of Late Pregnancy. A. B. Hunt.—p. 1215.

Hepatic Emergencies.—Hepatic insufficiency is rare because the liver is very resistant to repeated injury and possesses a remarkable power of regeneration. The first principles of treatment are to dilute and eliminate toxic agents and to attempt to restore the normal glycogen content of the liver. Diffuse haemorrhage is due to deficiency in the concentration of prothrombin in the blood owing to the failure to absorb

certain sterols necessary for its formation. This is responsible for the occurrence of the haemorrhagic diathesis in association with jaundice due either to obstruction or advanced atrophy of the liver. Whole bile or bile salts are of therapeutic value.

Complications of Diabetes.—The lengthening life of the diabetic patient due to insulin treatment, the higher incidence of onset over the age of 40, and the ageing of the population in general explain the fact that there is an increasing number of elderly diabetic patients. The death rate is of course higher in elderly persons, although the disease in older persons is not usually of the more severe type. Arteriosclerosis and vascular lesions causing gangrene of the feet following trauma or infection are the most important complications. Diabetic neuritis and retinitis are possible complications, the former being painful and lasting for many months and the latter having no chance of improvement. A carbuncle in a case of diabetes is still serious, and was formerly considered to be always fatal.

Radiology

St. Paul vol. 31 September, 1938

- Roentgen Visualization of Pulmonary Arterial Circulation in Necropsy Material. C. C. Birkelo and W. L. Brosius.—p. 261.
*Radiotherapy for Tumours of Testis. E. T. Leddy and A. U. Desjardins.—p. 293.
Detection of Crystalline Silica in Lung Tissue by X-Ray Diffraction Analysis. H. C. Sweeney, R. Klaas, and G. L. Clark.—p. 299.
Dosage Chart for X-Ray Therapy. E. H. Quimby.—p. 308.
Effect of Filtration on Divergent Beams at Supervoltages. H. S. Hayden, K. L. Corrigan, and B. Cassen.—p. 312.
Attenuation and Transmittance Effects in Absorption of Supervoltage Radiation. B. Cassen, K. E. Corrigan, and H. S. Hayden.—p. 319.
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Anomalies of Clavicle, with Previously Unreported Variation. C. Lieber and N. B. Freedman.—p. 345.
X-Ray Studies on Effect of Opium on Gastro-intestinal Tract in Man. F. H. Fell.—p. 348.
Development of High-voltage X-Ray Tubes at California Institute of Technology. C. C. Lauritsen.—p. 354.
Primary Carcinoma of Third Portion of Duodenum. S. Pollack.—p. 361.
Slipping Sacro-iliac Joints. J. S. Trostler.—p. 363.
Radiology in Teaching of Pathology. W. Carpenter.—p. 368.
Report on Cancer of Lip. A. W. Erskine.—p. 372.

Radiotherapy for Tumours of the Testis.—The case histories of 314 patients with malignant testicular tumours are reviewed with special reference to survival following treatment. The most important factors influencing prognosis are the type of the tumour and the presence or absence of metastases at the time of treatment. A patient without metastases has about a 60 per cent. chance of surviving for five years or longer; with metastases his chances are only about 30 per cent.

Zeitschrift für Orthopädie und ihre Grenzgebiete

Berlin vol. 68 September 6, 1938 Heft 3

- Inappropriate Footwear as a Cause of Twist-foot. A. Basler.—p. 246.
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Tomography in Diagnosis of Bone and Joint Disease. L. Froidevaux.—p. 261.
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Radio-ulnar Synostosis at Distal and Proximal Ends associated with Elbow Malformations. W. Eckinger.—p. 297.
Arterial Paralysis of Arms and Legs and a Little-known Late Symptom. Duncker.—p. 300.
Pathogenesis of Dislocation of Hip. H. Storck.—p. 308.

Zeitschrift für Urologie

Leipzig vol. 32 1938 Heft 9

- Operative Treatment of Ureteric Calculi. J. Berner.—p. 577.
Cautery Resection at Bladder Neck. Th. Wohlleben.—p. 589.
Cautery Resection of Prostatic Carcinoma. Th. Wohlleben.—p. 591.
Radiologically Demonstrable Malformations of Urinary System. W. J. ...—p. 605.
Case of Extrarenal Hydronephrosis. T. Kusunoki.—p. 617.
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Bladder Calculi in Women. B. Babus.—p. 625.
Haemostatic Action of Curin (Vitamin P). M. Raunert.—p. 630.

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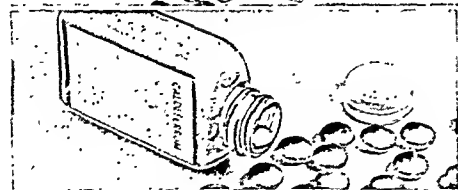


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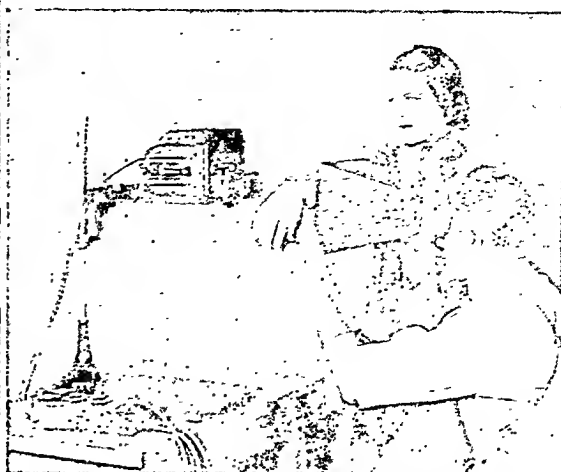
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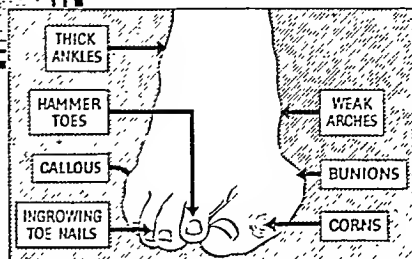
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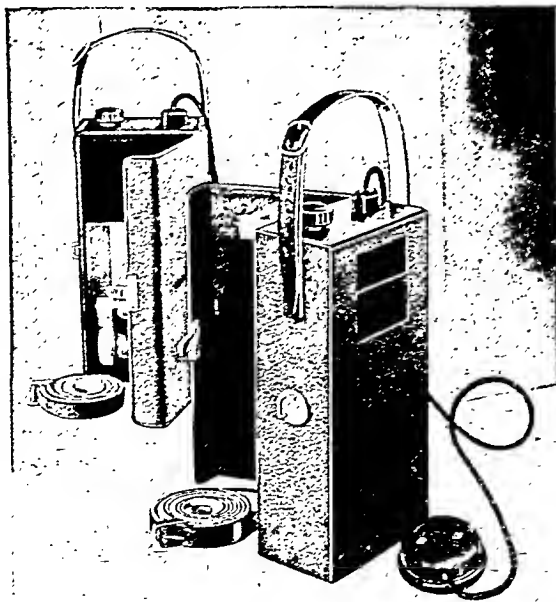


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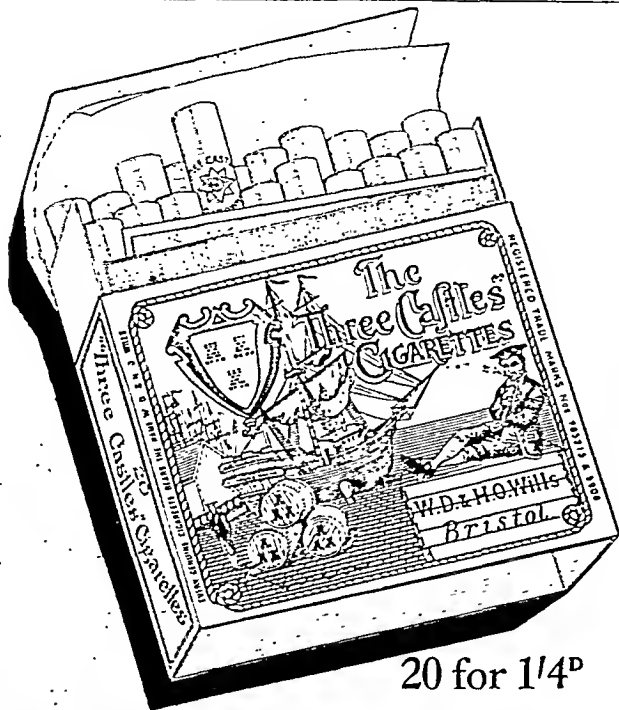
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No case under certificate nor under the M.T.A.

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The Hospital is governed by a Committee appointed by the TRUSTEES of the Manchester Royal Infirmary.

In addition to the Main Building there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational therapy.

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There will be six demonstrations. A set of slides will be provided for each student.

Fee: £3.3.0

Lecturer: Dr. J. O. OLIVER, M.B., B.S., M.R.C.S. For further particulars apply to the Dean.

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RESEARCH FELLOW required. Candidates with experience of animal work preferred. Applications to Secretary.

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ASSISTANT COUNTY MEDICAL OFFICER
AND MEDICAL OFFICER OF HEALTH
(TEMPORARY)

The above Council require the services of a temporary Assistant County Medical Officer, who will also be appointed temporary Medical Officer of Health to the Whittlesey Urban District Council (population 7,971) and to the Thorney Rural District Council (population 2,451).

The duties will include clinical tuberculosis work, and the person appointed will require to have experience of such work.

The salary will be at the rate of £675 per annum, and travelling expenses on the County scale as regards the County Council duties, and £95 plus £5 per annum, and £30 per annum in respect of the Whittlesey and Thorney appointments respectively. The appointment will be for a minimum period of six months, and the successful applicant will be expected to assume duty as soon after the middle of November as possible.

Applications, together with copies of three recent testimonials, should be sent to the County Medical Officer not later than November 7th, 1938.

Further particulars may be obtained from the County Medical Officer, County Hall, March County Hall.

R. F. G. THURLOW,
Clerk of the County Council.

October 24th, 1938.

CITY OF MANCHESTER

WITHINGTON HOSPITAL (1,184 Beds)
(Recognized under the Regulations for the F.R.C.S.)

The Public Health Committee invites applications from qualified Medical Practitioners for posts of THREE RESIDENT ASSISTANT MEDICAL OFFICERS at the above-named hospital, which will become vacant early in January, 1939.

The salary for each appointment is £200 per annum, with board, residence, and laundry in addition, subject to the Manchester Corporation conditions of service.

Each appointment will be made in the first instance for a period of six months, renewable for a further six months but not renewable thereafter.

Full information and forms of application may be obtained from the Medical Officer of Health, Town Hall, Manchester, 2, and applications for the posts must be received by him not later than November 10th, 1938.

Town Hall, Manchester.

October 17th, 1938.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

CITY HOSPITAL FOR INFECTIOUS DISEASES.

JUNIOR RESIDENT MEDICAL ASSISTANT (Male)

Applications for the above appointment are invited from duly qualified and registered Medical Practitioners. The holding of a previous resident appointment is essential.

Salary £250 per annum, with board, lodging, etc. The appointment is for a period of one year only.

Applications on the prescribed form, which can be obtained on application to the Medical Officer of Health, Town Hall, Newcastle-upon-Tyne, 1, must be submitted not later than Saturday, November 12th, 1938.

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C.S.M.M.G., 41, New Bond St. (May, 2200). Ultra Short-wave diathermy, Bergonié, Foam R.H. baths, Mud, Wax Galvanism, Faradism, Ultra Violet light, Massage, Exercises: at reasonable charges.

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The Education Committee invite applications from fully qualified medical men or women for the part-time position of Ear, Nose and Throat Surgeon.

Candidates must be specially experienced in this branch of Surgery and must possess the F.R.C.S. Eng., or its equivalent.

Salary will be paid on a sessional basis, viz. — Two sessions a week at the rate of £100 per annum for each session, and additional sessions (average four per week) at £75 per annum for each session. On this basis, which represents approximately the service required but not necessarily guaranteed, the Surgeon appointed would be entitled to a remuneration of £500 per annum, with an agreed supplementary payment (say, £25 per annum) for certain extraneous duties.

The position is not a superannuated post, and the appointment will be determinable by three months' notice, in writing, on either side.

Application to be made by letter and sent (with copy of three recent testimonials) to the undersigned, from whom further particulars may be obtained, not later than Friday, November 11th, 1938.

Education Department. F. P. ARMITAGE, Director of Education.
Newark Street, Leicester.
October 24th, 1938.

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE

ASSISTANT TUBERCULOSIS OFFICER.

The County Council of the West Riding of Yorkshire invite applications for the appointment of an Assistant Tuberculosis Officer. Candidates must be qualified in accordance with the Regulations of the Minister of Health. The possession of the D.P.H. will be an advantage.

Salary £500 per annum, rising by annual increments of £25 to £700.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Further particulars and forms of application may be had from the undersigned, to whom all applications together with copies of not more than three recent testimonials, should be addressed not later than Saturday, November 5th, 1938.

CHARLES MCGRATH,
Clerk of the County Council.

County Hall, Wakefield.
October, 1938.

CITY OF BIRMINGHAM.

SELBY OAK HOSPITAL (520 Beds)

JUNIOR MEDICAL OFFICERS (Male).

Applications are invited from fully qualified Medical Practitioners for the whole-time appointments of Junior Medical Officers (male) at the Selby Oak Hospital, Birmingham.

The appointments will be for periods of six months in the first instance, but may be extended at the end of that time for further periods of not exceeding six months.

Salary at the rate of £200 per annum, and full residential emoluments.

Further particulars may be obtained from the Medical Superintendent at Selby Oak Hospital, to whom applications, stating age, experience and qualifications, with copies of recent testimonials, should be forwarded not later than Wednesday, November 9th, 1938.

The Council House. F. H. C. WILTSHIRE,
Birmingham.
October, 1938.

BOROUGH OF BLYTH. **RIVER BLYTH PORT HEALTH AUTHORITY.** **MEDICAL OFFICER OF HEALTH.**

Applications are invited for the appointment of a full-time Medical Officer of Health School Medical Officer for the above-mentioned Borough and Medical Officer of Health for the above-mentioned Authority with the necessary qualifications as prescribed by the Sanitary Officers' (Outside London) Regulations, 1935, the Local Government Act, 1933, the Public Health Act, 1936, and any other Acts and Regulations made thereunder, at a salary of £800 per annum, rising by four annual increments of £25 to £900 per annum.

The person appointed will be required to carry out the duties prescribed by the said Regulations and Acts and such other duties as may, from time to time, be prescribed by the Minister of Health or assigned by the Council or authority to the officer.

The successful candidate will be required to reside in the Borough, and the appointment is also subject to the other usual terms and conditions adopted by the Council.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to pass a medical examination.

Forms of application may be obtained on application to the undersigned, and completed applications should be endorsed "Medical Officer of Health," accompanied by copies of not more than two recent testimonials, which must be sent to the undersigned not later than November 15th, 1938. Canvassing, either directly or indirectly, will be deemed a disqualification.

Municipal Buildings, J. LEIGH TURNER,
Blyth. Town Clerk.

IMPERIAL BUREAU OF ANIMAL NUTRITION, ROWETT RESEARCH INSTITUTE, ABERDEEN.

Applications are invited for the post of DEPUTY DIRECTOR of the Imperial Bureau of Animal Nutrition, which is centred at the Rowett Research Institute, Bucksburn, Aberdeen, Scotland.

The work of the Bureau consists mainly in the collection and collation of scientific information on nutrition (human and animal) and its dissemination to research workers in countries of the British Commonwealth and abroad.

Applicants should possess an honours degree in Science or a degree in Human or Veterinary Medicine. They should have experience in research on nutrition. A knowledge of foreign languages is desirable and overseas experience will be an advantage.

The salary scale is £400-£20-£600-£25-£800. The initial salary within the scale will depend on the qualifications and experience of the person appointed. For a properly qualified applicant early promotion to the £600 level is probable.

The person appointed will be included in the Federated Superannuation Scheme for Universities after one year's probation.

Applicants should state age, experience, and qualifications and give at least two testimonials or references.

Applications should be addressed on or before November 19th to—

SIR DAVID CHADWICK,

The Secretary,

Imperial Agricultural Bureau

Queen Anne's Gate Buildings,
London, S.W.1

COUNTY BOROUGH OF BRIGHTON. **BRIGHTON MUNICIPAL HOSPITAL.**

Applications are invited from duly qualified men for the post of SECOND RESIDENT ASSISTANT MEDICAL OFFICER at the Brighton Municipal Hospital.

Candidates must be single men, and preference will be given to those holding an F.R.C.S. or who produce evidence of having had practical surgical experience in a recognized hospital, as the appointment is primarily for surgical work, although not exclusively so.

The appointment is for one year, but the person appointed will be eligible for appointment for a further year.

Salary £175 per annum together with residential allowances valued for the purposes of superannuation at £151 per annum.

Forms of application, conditions of appointment, and list of duties may be obtained from the undersigned, which forms, duly completed and accompanied by copies of testimonials, must be returned to the Medical Superintendent not later than Wednesday, November 16th, 1938.

Canvassing the Committee, either personally or by letter, will be considered a disqualification for appointment.

S. J. IRELL,
Medical Superintendent.

Brighton Municipal Hospital,
One Green, Brighton, 7.
October 1938.

MIDDLESEX COUNTY COUNCIL. **WEST MIDDLESEX COUNTY HOSPITAL,** **Twickenham Road, Isleworth.** **RESIDENT ASSISTANT MEDICAL OFFICER.**

Registered medical practitioner required with previous resident appointments in general hospitals and special surgical experience.

Salary £400-£25-£475 per annum, with board, lodging and laundry valued at £100 per annum.

Whole-time duties under supervision of Medical Superintendent; pensionable staff, subject to medical examination. Appointment for four years only, subject to one month's notice on either side. Possibility of retention on established staff, with £500 p.a. maximum. Contribution to the Superannuation fund will be required from April 1st, 1939.

Written application to the undersigned by November 5th, 1938, giving age, qualifications and experience, and copies of not more than three recent testimonials. Endorse envelopes "W. Mdx.—A.M.O." Canvassing, direct or indirect, disqualifies.

Guildhall, C. W. RADCLIFFE, "Z."
Westminster, S.W.1. Clerk of the County
October 17th, 1938. Council.

COUNTY BOROUGH OF SMETHWICK. **ST. CHAD'S HOSPITAL, BIRMINGHAM, 16.** **HOUSE SURGEON.**

Applications are invited from registered Medical Practitioners for the appointment of House Surgeon at the Council's Municipal Hospital. The appointment will be for a period of six months, with salary at the rate of £150 per annum, with the usual emoluments. If the successful candidate is re-appointed for a further period of six months the salary will be at the rate of £200 per annum. St. Chad's Hospital contains 147 beds, and the cases treated include general medical, acute surgical, and maternity patients. It is staffed by the Honorary Consultants of the Birmingham teaching hospitals.

Forms of application may be obtained from the Medical Superintendent, St. Chad's Hospital, Harley Road, Birmingham, 16, to whom applications, endorsed "House Surgeon" and accompanied by copies of three recent testimonials, must be delivered not later than November 9th, 1938.

Canvassing, directly or indirectly, will disqualify. Council House, FRANK CHAPMAN,
Smetwick. Town Clerk.
October 25th, 1938.

HULL CORPORATION HEALTH DEPARTMENT.

ASSISTANT MEDICAL OFFICER OF HEALTH
(for Port Health Work).

Applications are invited from duly qualified medical men, under the age of 40 years and of not less than three years' standing in their profession, for the appointment of Assistant Medical Officer of Health.

Salary £600 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700.

Candidates must hold a registered degree or diploma in State Medicine or Public Health. Experience in Port Health Work and Infectious Diseases will be considered special qualifications.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on forms to be obtained from the undersigned, are returnable not later than 10 a.m. on Thursday, November 3rd, 1938.

NICOLAS GEBBIE, M.D.,
Medical Officer of Health.

Health Department,
Guildhall, Hull.
October, 1938.

HULL CORPORATION HEALTH DEPARTMENT.

CONSULTANT OBSTETRICIAN AND
GYNAECOLOGIST.

Applications are invited from registered Medical Practitioners for the appointment of Consultant Obstetrician and Gynaecologist (part-time) to the Corporation's Hospitals, Institutions, Clinics, etc.

Candidates must be Fellows of one of the Royal Colleges of Surgeons and Members or Fellows of the British College of Obstetricians.

The successful candidate will be permitted to undertake private consulting practice, but general medical practice will not be allowed.

Salary £700 per annum—appointment non-resident.

Applications, on forms to be obtained from the undersigned, are returnable not later than 10 a.m. on Monday November 7th, 1938.

NICOLAS GEBBIE, M.D.,
Medical Officer of Health.

Health Department,
Guildhall, Hull.
October, 1938.

BOROUGH OF HORNSEY. **WOMAN ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.**

Applications are invited from duly qualified Medical Women (married or unmarried) for the appointment of an Assistant Medical Officer of Health and School Medical Officer.

The duties are chiefly those of the Maternity and Child Welfare and School Medical Departments and include refraction work and the treatment of eye conditions in children.

The salary is £600 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700. The appointment will be subject to the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on special forms to be obtained from the Medical Officer of Health, Town Hall, N.8, should be filled in and returned to the undersigned not later than Saturday, November 19th.

Testimonials are not required in the first instance. Candidates selected for interview will be required to send copies of three testimonials at a later date. Town Hall, H. BEDALE,
Crouch End, N.8. Town Clerk.
October 27th, 1938.

BOROUGH OF JARROW. **ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.**

Applications are invited from duly qualified and registered medical practitioners for the above appointment. The salary will be at the rate of £500 per annum, rising by annual increments of £25 to £700 per annum. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act of 1922, and the successful candidate will be required to pass the necessary medical examination.

The duties of the post include work in connexion with the School Medical and Maternity and Child Welfare Services, and such other duties as may be required by the Council. Conditions of employment and duties are attached to application forms.

Applications, which must be in the form obtainable from the Medical Officer of Health, Town Hall, Jarrow, should be addressed to the undersigned, endorsed "ASSISTANT M.O.H." and delivered not later than November 9th, 1938. Town Hall, CHARLES S. PERKINS,
Jarrow. Town Clerk.

STAFFORDSHIRE COUNTY COUNCIL. **STANDON HALL ORTHOPAEDIC HOSPITAL.** **(120 Beds.)**

HOUSE SURGEON (Female).

Applications are invited for the post of House Surgeon (female) at the above Hospital at a salary of £200 per annum, with full board and lodging. The appointment is for one year and is not renewable. A month's holiday is allowed during the term of service.

Applications, stating age and qualifications, accompanied by three recent testimonials, must be delivered to the undersigned not later than November 10th, 1938. Candidates receiving reply by November 26th, 1938, may assume the vacancy filled.

County Buildings, H. L. UNDERWOOD,
Stafford. Clerk of the County Council.
October 24th, 1938.

COUNTY BOROUGH OF SUNDERLAND **CHERRY KNOWLE HOSPITAL FOR MENTAL AND NERVOUS DISORDERS**

HOUSE PHYSICIAN.

Applications are invited from registered medical practitioners for the post of House Physician, tenable for one year, at a salary of £200 per annum and board residence. No experience, but interest in the work is necessary.

Applications, with fullest particulars and testimonials, to Medical Superintendent, Cherry Knowle, Ryhope, Sunderland, Co. Durham, by November 12th.

COUNTY COUNCIL OF INVERNESS **PARIISH OF GLENELG (MALLAIG PART)**

MEDICAL OFFICER wanted for the Parish of Glenelg (Mallaig Part). Salary in respect of parishes authority appointments £140 per annum, in addition to which an allowance from the Highlands and Islands (Medical Service) Fund will be payable. Rent-free house is provided at Mallaig.

Further particulars may be obtained from the County Clerk, County Buildings, Arbroath, Inverness, with whom applications, with copies of testimonials, should be lodged not later than November 12th, 1938.

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in January, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list, and periods of unemployed or half pay are very rare. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than November 21st, 1938.

CITY OF COVENTRY. ASSISTANT MEDICAL OFFICER (Woman).

Applications are invited from duly qualified and registered women Medical Practitioners under 40 years of age for the post of Assistant Medical Officer in the City of Coventry Public Health Department. The duties will be in connection with the maternity and child welfare scheme. Candidates should possess a Diploma in Public Health, and preference will be given to those having special experience in the conduct of ante-natal clinics.

The salary will be £500 per annum, rising by annual increments of £25 to a maximum of £700. The officer appointed will be required to devote her whole time to the duties of the post.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass the necessary medical examination as to fitness and to contribute to the Superannuation Fund.

Applications, together with copies of three recent testimonials, must be made on the prescribed form (which may be obtained on request) and must reach the undersigned on or before November 3rd, 1938. The Council House, A. MASSEY, M.D., Coventry, Medical Officer of Health.

October 17th, 1938.

BOROUGH OF TOTTENHAM WELFARE AUTHORITY.

MATERNITY AND CHILD WELFARE COMMITTEE.

VISITING ANAESTHETIST.

Applications are invited for the post of Visiting Anaesthetist to the above Authority in connexion with their Dental Scheme for the treatment of expectant mothers and children under 5 years of age.

Remuneration will be, at the rate of two and a half guineas per two hours' session and the number of sessions will be one per month to commence with. This number is likely to be increased in the near future.

Preference will be given to applicants holding Hospital Visiting Appointments.

Applications, accompanied by a copy of three recent testimonials, should be forwarded to the Medical Officer of Health, Town Hall, Tottenham, N.15, not later than Tuesday, November 1st.

M. F. DAVIDSON, Clerk to the Committee.

October 13th, 1938.

LANCASHIRE COUNTY COUNCIL. PUBLIC ASSISTANCE COMMITTEE.

LAKE HOSPITAL, Aughton-under-Lyne, near Manchester

APPOINTMENT OF RESIDENT OBSTETRICAL OFFICER.

Applications are invited for the appointment of Resident Obstetrical Officer at the Lake Hospital, Aughton-under-Lyne, near Manchester (300 beds—approximately 600 births per year).

Applicants must hold the Diploma of the College of Obstetrics and Gynaecologists or a Diploma of similar standing, and preference will be given to applicants who have held a responsible appointment at a Maternity Hospital.

The salary is at the rate of £350 per annum, rising by annual increments of £25 to £400 per annum, together with the usual residential emoluments.

The appointment is for a period of one year in the first instance, and may be renewed for a further period of one year.

Forms of application may be obtained from the County Medical Officer of Health, Hospital and Medical Department, County Offices, Preston, to whom all applications, accompanied by copies of recent testimonials, must be forwarded not later than Wednesday, November 9th, 1938.

County Offices, GEORGE ETHERTON, Clerk of the County Council.

October 17th, 1938

SWANSEA COUNTY BOROUGH ASSISTANT MEDICAL OFFICER.

The Swansea Borough Council invite the applications of women Medical Practitioners for the post of Assistant Medical Officer to assist with the medical services of the Corporation.

Special experience in the treatment of venereal diseases of women and children is essential; Residencies in Hospital, Mental Deficiency, School Medical Service, and Maternity and Child Welfare experience are desirable additional qualifications.

Salary £500, rising by annual increments of £25 to £700. The appointment is subject to the approval of the Ministry of Health and Board of Education.

Applications, on special forms which can be obtained from Dr Thomas Evans, Medical Officer of Health, Public Health Office, Swansea, to be sent in not later than Thursday, November 3rd, 1938.

COUNTY OF LINCOLN—PARTS OF LINSEY. PUBLIC HEALTH DEPARTMENT.

SENIOR ASSISTANT AND DEPUTY COUNTY AND SCHOOL MEDICAL OFFICER.

The Council invite applications for the above appointment at a salary of £720 per annum, which sum includes emoluments valued at £100, with an allowance for travelling according to the Council's scale.

Applicants should be under 40 years of age and hold a special qualification in State Medicine or the Diploma in Public Health.

Experience in Public Health administration, with a sound knowledge of the modern methods of the diagnosis and treatment of tuberculosis, is essential.

Terms and conditions of appointment, together with application forms, can be obtained from the undersigned. Applications, which must be accompanied by copies of three recent testimonials, should be received not later than Saturday, November 5th, 1938.

W. S. H. CAMPBELL,
County Medical Officer of Health,
Public Health Department,
County Offices, Lincoln.

HETTBURN URBAN DISTRICT COUNCIL MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER

The Urban District Council invite applications from fully qualified Medical Practitioners for the whole-time appointment as Medical Officer of Health and School Medical Officer, at a total inclusive annual salary of £600. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

The successful applicant will be required to devote the whole of his time to the duties of the appointment and will not be allowed to engage in private practice. Further particulars, together with a form of application, may be obtained from the undersigned.

Applications, accompanied by copies of not more than three recent testimonials, endorsed "Medical Officer of Health" must reach the undersigned not later than November 2nd, 1938.

Convening the members of the Council in any form will be a disqualification.

Council Offices, ERNEST FOXALL,
Hettburn, Co. Durham, Clerk of the Council.
October 12th, 1938.

CHELSEA HOSPITAL FOR WOMEN, Arthur Street, S.W.3.

JUNIOR HOUSE SURGEON (MALE).

Applications are invited for the above post, now vacant. The appointment is for six months at a salary of £100 per annum, together with board, residence, and laundry. At the expiration of this term he will be expected to proceed to the Senior post for six months at a salary of £120 per annum.

Candidates should forward their applications, giving full particulars, and accompanied by copies of three recent testimonials to the undersigned not later than November 7th next.

GEO. W. COOLING, Secretary.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.11. (135 Beds.)

HOUSE SURGEON (male, unmarried) required. The appointment is for six months commencing on December 1st, 1938. Salary £120 per annum, with board, residence and laundry.

Candidates must be fully qualified and registered. Applications, stating age, qualifications and experience, with copies of not more than three testimonials, should be sent to the undersigned on or before November 9th, 1938.

W. S. RANDOLPH BISS,

Secretary-Superintendent.

EAST SUFFOLK AND IPSWICH HOSPITAL, (350 Beds & 8 Residents.)

Wanted, December 7th next, **HOUSE SURGEON** (British, male) to the Gynaecological and Obstetrical Department and to the Ophthalmic Surgeon. Salary at the rate of £144 per annum, with board, apartments, and laundry.

Applications, stating age, qualifications, and experience, to be sent to the undersigned, together with copies of three recent testimonials.

The Hospital,

ARTHUR GRIFFITHS,

Ipswich,

Secretary.

October 29th, 1938.

EAST HAM MEMORIAL HOSPITAL, Shrewsbury Road, E.7. (104 Beds.)

Applications are invited for the post of **ANAESTHETIST**. The successful candidate will be required to attend on Wednesday mornings. Honorary £145 per session.

Applications, stating age, experience, and full particulars, together with copies of three testimonials should reach the undersigned by November 9th.

RIGINALD PERRY,

Secretary.

EASTERN DISPENSARY, Leman Street, E.1

Applications are invited for the post of **GYNACOLOGIST** at this Institution, to attend on Wednesday at 12.30. Candidates must be Members of a Royal College of Physicians, or Fellows of the Royal College of Surgeons, in the United Kingdom or Ireland. There is an honorarium attached to the post.

GEORGE W. HUSLEY,

October 22nd 1938. Secretary

EVUNA HOSPITAL FOR SICK CHILDREN, Southark, S.E.

Applications are invited for the post of **FOURTH ANAESTHETIST** from Registered Medical Practitioners. There is an honorarium attached to the post at the rate of twenty-five guineas per annum for twelve sessions.

Applications, with copies of testimonials, should reach the undersigned, from whom full particulars can be obtained, not later than first post on November 11th.

W. H. SIDNELL, House Governor.

ROYAL GWINT HOSPITAL NEWPORT, Main (210 Beds & 6 Residents)

HOUSE SURGEON to the Fracture and Orthopaedic Department required immediately. Salary at the rate of £135 per annum, together with board, residence and laundry.

Applications, stating age, nationality, experience, etc., should be sent to the undersigned at once, together with three recent testimonials.

MAN RUDDIE,

Oct. 29th, 1938. Secretary-Superintendent

GERMAN HOSPITAL, Dalston, London, E.8

HONORARY OPHTHALMIC SURGEON.

The Committee invite applications for the post of **Honorary Ophthalmic Surgeon** at the German Hospital, a Fellowship of the Royal College of Surgeons and some knowledge of the German language would be an advantage. Applications to be sent to the Secretary by 1st inst.

THE SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.4. (140 Beds.)

A General Hospital for Women and Children.

Applications are invited from medical women for the under-mentioned appointments:—

RESIDENT MEDICAL OFFICER, for a period of twelve months from January 1st, 1939. Salary at the rate of £150 per annum, with board, residence, and laundry.

HOUSE SURGEON AND HOUSE PHYSICIAN, each for a period of six months from January 1st, 1939. Salary at the rate of £100 per annum, with board, residence, and laundry.

Candidates are requested to call on members of the Hon. Medical Staff before Saturday, November 12th, by which date applications and copies of testimonials must reach the Secretary at the hospital.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.4.

Applications are invited from medical women as **CLINICAL ASSISTANTS**

for Gynaecological Out-patients to attend on Tuesday and Friday mornings.

Applications, with testimonials, to be sent to the Secretary at the hospital.

LONDON HOSPITAL, E.1.

Applications are invited for the post of **FIRST ASSISTANT AND REGISTRAR** to the Children's Department. The appointment is for one year, but is renewable annually, on application, for two further periods of one year.

Salary £300 per annum, payable by the Hospital and Medical College jointly.

Candidates must be fully qualified medically.

Applications should arrive at the Hospital not later than by the first post on Saturday, November 12th.

ARTHUR G. ELLIOTT,

House Governor.

LONDON HOSPITAL, E.1.

There is a vacancy for the post of **HONORARY ASSISTANT OPHTHALMIC SURGEON**. Candidates must be Fellows of the Royal College of Surgeons of England.

Applications should be sent to the House Governor, from whom further particulars may be obtained, and must arrive not later than on Monday, November 14th.

ARTHUR G. ELLIOTT,

October 22nd, 1938. House Governor.

KING EDWARD MEMORIAL HOSPITAL, Ealing, W.13. (145 Beds.)

Applications, which should be submitted by Wednesday, November 9th, 1938, are invited for the following appointments:—

CONSULTING PHYSICIAN,
CONSULTING PHYSICIAN FOR DISEASES OF CHILDREN.

Particulars may be obtained from the undersigned.

R. A. MICKELWRIGHT,

House Governor.

THE PRINCESS BEATRICE HOSPITAL, Earl's Court, London, S.W.5.

CLINICAL ASSISTANT, OPHTHALMIC DEPARTMENT.

Applications are invited from qualified Medical Practitioners, preferably holding the Diploma of F.R.C.S., for the post of **Honorary Clinical Assistant** to the Ophthalmic Department.

Applications, stating age, qualifications, and full details of experience, should reach the Secretary by Wednesday, November 2nd, 1938.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

There is a vacancy for an **HON. ASSISTANT RADIOLOGIST** at the above Hospital. The candidates must be British subjects and must hold a respectable medical qualification and a D.M.R.E.

Applications, accompanied by three recent testimonials, should be sent to the undersigned by November 20th, from whom further particulars may be obtained.

RICHARD T. BARTLEY, Secretary.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

Applications are invited for the appointment of **ASSISTANT PHYSICIAN**. Intending candidates (men or women), who must be Fellows or Members of the Royal College of Physicians, London, should submit applications, accompanied by copies of three recent testimonials, to the undersigned on or before November 7th, 1938.

RICHARD T. BARTLEY, Secretary.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields Eye Hospital), City Road, E.C.1.

REFRACTION ASSISTANT, L.C.C. SCHOOL DEPARTMENT.

Applications are invited for the post of Refraction Assistant to the L.C.C. School Department, to attend on Wednesdays and Fridays at 1.30 p.m. Candidates must be registered Medical Practitioners.

Salary will be at the rate of £160 per annum.

The Refraction Assistant will be appointed for a period of one year and will be eligible for re-appointment.

Copy of regulations governing the appointment can be obtained on application.

Applications, with testimonials, stating age and qualifications, must be received not later than November 7th, 1938.

A. J. M. TARRANT,

Secretary.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields Eye Hospital), City Road, E.C.1.

Applications are invited for the post of **OUT-PATIENT OFFICER**, to attend on Tuesdays and Fridays (mornings) each week.

Candidates must be registered Medical Practitioners.

Salary at the rate of £100 per annum. The Out-patient Officer will be appointed for a period of one year and will be eligible for reappointment.

Copies of regulations can be obtained on application.

Applications, with testimonials, stating age and qualifications, together with photograph, must be received by the undersigned not later than November 7th, 1938.

A. J. M. TARRANT,

Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the post of **HONORARY BIOLOGIST**. Candidates must be University Graduates and have had previous experience in this type of work. Appointment is for one year, with eligibility for re-election.

The successful candidate will be required to undertake special biological and biochemical investigations outside the routine work of the Pathological Laboratory.

Full particulars of the appointment and details with regard to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications should be returned not later than November 11th, 1938.

GILBERT G. PANTER,

Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the post of **PHYSICIAN for Diseases of the Skin (Second)** at the above Hospital.

Candidates must possess the degree of M.D. or M.B. obtained by examination at a British University, and be Fellows or Members of the Royal College of Physicians.

Full particulars of the appointment and details with regard to the submission of testimonials, etc., may be obtained from the undersigned, to whom applications should be returned not later than November 11th, 1938.

GILBERT G. PANTER,

Secretary.

METROPOLITAN HOSPITAL, Kingsland Road, London, E.8.

Applications are invited for the post of **CASUALTY OFFICER AND RESIDENT ANAESTHETIST (male)**. Salary at the rate of £100 p.a., with board, residence, and laundry. Duties to commence December 1st. Candidates must possess a registered medical and surgical qualification of the United Kingdom.

Applications should be obtained and returned to the undersigned not later than November 15th.

FRANK JENNINGS,

House Governor and Secretary.

THE VICTORIA HOSPITAL FOR CHILDREN Tite Street, Chelsea, S.W.3. (135 Beds.)

The Committee of Management invite applications for the post of **PHYSICIAN to Out-patients**. Candidates must be Fellows or Members of the Royal College of Physicians of London and be expected to call on Members of the Hon. Medical Staff.

Applications, with copies of three recent testimonials, should be sent to the Secretary not later than first post Saturday, November 19th, 1938.

D. ST. JOHN BARNFORD,

Secretary.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumshugh Gardens, Edinburgh).

(a) British Islands

| Town or District | Town or District | Town or District |
|--|--|--|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(contd.) | PUBLIC HEALTH |
| ABERYSSWYG MEDICAL AID SOCIETY (Medical Officer) | MID-RHONDDA MEDICAL AID SOCIETY (Assistant Medical Officer) | COUNTY OF ROXBURGH. (Assistant Medical Officer of Health) |
| BLAENAVON MEDICAL SOCIETY (Chief Medical Officer) | NEATH AND DISTRICT. (Medical Aid Association) | DISPENSARY APPOINTMENTS |
| GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme) | OSWALD VALLEY, GLAMORGAN (Wynham Colliery Medical Aid Society) (Workmen's Medical Scheme.) | LIMERICK CITY (Whole-time Dispensary Medical Officers) |
| LLWYNPIA, CLYDACH VALL, PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme.) | OAKDALE, MON. (Medical Officer for Medical Aid Association) | |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District. | Hon. Sec. of Division or Branch | Town or District. | Hon. Sec. of Division or Branch | Town or District. | Hon. Sec. of Division or Branch |
|--|--|--|--|--|--|
| NEW SOUTH WALES (All Friends Society Appointments.) | The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W. | VICTORIA (All Institute or Medical Dispensaries) | The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria. | WESTERN AUSTRALIA (Contract and Locum Practices) | The Hon. Sec., Western Australian Branch British Medical Association, "Shell House" 205 St. George's Terrace, Perth, Western Australia |
| QUEENSLAND (Brisbane Associate Friendly Societies Institute) | The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17. | | | | |

October 26, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

BIRMINGHAM UNITED HOSPITAL. ASSISTANT DENTAL SURGEON.

Applications are invited for the above post. The appointment is for one year in the first instance, and is renewable for two years further. Subject to satisfactory service, the Board may then appoint to the permanent Staff. The post carries an Honorarium at the rate of £50 per annum. Candidates must hold a Medical as well as a Dental qualification.

Applications must be sent to the undersigned (from whom all further particulars can be obtained), stating age, experience and qualifications, with copies of recent testimonials, not later than Thursday, November 10th, 1938.

The Centre Hospital, Edgbaston, Birmingham, 15.
G. HURFORD, Secretary, Birmingham United Hospital.

NOTTINGHAM GENERAL DISPENSARY. Broad Street, Nottingham.

Wanted, RESIDENT MEDICAL OFFICER (female), unmarried. Must have Medical and Surgical qualifications. Salary £300, with £25 increase per year up to £350. House, with attendance, lights and fuel (not board). This Institution is a non-provident one. No beds. No Midwifery.

Applications, stating age and accompanied by copies of recent testimonials, to be sent by November 5th, 1938, to
5 Thurland Street Nottingham.
R. H. WILLATT, Secretary.

FREE EYE HOSPITAL, SOUTHAMPTON.

The Committee require the services of a duly qualified HOUSE SURGEON for a period of six months from December 1st, 1938. Salary £150 per annum, with board, residence, and laundry. Postgraduate experience in Ophthalmology is desirable.

Applications, with three recent testimonials, to reach the Secretary by November 4th, 1938.

ALTRINCHAM GENERAL HOSPITAL (100 Beds)

HONORARY SURGEON

Applicants are invited for the post of Honorary Surgeon to the Altrincham General Hospital.

Applicants must have a higher surgical qualification and should reside within ten miles from Altrincham. Applicants must state what hospital appointments they already hold, and what attendances these appointments entail.

Further particulars and list of duties can be obtained from the Secretary of the Hospital. Twelve printed or typewritten copies of the application, together with three testimonials, should reach the undersigned not later than November 9th, 1938.
E. A. BIDEN, Secretary.

GENERAL HOSPITAL, NOTTINGHAM. (389 Beds)

EAR, NOSE AND THROAT DEPARTMENT.

A HOUSE SURGEON is required for the above Department containing 40 beds and a large Out-patient Department. The appointment is for six months, with salary at the rate of £150 a year, with board, residence and laundry.

Candidates are desired to send applications, stating age, qualifications and experience, together with copies of testimonials, to the undersigned. Duties to commence on December 1st, 1938.

HENRY M. STANLEY,
House Governor and Secretary.

INVERNESS DISTRICT ASYLUM.

JUNIOR ASSISTANT MEDICAL OFFICER (male) required. Recent graduate with some General Hospital experience preferred. Salary £350 per annum, with board, lodging and laundry. Appointment is subject to terms of Asylums Officers' Superannuation Act, 1909.

Applications, stating age and qualifications, with copies of testimonials, to be sent to the Medical Superintendent.

THE PRINCE OF WALES'S HOSPITAL, Plymouth

Amalgamating South Devon and East Cornwall Hospital, Greenbank Road, Royal Albert Hospital, Devonport, Central Hospital, Lockyer Street.

Applications are invited for the post of HONORARY SURGEON to the Hospital (a member of the Honorary Assistant Staff is a candidate for the post).

Candidates must be Masters of Surgery of a University of the United Kingdom or Fellows of the Royal College of Surgeons of England or of Edinburgh.

Applications and testimonials must reach the undersigned, from whom the rules and regulations governing the appointment may be obtained, on or before November 4th, 1938.

Personal canvassing disqualifies, but candidates may send copies of their application and testimonials to the members of the Board.

ARTHUR R. CASH,
October 17th, 1938. General Superintendent.

TILBURY HOSPITAL, ESSEX. (92 Beds)

MEDICAL SUPERINTENDENT.

The Committee of Management of the Seamen's Hospital Society invite applications for this appointment, falling vacant on December 1st. The appointment will be for one year in the first instance at a salary of £200 per annum, with board residence, and certain emoluments; the holder is eligible for re-election for a second year. Candidates must be single and not more than 35 years of age. Preference will be given to those who have had surgical experience.

Applications, with copies of recent testimonials to be sent in immediately to the undersigned, from whom further particulars can be obtained.
Seamen's Hospital, F. A. LYON, Secretary,
Greenwich, S.E.10
October 14th, 1938.

(Appointments continued on p. 51)

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ADVERTISEMENT MANAGER, BRITISH MEDICAL JOURNAL,
B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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SURGERY COACHING BY M.D., M.R.C.P., F.R.C.S., for content classes and individually. Also surgery revision course for approaching M.B. exams.—Address: No. 9632, B.M.A. House, Tavistock Square, W.C.1

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ASSISTANCIES

WANTED IMMEDIATELY, INDOOR AND OUTDOOR ASSISTANTS for town and country practices, with and without view to Partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED (NOVEMBER), MALE ASSISTANT, British, with or without view to partnership; country town, mid-Wales. Commencing £350, all found.—Address: No. 9632, B.M.A. House, Tavistock Square, W.C.1.

WANTED, OUTDOOR MALE ASSISTANT, English or Scottish, unmarried, with some previous experience, and under 30 years of age, for panel and private practice in urban district of Yorkshire £300 and all found, with £50 p.a. car allowance.—Address: No. 9501, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, PERMANENT, married preferred. Salary £350, rising to £400 and more; nice house free, S.W. of London. Must be energetic, willing. Skill and qualifications unimportant. Particulars.—Address: No. 9627, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN INDOOR ASSISTANT IN A Glamorganhire mining practice. Salary £350 per annum. Apply, stating age, references, etc., to—Address: No. 9613, B.M.A. House, Tavistock Square, W.C.1.

WANTED, FEMALE ASSISTANT, OUTDOOR. Good house with housekeeper. Car allowance or car provided. One seeking permanent position desired.—Address: No. 9618, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT, INDOOR, mixed practice near London. Salary £300, car provided. Must be European and possess driving licence.—Address: No. 9605, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT, PERMANENT, preferably married, British, for S.W. London mixed practice. Salary £384, increasing, large flat, use of car. Full particulars to—Address: No. 9634, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR ASSISTANT (WOMAN), hospital experience; rural practice, Derbyshire. Car provided. Commencing salary £250, all found.—Address: No. 9636, B.M.A. House, Tavistock Square, W.C.1.

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ABERDEEN GRADUATE WANTED TO ASSIST. Midlands, £500 with house. Share in two years £2,000 in five years.—Address: No. 9624, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT WANTED FOR MIDDLE-CLASS and surgical practice with hospital appointments. Good prospects offered to a man keen on midwifery and good anaesthetist.—Address: No. 9629, B.M.A. House, Tavistock Square, W.C.1.

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HOSPITAL LOCUM REQUIRED (CASUALTY or surgery preferred) for Xmas and New Year by woman (doing Public Health) as refreshment course for emergency service. Good anaesthetist.—Address: No. 9658, B.M.A. House, Tavistock Square, W.C.1.

THE NATIONAL UNIVERSITY OF IRELAND APPOINTMENTS COMMITTEE can recommend suitably qualified Medical Graduates as LOCUM TENENTES or ASSISTANTS. Medical practitioners who require such services should apply, stating all particulars, to the Secretary, Appointments Committee, N.U.I., 86, St. Stephen's Green, Dublin. Telephone, Dublin 51793.

MEDICAL POSTS, DISPENSERS

WANTED, SECRETARY-SUPERINTENDENT (male). Applications are invited for the post of Secretary-Superintendent to the ROYAL HAMPSHIRE COUNTY HOSPITAL, Winchester, at a commencing salary of £600 per annum, with increments. Applicants of British nationality, are requested to forward their applications, stating age, experience, and full personal particulars, accompanied by six copies of not more than three recent testimonials, to the Chairman of the Committee of Management not later than November 8th, 1938.

A LADY DISPENSER BOOKKEEPER SUPPLIED immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriology Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparations for Examinations.—Write, wire, or phone (Elywater 0969) Secretary, 7, Westbourne Park Road, W.2.

A COURSE OF TRAINING IN DISPENSING and Pharmacy is given at GORDON HALL SCHOOL OF PHARMACY and Secretary-Dispensers can be supplied to Doctors. Sessions: January, April, and September.—Apply, Free School of Pharmacy, Drayton House, 6, St. Street, W.C.1. Phone: Euston 3930.

ADVERTISER, MALE, WITH "HALL" qualification, collector, bookkeeper, typist, experienced with doctors' general requirements, seeks any suitable SITUATION.—Address: No. 9403, B.M.A. House, Tavistock Square, W.C.1.

LADY DISPENSER, QUALIFIED, 16 YEARS experience, seeks post with Doctor. Counties.—Address: No. 9656, B.M.A. House, Tavistock Square, W.C.1.

DISPENSING CARTER FOR YOUNG LADIES. FULL TRAINING for Apothecaries Hall Certificate. Enrolment every three months—Apply, The Principal, Central School of Pharmacy, 25, Abchurch Lane, London, E.C.4. Telephone: Victoria 1641.

DOCTORS REQUIRING QUALIFIED DISPENSERS. None-Dispensers, Secretary-Dispensers or Chemist-Dispensers, are invited to write, wire, or telephone Temple Bar 555. The Dispensers Bureau, 3, Lincoln House, 171, Shaftesbury Avenue, London, W.C.2.

LADY DISPENSER-BOOKKEEPER DESIRES post with Private Practitioner. 10 years' exp. Private and N.H.I. dispensing. Shorthand and typing if necessary; own machine; excell. refs.—Address, No. 9644 B.M.A. House, Tavistock Square, W.C.1.

LADY DISPENSER, 22 (HALL QUALIFICATION), experienced in hospital and private dispensing, seeks POST with doctor, firm, or hospital. Sheffield district preferred. Driving licence.—Address, No. 9623 B.M.A. House, Tavistock Square, W.C.1.

SECRETARY-DISPENSER WANTED. SOME experience essential. Salary three guineas. South Coast. Apply giving full particulars.—Address, No. 9641 B.M.A. House, Tavistock Square, W.C.1.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 55, Fecleston Square, S.W.1 Telephone: Victoria 7222, supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

PARTNERSHIPS

WANTED IMMEDIATELY, COUNTRY PARTNERSHIP OR PRACTICE. East Anglia Home, S. or S.W. Counties. Receipts £1,250 or over. Qualified London 2 years, hospital and G.P. experience; aged 29. English. No agents.—Address, No. 9655 B.M.A. House, Tavistock Square, W.C.1.

WANTED, A THIRD PARTNER IN AN old-established practice in a country town in Midlands. Cash receipts over £6,000 a year. Just have good surgical experience. Preferably Cambridge graduate, but not essential.—Address, No. 9407 B.M.A. House, Tavistock Square, W.C.1.

ENGLISHMAN, M.D.(CAMB.), AGED 45, desires PARTNERSHIP. Experienced in neurology, psychiatry, psychotherapy, medicine, and clinical pathology. Willing to take course in aesthetics first.—Address, No. 9409 B.M.A. House, Tavistock Square, W.C.1.

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ZENT-PANEL 1,700. OVER £3,000 P.A. A THIRD SHARE, with early increase. Man on anaesthetics preferred. Premium £2,500. Include drugs and book debts.—THE WESTERN MEDICAL AGENCY, 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532), and 22, Clare Street, Bristol, 1 (Bristol 22659).

JOTTINGHAM.—PARTNERSHIP, HALF SHARE. Gross cash receipts £2,240 past year, panel 3,174. House £1,300. Premium £2,240. going partner preferably English or Scottish, married.—Address, No. 9274 B.M.A. House, Tavistock Square, W.C.1.

OPPORTUNITY FOR YOUNG, ENERGETIC doctor, with small capital, to obtain QUARTER-SHARE of rapidly growing private and infirmary practice. New branch opening opposite large estate; London, S.W. Premium only £275.—Address, No. 9635 B.M.A. House, Tavistock Square, W.C.1.

PARTNER REQUIRED IN GOOD OLD- established non-dispensing practice in Kent, 10 miles from Charing Cross. Pleasant rapidly growing residential district. Share to commence with about £1,400 cash, £1,200 net, at two years' purchase. Audited books. Good house to rent or buy. Applicants should be British, well qualified and with good-class G.P. experience.—Address, No. 9642 B.M.A. House, Tavistock Square, W.C.1.

PARTNER REQUIRED TO TAKE A THIRD SHARE. worth £1,200 a year, in a good-class practice in Kent. In West End of London, no panel. Public school at university man preferred, with experience of practice who has done house appointments, age 30 to 35. Premium 2½ years' purchase. No agents.—Address, No. 9642 B.M.A. House, Tavistock Square, W.C.1.

PARTNER WANTED BY TWO MEN IN good middle and working-class practice in Midlands. Short red-meat assistantship share worth £1,000 a year at two years' purchase. House available. Scope for surgery and hospital appointment for man holding Fellowship. Must be of good address.—Write Address, No. 9625 B.M.A. House, Tavistock Square, W.C.1.

THIRD PARTNER REQUIRED FOR INITIAL quarter share, approx. £1,100, in increasing old-established practice in first-rate county town 35 miles London. Married preferred, well qualified. Premium 2½ years. To include share book debts, drugs, etc.—Address, No. 9437 B.M.A. House, Tavistock Square, W.C.1.

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VERY OLD-ESTABLISHED MIDDLE- and working-class PRACTICE. Pleasant country town. Audited receipts average over £3,600. Panel approx. 2,700. Commodious house, good garden, garage on rental HALF SHARE two years' purchase. No agents.—Address, No. 9608 B.M.A. House, Tavistock Square, W.C.1.

PRACTICES

WANTED, APRIL NEXT, MIXED PRACTICE residential suburb, north England, Scotland £1,000 per annum (certified). Modern house detached, freehold, good garden, garage essential. Cash available.—Address, No. 9257 B.M.A. House, Tavistock Square, W.C.1.

WANTED NEXT MAY OR JUNE, GOOD- class PRACTICE in Swansea area. Would consider partnership with early succession. House to rent essential.—Address, No. 9424 B.M.A. House, Tavistock Square, W.C.1.

WANTED BY EXPERIENCED MAN WITH highest qualifications, non-panel, non-dispensing PRACTICE, South Coast, preferably with appointment local hospital.—Address, No. 9515 B.M.A. House, Tavistock Square, W.C.1.

WANTED, IN LARGE TOWN OR CITY, PRACTICE about £2,000 with large panel, preferably Midlands or Southern half England. Good house and garden. Ample cash available.—Address, No. 9601 B.M.A. House, Tavistock Square, W.C.1.

WANTED, SMALL (£300-£500) PRACTICE IN COUNTRY DISTRICT—Devon, Dorset, or Cornwall. House to rent preferred.—Address, No. 9252 B.M.A. House, Tavistock Square, W.C.1.

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WANTED WITHIN SIX MONTHS, PANEL and private PRACTICE in West Riding, Yorks. Would consider partnership with early succession. Good house and garden. Educational facilities.—Address, No. 9634 B.M.A. House, Tavistock Square, W.C.1.

DURHAM—NON-PANEL, NON-DISPENSING, easily worked, old-established PRACTICE. Average receipts £1,200. Bargain for quick sale. Suit man wanting better type of work. Commodious house with garden.—Address, No. 9354 B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, EAR, NOSE AND THROAT PRACTICE, provincial town. Hospital and paid appointments could be transferred.—Address, No. 9604 B.M.A. House, Tavistock Square, W.C.1.

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FOR SALE, OWING TO RETIRAL, OLD- established PRACTICE in Fife town. Panel 1,300. Good house with garage.—Address, No. 9611 B.M.A. House, Tavistock Square, W.C.1.

LONDON, S.E.—PRACTICE, AVERAGING £900 p.a. in populous suburb; panel 800. Detached double-fronted house, lease thirty years.—Address, No. 9603 B.M.A. House, Tavistock Square, W.C.1.

LONDON, S.W.—MIXED PRACTICE WITH panel of 2,040. £1,740 p.a. 2½ years' purchase. House rent.—THE WESTERN MEDICAL AGENCY, 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532), and 22, Clare Street, Bristol, 1 (Bristol 22659).

LANCS. NEAR COAST.—COUNTRY PRACTICE. receipts average £2,100, panel 950. Modern house (freehold), garden, garage, for sale. Premium £4,000, to include debts, drugs, and surgery furniture.—Address, No. 9631 B.M.A. House, Tavistock Square, W.C.1.

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N.E. COAST RESORT.—OLD-ESTABLISHED, mainly middle- and better-class PRACTICE, with good scope for major surgery, producing £1,400 p.a. for last three years. Panel 150. Fees 5s and 7s. 6d. upwards. Local hospital Good introduction. Very nice house, well arranged with all modern conveniences. Garden, garage. Freehold for sale.—Address, No. 9606 B.M.A. House, Tavistock Square, W.C.1.

MIDDLESEX.—PANEL 550, RECEIPTS £1,500 p.a. Premium £2,500 or offer. House rent.—THE WESTERN MEDICAL AGENCY, 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532), and 22, Clare Street, Bristol, 1 (Bristol 22659).

METROPOLITAN BOROUGH OF LAMBETH. DEPUTY MEDICAL OFFICER OF HEALTH.

The Lambeth Borough Council invite applications from fully qualified medical practitioners for the appointment of Deputy Medical Officer of Health for the Borough at an inclusive salary of £840 per annum, rising by annual increments of £40 to a maximum of £960 per annum.

Candidates must not be more than forty years of age on November 17th, 1938, and must possess the qualifications prescribed by the Public Health (London) Act, 1936, and the Sanitary Officers Order, 1926. The gentleman appointed will be required to devote the whole of his time to the duties of the office, to contribute to the Council's Superannuation Fund, and to submit himself to the Council's Doctor for examination, the appointment being subject to such Doctor's report being satisfactory. The appointment will also be subject to the approval of the Minister of Health.

Applications, on forms to be obtained from the undersigned, endorsed "Deputy Medical Officer," accompanied by copies of three testimonials of recent date, are to be delivered by noon on Monday, November 21st, 1938.

Canvassing either directly or indirectly, will disqualify a candidate.

Lambeth Town Hall, O. L. ROBERTS.,
Brixton Hill, S.W.2. Town Clerk.
October 28th, 1938.

LONDON COUNTY COUNCIL.

MEDICAL PRACTITIONERS (men and women), with lecturing experience, required as LECTURERS for FIRST-AID and HEALTH CLASSES, day and evening. Fee 22s. for lecture of one to two hours. Forms T. 7/40 from Education Officer (T. 7), County Hall, S.E.1 (stamped addressed foolscap envelope). Canvassing disqualifies.

LOWESIOFT AND NORTH SUFFOLK HOSPITAL.

JUNIOR HOUSE SURGEON (male) required. Salary at the rate of £120 per annum, with board, residence, and laundry. Medical and Surgical qualifications required.

Eligible for senior post at £150 per annum after a period of satisfactory service.

Applications, together with copies of three recent testimonials, to be sent to the Honorary Medical Superintendent.

CHESHIRE COUNTY MENTAL HOSPITAL, Parkside, Macclesfield.

Applications are invited for the post of THIRD SENIOR ASSISTANT MEDICAL OFFICER. Candidates must have had previous mental hospital experience and must hold a diploma in psychological medicine. Preference will be given to those who have had experience as a house surgeon or physician in a general hospital.

Salary £550 per annum, rising by two annual increments of £25 each to £600, with house (rent and rate free), coal, electric light, laundry, and garden produce, which are valued for superannuation purposes at £100 per annum.

The appointment will be subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

The hospital has a fully equipped laboratory for clinical and research purposes.

Experience in treatment of out-patients and occupational therapy will be an advantage.

Applications, with copies of three testimonials, must be sent to the Medical Superintendent not later than November 9th.

ROYAL FREE HOSPITAL AND LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.

OBSTETRICAL & GYNAECOLOGICAL UNIT

Applications are invited from registered medical practitioners for the following appointments vacant on January 1st, 1939.

SENIOR ASSISTANT, part-time, £350.

SECOND ASSISTANT, full-time, £500.

THIRD ASSISTANT, full-time, £270, with residence.

Applications, accompanied by copies of not more than three testimonials and the names of not more than two persons to whom reference can be made, should reach one of the undersigned, from whom further particulars may be obtained, by the first post on Friday, November 11th, 1938.

Nine copies of all documents must be furnished.

RICHARD T. BARTLEY, Secretary,

Royal Free Hospital, W.C.1.

NANCIE MOLLER, Warden and Secretary,
London (R.F.H.) School of Medicine for Women, W.C.1.

October 25th, 1938.

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GLOUCESTER COUNTY AND CITY MENTAL HOSPITALS

Applications are invited for the post of **ASSISTANT MEDICAL OFFICER** (man or woman).

The commencing salary is £350, rising by annual increments of £25 to £450 per annum, with board, lodging, laundry, and attendance, valued for superannuation purposes at £104 per annum. A further £50 per annum will be paid if the selected candidate has obtained a degree or diploma in psychological medicine. The appointment will be subject to the Asylum Officers' Superannuation Act, 1909.

Excellent facilities exist for laboratory and research work.

Applications, stating age and full particulars, accompanied by copies of three recent testimonials, should be sent to the Medical Superintendent, County Mental Hospital, Gloucester.

SEVERALLS MENTAL HOSPITAL, Colchester.

Required, a **JUNIOR ASSISTANT MEDICAL OFFICER** (woman), not over 35 years of age. Must be registered under the Medical Act. Preference given to one having previous experience in a Mental or General Hospital.

Salary £510 per annum, rising by four annual increments to a maximum of £610 per annum. Possession of the Diploma of Psychological Medicine carries £50 per annum additional to the scale.

A charge of £109 4s. per annum will be made in respect of board, residence, attendance, and washing.

The appointment is subject to the provisions of the Asylum Officers' Superannuation Act, 1909.

Applications, stating full particulars of qualifications, age, etc., to be addressed to the Medical Superintendent.

THE CORBETT HOSPITAL, Stourbridge.

(110 Beds. Special Departments and Visiting Specialist Staff.)

Applications are invited for the post of **RESIDENT SURGICAL OFFICER** (male), which will become vacant within the next few weeks.

The appointment is for a period of one year, but may be renewed annually for a period not exceeding three years. Candidates must possess the F.R.C.S. and be unmarried. Salary at the rate of £200 per annum, with board and laundry.

Applications, together with copies of recent testimonials, stating age, qualifications, and experience, to be sent to the undersigned forthwith.

W. G. H. WESTON,
Secretary.

KETTERING AND DISTRICT GENERAL HOSPITAL, (103 Beds)

Applications are invited for the post of **HOUSE PHYSICIAN**. Salary £150 per annum, with board, residence, and laundry. Candidates must be fully qualified and registered.

The appointment is for six months, with eligibility for a further period.

Applications, stating age, nationality, and qualifications, together with copies of three testimonials, to be sent to the undersigned as soon as possible.

G. W. JACKSON,
Secretary-Superintendent.

THE DUCHESS OF YORK HOSPITAL FOR BABIES, Manchester. (80 Beds.)

Applications are invited for the post of **SENIOR RESIDENT MEDICAL OFFICER**. Appointment is for seven months from December 1st, 1938. Salary at the rate of £125 per annum, with laundry. Previous Hospital experience essential.

Applications, together with copies of testimonials, to be sent to the Secretary by October 31st.

LOUISE BAILEY, Secretary.

WORKING AND DISTRICT VICTORIA HOSPITAL (50 Beds).

Required, **RESIDENT MEDICAL OFFICER** for December 1st, 1938, male or female, British born, unmarried. Minimum period of six months. Salary £130 per annum, with board, residence and laundry.

Applications, with testimonials, to be made to the Hon. Secretary by November 14th, 1938.

CHESHIRE JOINT SANATORIUM, Market Drayton.

Wanted **THIRD ASSISTANT MEDICAL OFFICER** (male), resident for a period of twelve months. Salary £250 per annum. Forms of application from the Medical Superintendent.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone Road, N.W.1

Applications are invited from registered Medical Practitioners for the following appointments:

ASSISTANT RESIDENT MEDICAL OFFICER (male) Salary £80 per annum.

RESIDENT ANAESTHETIST AND DISTRICT RESIDENT MEDICAL OFFICER, for six months. Salary £90 per annum.

RESIDENT ANAESTHETIST, for three months. Salary £100 per annum.

With board, residence, and laundry allowance (4s. weekly). Appointments to commence on January 1st, 1939.

The Assistant Resident Medical Officer is appointed for three months, and on completion will be expected to proceed to the post of Senior Resident Medical Officer (salary £100 per annum). Obstetric experience desirable.

Applications, stating age, medical school, previous experience, and with copies of three testimonials, should be sent to the Secretary by November 21st.

H. B. STOKES, Secretary-Supt.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15

Applications are invited for the post of **HONORARY ASSISTANT PHYSICIAN** to the Department of Psychological Medicine at the above Hospital.

Applications, accompanied by copies of testimonials from candidates, who must be duly registered Practitioners, either Graduates in Medicine of a University or Fellows or Members of a Royal College of Physicians, should be lodged with the undersigned not later than Tuesday, November 1st, 1938.

RAPHAEL JACKSON (Major),
Secretary.

LONDON JEWISH HOSPITAL, Stepney Green, E.1.

General Hospital. (109 Beds)

Candidates (male) for the following resident appointments, which are for a period of six months commencing December 1st next, may obtain forms of application from the Secretary, to whom applications, with copies of three recent testimonials, must be sent on or before November 18th, 1938.

RESIDENT MEDICAL OFFICER AND HOUSE PHYSICIAN Salary at the rate of £150 per annum.

HOUSE SURGEON. Salary at the rate of £100 per annum.

CASUALTY OFFICER. Salary at the rate of £100 per annum.

HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W.3.

(OUT-PATIENT DEPARTMENT, Camden Town, N.W.1.)

A vacancy is declared in the office of **OPHTHALMIC SURGEON** to Out-patients. Candidates must be Fellows of the Royal College of Surgeons, England, and are required to call upon members of the Honorary Medical Staff of the Hospital.

Applications, stating age, qualifications and experience, with copies of three testimonials, should reach the undersigned by November 18th, from whom full particulars may be obtained.

KENNETH A. F. MILES, Secretary

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City Road, London, E.C.1.

Applications are invited for the post of **RESIDENT SURGICAL OFFICER** (male) Salary £150 per annum, and certain emoluments, with board, residence and laundry. The appointment is for a minimum of six months. Duties to commence on November 27th, 1938.

Applications, with copies of testimonials, must reach the Secretary from whom further particulars may be obtained, not later than Saturday, November 12th, 1938.

SOUTHEAST-ON-SEA GENERAL HOSPITAL

(235 Beds.) Eight Residents.
Hon. Specialist Staff of 20 Members.

Applications are invited for the post of **CASUALTY OFFICER** (male) (with duties in Orthopaedic Department and Fracture Clinic). Salary £100 p.a. with board, residence and laundry. The appointment is for six months from December 1st, 1938.

Applications, with copies of two recent testimonials, should be sent to the undersigned not later than November 10th.

P. H. CONSTABLE, Secretary.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL, Shooter's Hill, London, S.E.18.

GENERAL HOSPITAL (112 Beds).

The Board of Management invites applications from suitably qualified candidates for the following appointments:

(a) **RESIDENT SURGICAL OFFICER**—Applicants must have special knowledge of surgery. This appointment will be for twelve months with effect from November 20th, 1938, and it is desirable that candidates shall possess the Fellowship of one of the Royal Colleges of Surgeons. The salary will be £200 per annum, plus board, residence and laundry. The appointment is renewable for a further period of twelve months if approved by the Board of Management.

(b) **HOUSE PHYSICIAN**—This appointment will be for six months from December 1st, 1938, and the remuneration will be at the rate of £150 per annum, plus board, residence and laundry.

The closing date for the receipt of applications is November 16th, first post, and short-listed candidates will be invited to meet the Appointments Committee (at the Hospital) at 4.45 p.m. on November 17th. Applications should be made on the prescribed form, obtainable from the undersigned.

R. S. G. HUTCHINGS, Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL, Euston Road, N.W.1.

OPHTHALMIC DEPARTMENT, OUT-PATIENTS.

Applications are invited from fully qualified medical women for the post of **CLINICAL ASSISTANT**—Thursday-evening clinic—honorarium £50 per annum.

Further particulars of the post may be obtained from the undersigned, to whom applications, with copies of three testimonials, should be sent not later than November 2nd, 1938.

JEAN R. MURRAY,
Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

A vacancy occurs for a **CLINICAL ASSISTANT** in the Ear, Nose and Throat Department. Applications should be addressed to the Secretary.

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3 **JUNIOR PARTNER** required in **CONSULTING SURGICAL PRACTICE**. Share worth about £1,200 at first at two years' purchase. Hospital appointment. Applicant must hold F.R.C.S. and M.C.O.G.

4 **N. MIDLANDS.—PRACTICE** in residential district near progressive town. Receipts last year, £770. Panel about 100. House for sale. Good scope. Premium £900.

5 **ON THE THAMES.—Non-dispensing good middle-class PRACTICE**, nearly £1,000, in pleasant open residential district. Panel 420. Suitable house. Scope. Premium £1,500.

6 **MIDLANDS.—PRACTICE** (partly X-Ray and Electro-Therapeutic), doing at rate of nearly £2,000, in manufacturing town. Panel 1,600 and club worth £250 p.a. House for sale or rent. Premium £3,500. Apparatus and drugs, £800.

7 **S. MIDLANDS.—Country PRACTICE** in beautiful part. Receipts last year, £730. Panel 460. Excellent house in grounds of over an acre; also 14 acres of land, etc., to rent. Suitable for resident patients. Scope. Premium two years' purchase.

8 **S.W. ENGLAND.—Country PRACTICE**, over £700, easy distance of county town. Panel 476. Substantially built house (6 bedrooms), with good garden and orchard, for sale. Fishing, hunting, etc. Premium £1,150, or near offer.

9 **NORTHERN IRELAND.—PRACTICE** doing about £2,000 in market town. Panel 1,090. House (5 bedrooms and good surgery accommodation), in grounds about an acre, for sale. Sport. Premium £1,750.

10 **PARTNERSHIP** in increasing Ear, Nose and Throat Practice in provincial town. Partner must hold F.R.C.S.

11 **LONDON, N.—Middle-class PRACTICE**, £2,500 p.a., in residential district. Panel about 1,000. Fine modern detached double-fronted residence for sale or rent. Good prospects of increase. Premium 1½ years' purchase.

12 **S.W. ENGLAND.—PARTNERSHIP** in better-class Practice in attractive country town. Receipts nearly £4,400 p.a. Small select panel. House to rent. Partner must be well qualified in medicine. Modernized local hospital and appointment on staff. One-fourth, possibly one-third, share at two years' purchase.

13 **LONDON, N.W.—PARTNERSHIP** in sound Practice, averaging about £5,200 p.a., in residential district. Panel about 6,000 in all. Maisonette available to rent. One-fifth share at first at two years' purchase.

14 **MIDLANDS.—PARTNERSHIP** in progressive town. Receipts average £3,625 (panel and appointments £1,450 p.a.). Good house with garage and garden to rent. Premium one-half share £3,650, to include drugs, etc.

15 **LONDON, N.W.—PARTNERSHIP** in steadily increasing Practice doing about £2,800. Panel over 3,750. Prem. one-third share 2 years' purchase. Short Assistantship.

16 **S.W. ENGLAND.—PARTNERSHIP** in steadily increasing Town and Country Practice. Fees 5s. to £1 ls. Suitable accommodation to rent. Partner should be aged about 30 and experienced. Share about £1,000 p.a. at first at two years' purchase.

17 **LONDON, N.4.—PRACTICE**, over £1,140 p.a., in good residential district. Panel 275. Double-fronted house with garage and garden. Price £1,200 freehold. Good hospital. Premium one and three-quarter years' purchase.

18 **EAST ANGLIA.—Country PRACTICE**, £1,400 p.a., close to prosperous town. Panel over 1,100. Good house with about three acres for sale. Scope. Premium two years' purchase.

19 **PRIVATE HOME** for Treatment of Nerve Cases in delightful part of Home Counties. Net profit past three years, £1,500-£1,600 p.a. Fees range from £10 10s. weekly. Property stands in about 30 acres. Reasonable premium.

20 **S.E. COAST.—PARTNERSHIP** in steadily increasing non-dispensing Practice, nearly £2,300 p.a., in popular seaside resort. Panel 869. Partner should be English or Scottish. House to rent or purchase. Premium one-third share two years' purchase.

21 **EAST ANGLIA.—PARTNERSHIP** in country Practice of over £3,700 p.a. Panel 2,060. Detached house (6 bedrooms, etc.), for sale. Applicants should be aged 35-40 years, with capital. Premium half-share two years' purchase.

22 **LONDON, S.E.—PRACTICE** in nice suburban district. Cash receipts past year, £1,380. Panel 600. Very good, pleasantly situated house to rent. Premium £2,500.

23 **MIDLANDS.—Working-class PRACTICE** in large town. Receipts, 1937, £460. Panel 400, and appointment worth £80 p.a. Small semi-detached house, price £500. Scope. Premium £600.

24 **LONDON.—PARTNERSHIP** in general and Electro-Therapeutical Practice, about £4,000 p.a. Consultations, £3 3s.; Treatment, £1 ls. Premium half-share of goodwill £4,000.

25 **ESSEX.—PRACTICES** run by two medical women. Incomes last year, £1,370. Panel 400. Premium one and a-half years' purchase. Would be sold separately.

26 **LONDON, W.—PARTNERSHIP** in mixed Practice, over £3,500. Panel 4,000. House to rent. Premium one-third share two years' purchase.

27 **LONDON, N.4.—PRACTICE**, averaging £1,400 p.a., in suburban district. Panel 1,450, increasing. House to rent. Scope. Premium two years' purchase.

28 **MIDLANDS.—Well-established PHYSIO-THERAPEUTIC PRACTICE** in first-rate town. Receipts, 1937, nearly £1,300. Excellent house for sale. Scope for X-Ray work. Premium one and a-half years' purchase.

29 **MIDDLESEX.—PRACTICE** in growing district, within 11 miles of Marble Arch. Receipts past year, £650. Panel 280. House to rent. Premium two years' purchase.

30 **S. COAST HEALTH RESORT.—PARTNERSHIP** (after Assistantship) in Practice, £2,526 p.a. Panel about 2,300. House to rent at £150 p.a., or other accommodation obtainable. One-third share at two years' purchase.

31 **MIDDLESEX.—Steadily increasing PRACTICE**, averaging over £1,570 p.a., in growing district. Panel 700. Well-situated house for sale. Good scope. Premium 1½ years' purchase. Local hospital.

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32 MIDLANDS.—ASSISTANT required with view to PARTNERSHIP in Practice in flourishing town. Receipts £2,100 (club worth nearly £700 p.a., and panel 2,700). One-third share at two years' purchase.

33 S.E. COAST.—PARTNERSHIP (with early succession) in non-dispensing Practice about £2,000 p.a. Very small panel. Choice of houses to rent. Premium 7/10ths share two years' purchase. Hospital and probably vacancy for physician in two or three years.

34 EAST ANGLIA.—PRACTICE, averaging £1,340 p.a., in flourishing town. Clubs, and panel about 1,700. Good house for sale. Scope. Premium £2,700.

35 LONDON, S.W.—PRACTICE averaging over £1,250 p.a. Panel 1,000 and P.M.S. Good house with large garage and exceptionally nice garden for sale. Good scope. Premium £2,500, to include drugs, etc.

36 N.E. COAST TOWN.—Residential seaside district. Old-established non-panel PRACTICE. Receipts over £1,100. Immediate scope for panel. Commodious house, garage and garden. Vendor retiring. Premium £750, or near offer.

37 LONDON, S.E.—PRACTICE doing about £600 p.a. in outlying residential suburb. Panel 1,000. Good house (5 bedrooms), garage and nice garden, for sale. Scope. Premium £1,200.

38 LONDON, N.W.—Non-dispensing PRACTICE, doing about £1,000, carried on by medical woman. Panel 798. Good house to rent. Suit either man or woman. Prem. £2,000.

39 HOME COUNTY.—Medical Woman's PRACTICE, over £1,600 p.a., in country town. Panel 250. Well-situated house for sale. Capable considerable development. Suitable for two medical women or medical man whose wife is also qualified. Premium £3,000, to include drugs.

40 LONDON, N.—Middle-class PRACTICE, about £3,000 p.a., in residential district. Panel about 1,150, increasing. Good well-situated residence to rent. Premium one and three-quarter years' purchase.

41 LONDON, N.7.—PRACTICE, about £2,000 p.a., including valuable appointments and panel 1,200. Small house, garage and garden, for sale or rent. Premium two years' purchase, or reasonable offer.

42 LONDON, S.E.20.—PRACTICE, averaging £1,750 p.a., in suburban district (appointments returning about £350 p.a.). Panel 966. Modernized house with garage and garden. Rent £100 p.a. Premium 1½ years' purchase.

43 SOUTH OF ENGLAND.—PARTNERSHIP in non-dispensing Practice, £7,800 p.a., in residential watering place. Panel 2,000. Good house to be purchased. One-seventh share. Premium two years' purchase. Partner should be aged 28-35, and possess M.D. or M.R.C.P.

44 LONDON, S.W.—PARTNERSHIP in mixed class Practice, £4,360 p.a., in residential suburb. Panel 2,500.

Very nice house with good garden for sale. Two-fifths share at first at one and three-quarter years' purchase.

45 SOUTH COAST.—PARTNERSHIP in steadily increasing Practice of £2,000 a year in growing district. Panel 1,000. One-third share at first at two years' purchase. Preliminary Assistantship.

46 EASTERN COUNTIES.—Middle and working-class town PRACTICE. Cash receipts past 12 months £3,600. Panel 2,500. House (5 bedrooms, etc.), to rent on lease. Premium two years' purchase, or near offer.

47 S.W. OF ENGLAND.—Non-dispensing general and surgical PRACTICE, averaging £1,636 p.a., in favourite watering place. Small panel. House for sale or rent. Good hospital. Premium £2,800.

48 KENT.—PARTNERSHIP in Practice in industrial town. Cash receipts last year, £3,646. Panel about 1,400. House with 6 bedrooms and dressing rooms, to rent. Share of about £1,200 p.a., two years' purchase.

49 HOME COUNTIES.—PRACTICE about £750 p.a. in growing residential district, within 15 miles of London. Panel 540. Nice house, garage and garden, price £1,600. Purchaser should be English or Scottish. Premium £1,400.

50 SUSSEX.—NUCLEUS, near coast. Receipts past year £270. Panel about 200. Charming house and garden for sale. Alternative house to rent if desired. Premium £450.

51 EASTERN COUNTIES.—PARTNERSHIP in old-established middle- and working-class Practice, £3,600, in country town. Panel 2,500. House available to rent. Premium one-third share two years' purchase.

52 S. COAST.—Non-dispensing PRACTICE of £1,250 p.a. in health resort. No panel, but ample scope. Commodious well-built residence with garage and garden for sale. Premium £1,000.

53 S. MIDLANDS.—PARTNERSHIP in Practice £4,400 p.a. in progressive town. Panel 2,000. House for sale or rent. One-fourth share two years' purchase. Graduate of Oxford, Cambridge or London preferred.

54 MIDDLESEX.—Old-established PRACTICE of £1,000 p.a. in developing town. Panel 850. Corner house with garage and garden, for sale. Premium two years' purchase.

55 LONDON, W.—Well-established non-dispensing non-panel PRACTICE of £1,000 p.a. in nice suburb. House, with garage and small garden for sale. Premium £600.

56 S. MIDLANDS.—Well-established PRACTICE, about £700 p.a., in good town. Panel 758. Detached corner house with garage and garden to rent. Premium £850.

57 S.E. COAST.—Easily worked middle-class PRACTICE of £600 p.a. net, in summer resort. House (6 bed., etc.), in best part, with small garden and garage, for sale. Branch surgery rented at 10s. weekly. Panel 200. Scope. Prem. £1,200.

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B. EAST OF SCOTLAND.—Industrial town. PRACTICE averaging £1,080. Attractive house and garden. Premium, practice and house £3,000.

C. EDINBURGH.—PRACTICE averaging £1,022 p.a. Panel 805. Price of house, £1,500; might let. Premium one and three-quarter years' purchase, or near offer.

D. E. OF SCOTLAND.—Industrial town. Rapidly growing PRACTICE. Receipts past year, £1,504. Panel 1,223. House with garage to rent. Premium £2,750.

For further details apply The Manager, 21, Alva Street, Edinburgh.

Terms on which the business of the Branch is transacted will be submitted on application to the Branch Manager, to whom all communications should be addressed.

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E. S. COAST, ENGLAND.—PARTNERSHIP (preliminary Assistantship). Receipts average £2,530. Panel 2,300. Premium one-third share two years' purchase.

F. YORKSHIRE.—Country PRACTICE. Receipts £1,200. Panel 500. Excellent house with garage. Price £1,200 freehold. Premium one and three-quarter years' purchase.

G. E. OF SCOTLAND.—Country town. Receipts last year, £685 (appointments £112, panel 565). Excellent house with garage and garden. Price £1,450. Premium £1,000.

H. EDINBURGH.—PRACTICE doing £450. House must be bought. Premium, practice and house £1,650.

I. CENTRAL SCOTLAND.—Country town. PARTNERSHIP, both partners retiring. Suitable for two. Receipts average £2,357. Panel 1,469. Excellent houses, prices £1,500 and £1,250. Premium two years' purchase.

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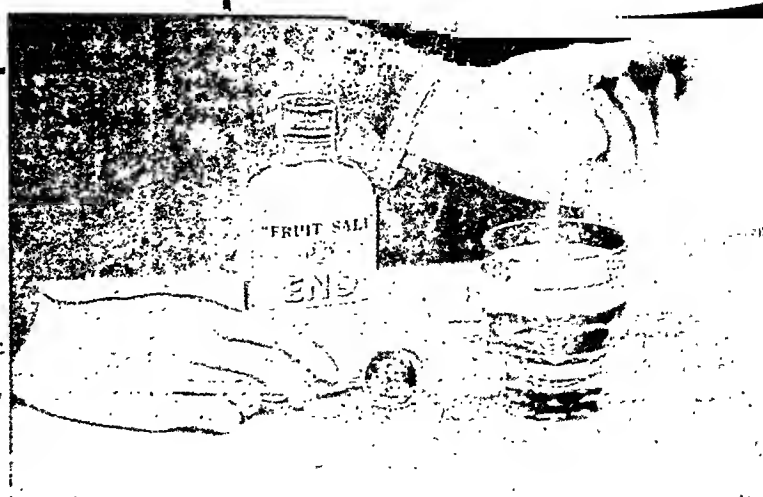
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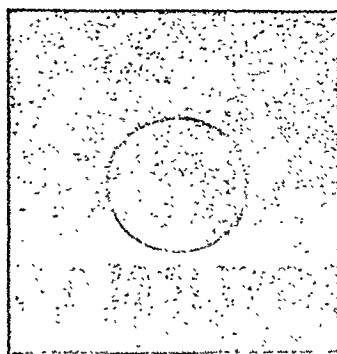
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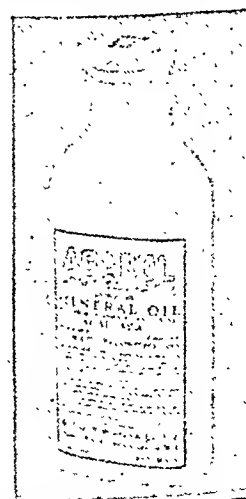
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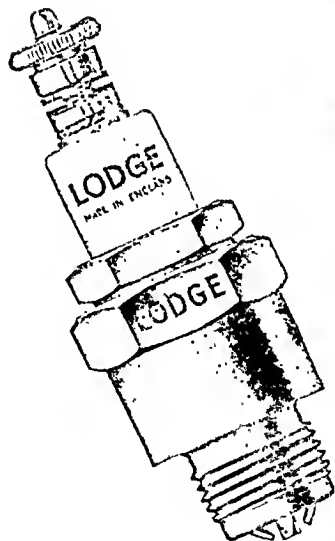
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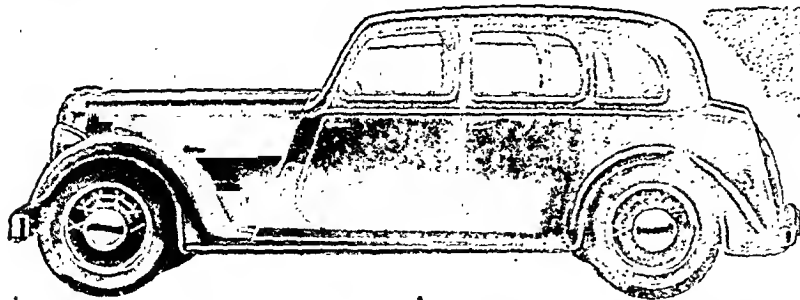
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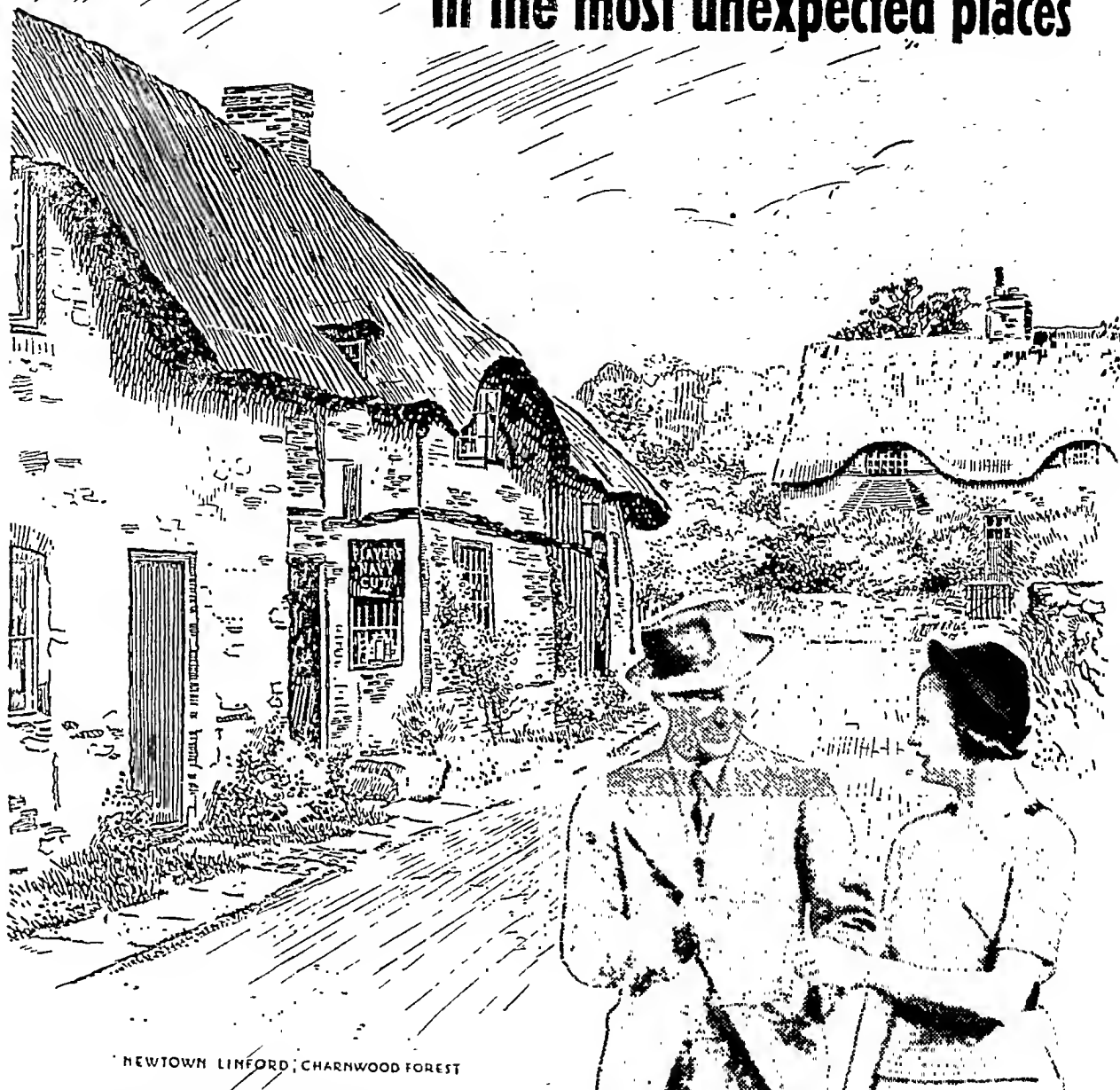
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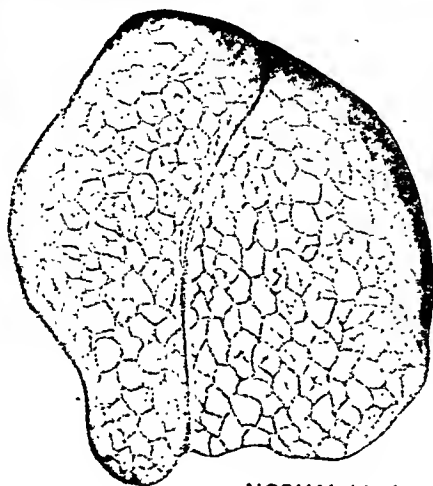
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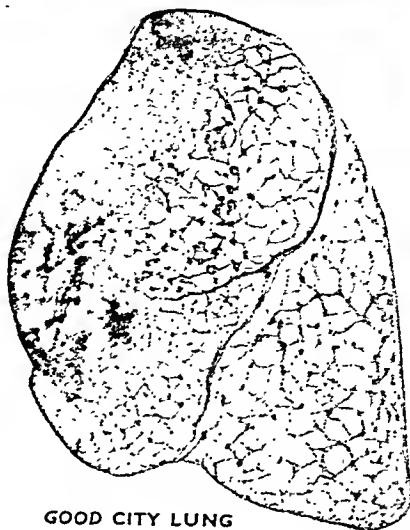
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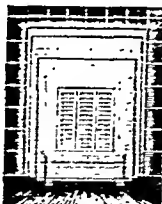
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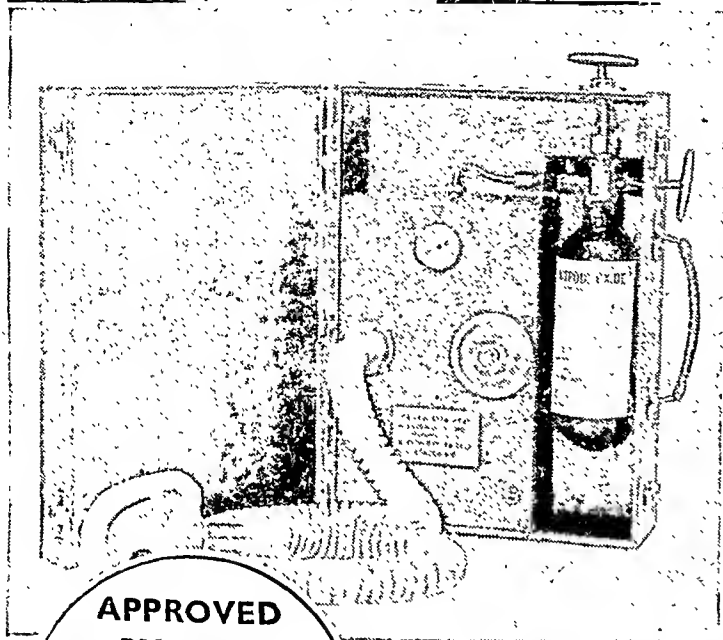
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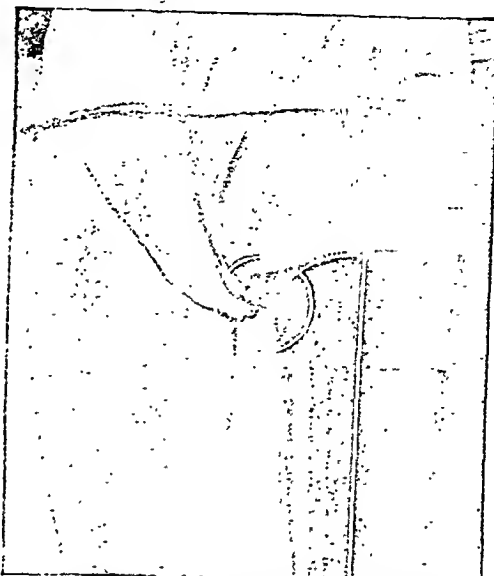
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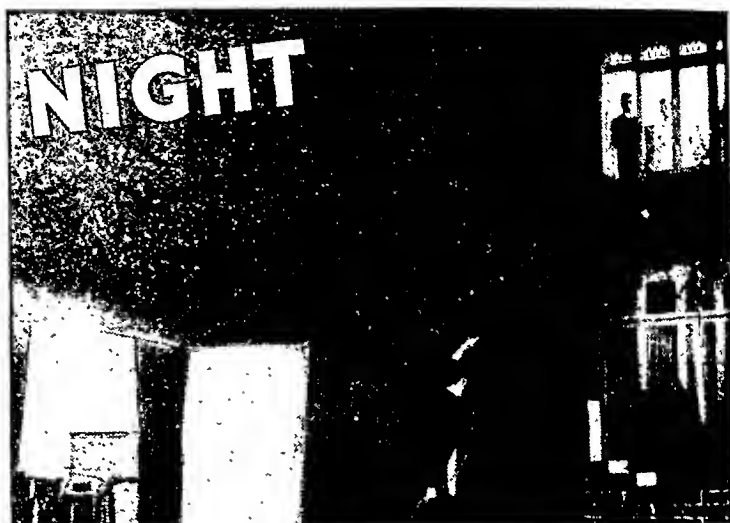
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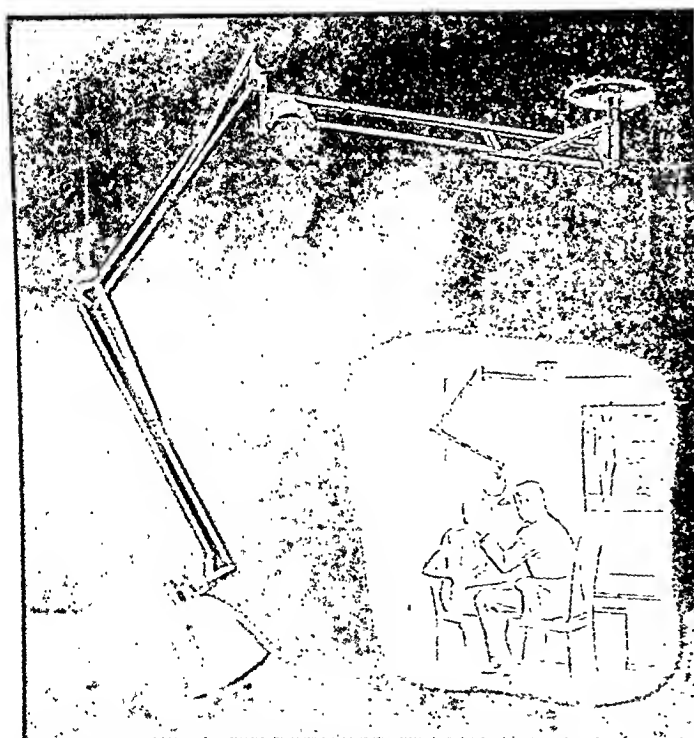
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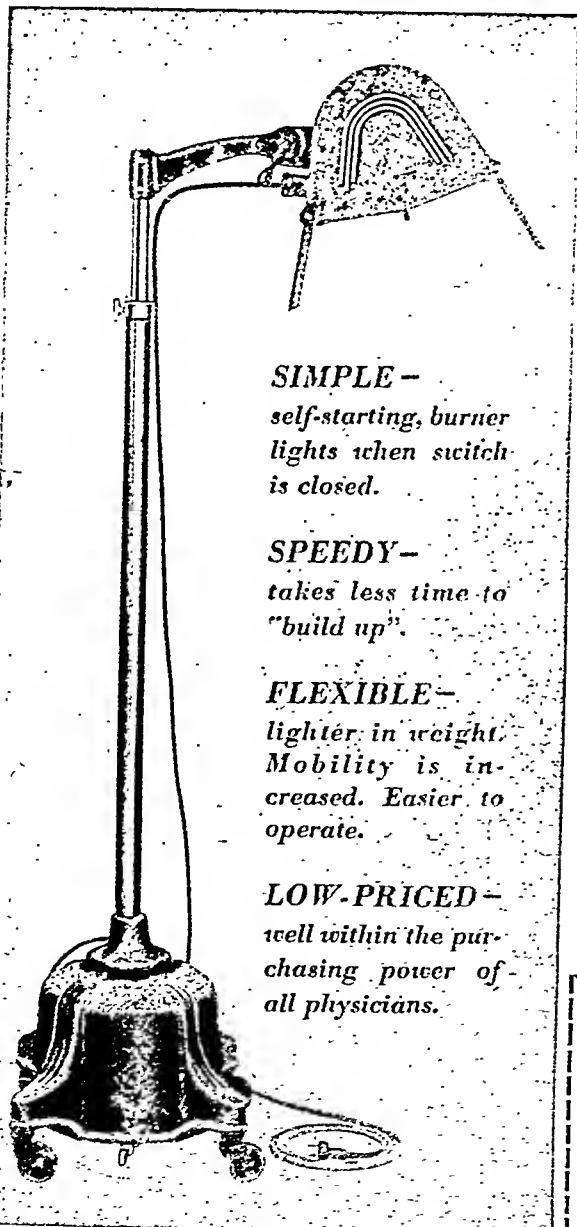
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SAMPLE sent with pleasure, also useful booklet with special diet sheets and sickroom recipes from a London Hospital. Write to Rayner & Co., Ltd., Medical Dept. B, London, N.18.

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When the success of a plan depends upon its perfect execution there must be strict co-ordination between the individuals involved. No programme of treatment can relieve the incidence of constipation unless the patient is willing to co-ordinate his efforts with those of the physician. That is why so many doctors prescribe 'Petrolagar' for their patients.

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'Petrolagar' is a mechanical emulsion of pure liquid petrolatum (65% by volume) and agar-agar.

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LACTAGOL (Edestine. Calcium. Phosphorus. Iron) helps to compensate for the constant drain by the foetus upon the reserves of the expectant mother.

It is a valuable roborant during convalescence following parturition and exerts a definite galactagogue action on the mammary glands of the nursing mother. Specimens for clinical trial free on application. Lactagol Ltd., Mitcham, Surrey.

**Expectant and
Nursing Mothers
thrive upon Lactagol**

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THE WORLD-RENOUNDED

NATURAL MINERAL WATER

INDICATIONS.

GASTRIC

PRIMARY DYSPEPSIAS

Hyperpepsia — Intermittent hyperchlorhydria.

Hypo-pepsia and a-pepsia — Dyspepsia arising from disturbance of neuromotility.

Intermittent pyloric stenosis, not of organic origin.

SECONDARY DYSPEPSIAS:

Arthritic dyspepsia.

Toxic dyspepsia (gastro-hepatic).

Dyspepsia due to enteroptosis.

MALARIA & TROPICAL DISEASES.
URINARY GRAVEL.

NATURAL VICHY SALT for
Drinking and Baths.



INDICATIONS.

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Congestion due to excessive or improper feeding.

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The diathetic congestions of diabetic, gouty, and obese persons.

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The diabetes of fat people.
Limaemia and gout.

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VICHY DIGESTIVE PASTILLES
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CAUTION.—Each bottle from the STATE SPRINGS bears a neck label with the word "VICHY-ETAT" and the name of the SOLE AGENTS

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Bangor Wharf, 45, Belvedere Road, London, S.E.1. And at Liverpool and Bristol.
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A VALUABLE, DOUBLE-ACTION ANTISEPTIC ★

Local treatment with Sphagnol Peat Ointment gives rapid relief in the most obstinate cases of psoriasis, haemorrhoids, eczema and skin eruptions. The reason is that Sphagnol has a twofold action. First of all it soothes and allays irritation and burning sensations; secondly, the natural antiseptic properties of the peat distillates assist in general treatment. Sphagnol

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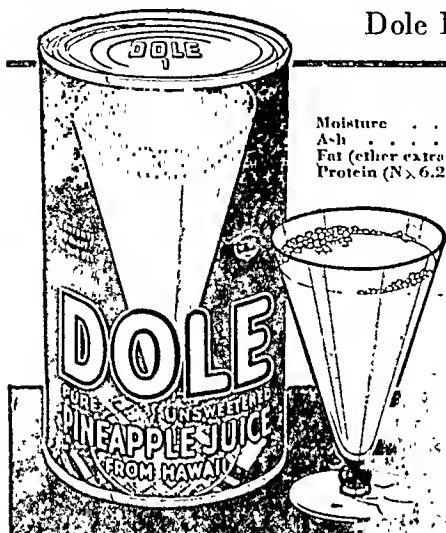
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MEDICAL SOAPS
OINTMENT
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For your attention—A NEW NATURAL FRUIT JUICE

If your patients would like a new fruit juice in their diet, you can safely recommend Dole Pineapple Juice, the pure, unsweetened juice of luscious Hawaiian Pincapples. Besides being a delicious, refreshing drink it is a good source of vitamins A, B and C and natural fruit sugars. The typical analysis below shows you what

Dole Pineapple Juice is composed of:



TYPICAL ANALYSIS

| | | | |
|-------------------------------|-------|---|--------|
| Moisture | 85.3% | Crude fibre | 0.02% |
| Ash | 0.4% | Titratable acidity as citric acid | 0.9 % |
| Fat (ether extract) | 0.3% | Reducing sugars as invert sugar | 12.4 % |
| Protein (N x 6.25) | 0.3% | Carbohydrates other than sugars (by difference) | 0.38% |

If you would like to taste this tangy drink, we will be pleased to send you a sample tin on receipt of your name and address.

2000 doctors have already availed themselves of this offer. Pure . . . unsweetened . . . packed by the exclusive Dole Fast-Seal Vacuum-Packing Process.



Dole Pineapple Juice comes from Hawaii and is the juice of sun-ripened Pincapples.

DOLE HAWAIIAN PINEAPPLE JUICE

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ETHER SOLUBLE TAR PASTE

INDICATED IN

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Issued in 2, 4 and 8-oz. pots.



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*A Physician's sample of T.C.P.
Antiseptic and literature will
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INFECTIONS



Antiseptic gargles and sprays have an important place in the prevention of colds, tonsillitis and other winter ailments. But, for optimum efficiency, the antiseptic used must have certain "plus" features, in addition to high bactericidal properties. T.C.P. is an ideal antiseptic for this purpose, because it has so many of these "plus" characteristics. Chief among them are *stability*—the maintenance of germicidal efficiency in the presence of organic matter, saliva, blood, pus, etc.; *safety*—T.C.P. is neither irritant nor caustic; *penetrative power*—for the relief of congestion and the stimulation of capillary circulation and phagocytosis; and *analgesic action*—invaluable in painful throat conditions.

FOR ROUTINE PROPHYLACTIC

GARGLING PRESCRIBE

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DASHWOOD HOUSE, LONDON, E.C.2**



MERSALYL B.D.H.

*The diuretic of choice in resistant cases
particularly those with cardiac involvement*

The superiority of the sodium salt of salicyl-(γ -hydroxymercuric- β -methoxypropyl) amide-O-acetic acid over other diuretics is officially recognised, and this substance is available as Mersalyl B.D.H.

Mersalyl B.D.H. is indicated in various oedematous conditions, particularly those associated with cardiac

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Mersalyl B.D.H. is available in a sterile buffered solution in ampoules of 1 c.c. and 2 c.c.; it is supplied also in suppositories for adjuvant treatment or for administration (following a single injection) in mild cases.

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Ovoferrin Brand Colloidal Iron Tonic is known to many physicians as the "children's iron", to others it is the iron of choice in pregnancy. Many physicians find it to be the only form of iron which is simple enough, assimilable enough and agreeable enough for long term feeding. Ovoferrin is tasteless, odourless, non-astringent; it will not stain the teeth; it will not irritate or constipate. Contains no sugar. Write for free professional sample.

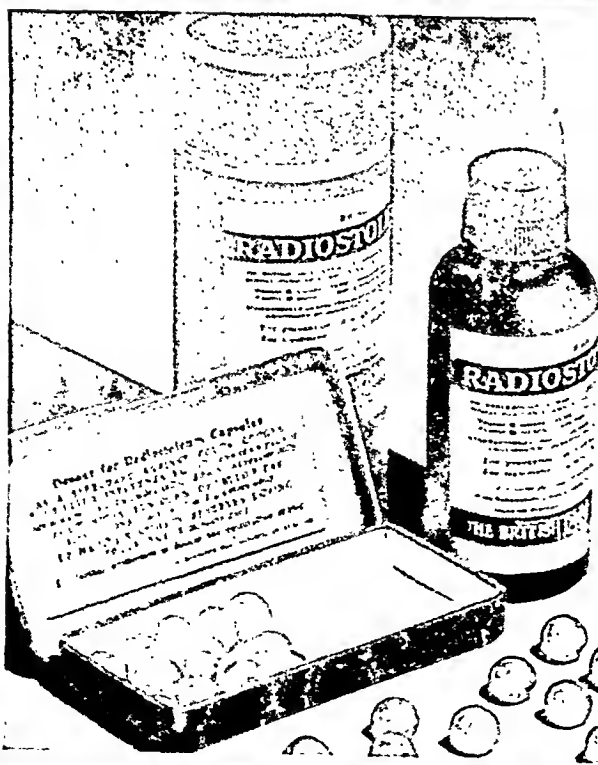


Colloidal—Tasteless—Stainless

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RADIOSTOLEUM

(Standardised Vitamins A and D)

*The guardian of
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The daily ingestion of Radiostoleum, by preventing cellular deterioration, guards epithelial integrity; furthermore, it helps to maintain normal cellular activity in the reticulo-endothelial system.

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*A concentrate of Vitamin E biologically tested for potency
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Vitamin E is essential for the maintenance of the normal secretory function of the anterior lobe of the pituitary gland. It is indicated, therefore, for prevention and treatment —

IN THE FEMALE — of habitual abortion and certain cases of dysmenorrhœa, defective lactation and vulvo-vaginitis.

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GODDESS
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Personification
of creative
Abyss which
was endowed
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M.278

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THE impairment of digestive powers which is commonly met with in the feverish patient, combined with the lack of desire for food, often aggravates the difficulty of adequately replacing the increased loss of energy and destruction of tissue which occur.

"Ovaltine" provides a satisfactory solution to the problem of alimentation in many cases of sickness and in the stage of convalescence after severe, prolonged and debilitating illnesses, where an easily assimilable, palatable and concentrated nutrient is required. It is always acceptable.

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Acknowledged to be the most
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for Gastric disorders . . .

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The safe and effective ANTACID for the treatment of
CHRONIC PEPTIC ULCER, HYPERCHLORHYDRIC
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- Correct physico-chemical constitution.
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The Koromex Occlusive Diaphragm is made in a range of sizes to fit each individual patient; pure latex rubber pessaries. Light and comfortable; practically unfelt. Two-year durability guaranteed. Practitioners and birth control clinics, for more certain protection, prefer to use the perfect fitting Koromex Diaphragm with

KOROMEX VAGINAL JELLY

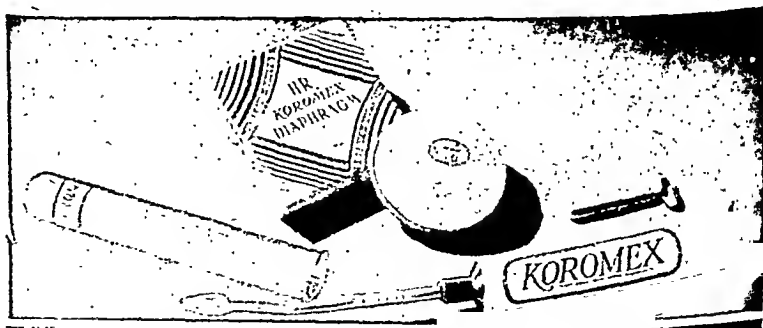
Stainless and prolonged effective spermicide. The carefully gauged viscosity of Koromex Jelly affords the all-important mechanical block. No toxicity or irritation . . . makes the diaphragms easier to insert.

Advise the Koromex Method. Your patient will be grateful.

A sample of Koromex Jelly will be sent on application to medical practitioners; also a booklet, the Physician's Guide, on the technique of fitting the Occlusive Koromex Diaphragm. No charge. Write to

The Highest Record of PROVEN SUCCESS in Contraceptives

- Evidence of the high degree of efficacy of the Koromex Method is based upon the experience of 234 clinics—140 hospitals—over 50,000 physicians.



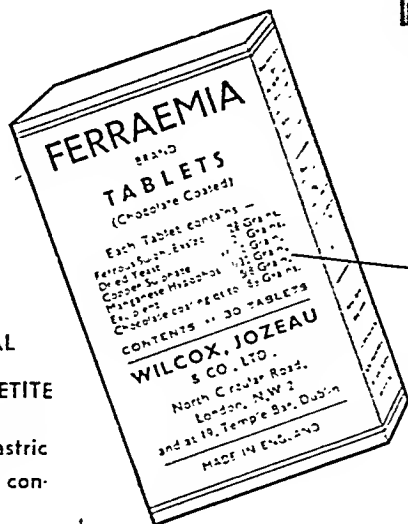
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The Koromex Diaphragm appears on the National Birth Control Association's approved list with seven Prentif products, including Condoms, Sheaths, Jellies and Suppositories. Illustrated descriptive Price List on request.

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Sole agents in Great Britain for Holland-Rantos Co., Inc., New York

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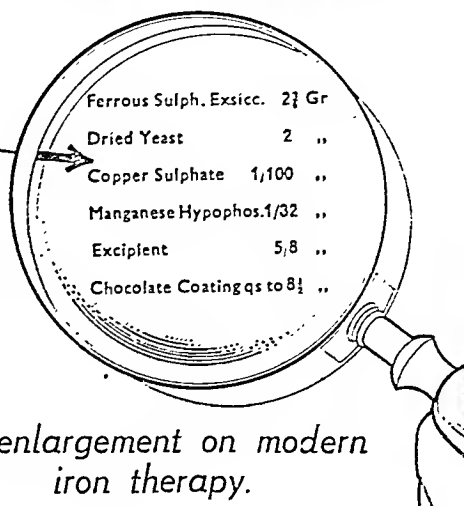


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PROMOTES APPETITE

Does not cause gastric
disturbance or con-
stipation



*An enlargement on modern
iron therapy.*

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A Menstrual Regulator...

When the periods are irregular, due to constitutional causes, ERGOAPIOL (Smith) is a reliable prescription. Containing apiol (M.H.S. special) together with ergot, aloin and oil of saffron of the highest quality, this preparation effectively stimulates uterine tone and controls menstrual and postpartum bleeding.

In cases of Amenorrhea, Dysmenorrhea, Menorrhagia and Metrorrhagia, Ergoapiol serves

as a good uterine tonic and hemostatic. Valuable in obstetrics after delivery of the child and for the menstrual irregularity of the Menopause.

Prescribe 1 to 2 capsules 3 or 4 times daily. Supplied only in packages of 20 capsules. Literature on request.

As a safeguard against imposition the letters MHS are embossed on the inner surface of each capsule, visible only when the capsule is cut in half as shown.



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Agents for Great Britain and Ireland



Formula

| | | | |
|-------------------|---|------|-------|
| Intestinal glands | - | 0.05 | grms. |
| Biliary extract | - | 0.10 | " |
| Lactic ferments | - | 0.05 | " |
| Agar-agar | - | 0.05 | " |
| Fiat tablet | - | 0.35 | " |

Initial Daily Dose
Two Tablets

Laxatives, it is well known nowadays, must have two essential characteristics.

1. They must be biological, i.e., they must accord with and imitate in their action the natural physiological processes of the intestine.
2. They must be capable of educating the intestine, so that the habit of a laxative is not formed and the intestine can function unaided when bowel adjustment is attained.

Taxol has both these advantages.

Taxol has not the violent irritant action of many laxatives and purgatives, but stimulates the intestine by processes which resemble those of nature. The intestinal gland which is an important part of its composition acts on the intestine by reinforcing the deficient function which has culminated in constipation. This stimulating action is gentle, and does not force the weakened intestine to efforts beyond its power, which would culminate in aggravation of the constipation.

Taxol is not habit-forming. It re-educates the intestine to resumption of normal function unaided, thanks to the biological nature of its action. It contains no irritant drug of violent and artificial action to which the intestine can become accustomed. On the contrary, many stubborn cases of constipation, after a course of TAXOL, revert to normal and regular peristalsis.



EARLY VEGETABLE DIET

for

OPTIMUM NUTRITION OF INFANTS

It is now widely admitted that vegetable foods should supplement the milk diet of infants as early as possible. The difficulty in prescribing these foods at an early age has however hitherto been the fact that the weak digestions of infants cannot successfully deal with the fibrous cellular tissue, which therefore causes intestinal irritation and consequent upset, frequently manifested by diarrhoea.

The Libby method of Homogenization disintegrates this tough, indigestible cellular fibre, thus enabling it to be easily eliminated, the 'bulk' however being in no way affected. This breaking down of the fibrous walls also has the advantage of enabling the full nutriment to be thoroughly assimilated.

Libby's Homogenized Vegetable Foods for infants are prepared in six scientifically formulated combinations of Cereal, Vegetables and Fruit. These can be prescribed as needed to provide the necessary balance of Vitamins, Minerals and other essentials.

The accompanying table shows the comparative results of carefully controlled experiments with supplementary vegetable diet.

| AVERAGE TOTAL INCREASES IN HEMOGLOBIN AND ERYTHROCYTES AFTER SUPPLEMENTING THE MILK DIET WITH HOMOGENIZED VEGETABLES OR STRAINED VEGETABLES | | |
|---|--------------------------------------|-----------------|
| | Per Cent Increase Above Anæmia Level | |
| | Hemoglobin | Red Blood Cells |
| Specially Homogenized Vegetables (carrots, spinach, peas) | 89 | 117 |
| Commercially Strained Vegetables (carrots, spinach, peas) | 76 | 84 |
| Home Strained Vegetables (carrots, spinach, peas) | 80 | 95 |

Samples together with clinical data and laboratory reports will be gladly supplied upon request to Messrs. Libby, McNeill & Libby, Ltd., 15, Lime Street, London, E.C.3.

Libby's
HOMOGENIZED FOODS
VEGETABLE - CEREAL - FRUIT - SOUP

INDICATIONS FOR 'SANATOGEN'.

No. 7

ARTERIO-SCLEROSIS and HYPERTENSION

"Room for Scepticism"

There is room for scepticism as to the causative relation between the stress and rush of modern life and high blood-pressure.

Examination of mummies has shown that arterio-sclerosis was common even in ancient Egypt, and it was recently pointed out in a medical journal that "the active goat and the horse have little arterio-sclerosis, while the placid cow and the phlegmatic duck are especially susceptible".

That food-intake is important both in the prevention and in the treatment of hypertension is, however, generally agreed. Purins, toxins and excessive food residues in the colon are all to be suspected and avoided.

In the dietetic treatment of high blood-pressure, 'Sanatogen', a carbohydrate-free product of 95 per cent. pure milk casein *with* 5 per cent. sodium glycerophosphate, has been found of great service. Its nutritive value is high.

BLOOD PRESSURE

"I have been very interested in the effects produced by 'Sanatogen' in a case of high blood-pressure. The patient, a young woman, was put on a restricted diet for high blood-pressure, and used to find that in the middle of the morning and after putting her little boy to bed, she had a feeling of extreme weakness and was often forced to sit or lie down for some time before she could do anything else. She started taking 'Sanatogen' twice a day, and after a short period noticed that this feeling was not making its appearance, and she has never had it again as she is still continuing with the 'Sanatogen'. She is also very much improved in health, and seems to have much more reserve energy now. The only alteration in diet has been the addition of 'Sanatogen'."

—M.B., Ch.B.

NO TOXINS · NO PURINS · NO RESIDUE
NO ABNORMAL FERMENTATION

'SANATOGEN'

(Trade Mark)

A brand of Casein and Sodium Glycerophosphate

Sold by all chemists price 2/3 to 19/9

DOSAGE: For children and adults two teaspoonsful three times daily, or according to circumstances. For infants 1 teaspoonful added to each bottle feed.

The word 'SANATOGEN' is the Trade Mark of Genatosan Ltd., and denotes their famous brand of Casein and Sodium Glycerophosphate. A 'GENATOSAN' product made by GENATOSAN Ltd., Loughborough, Leicestershire.

Clinical samples and literature available on request to

GENATOSAN LTD., LOUGHBOROUGH, LEICESTERSHIRE

VOLPAR

Volpar is the new contraceptive which has been formulated in co-operation with the medical Sub-Committee of The National Birth Control Association; it is the outcome of nearly ten years' continuous investigation conducted by University research workers under the direction of the Birth Control Investigation Committee.

Laboratory tests have shown that the active principle of Volpar is the most powerful non-toxic spermicidal substance known.

An article reporting the results of the above-mentioned investigation was published in *The Lancet* of October 15th, 1938, p. 882, and a letter signed by the medical members of the Birth Control Investigation Committee commenting upon this article has also appeared (*Lancet*, October 22nd, 1938, p. 970).

Volpar is issued in two forms:—

VOLPAR GELS

Soluble suppositories primarily intended for use alone, or (for maximum safety) with a cap or sheath.

VOLPAR PASTE

A non-greasy paste for lubrication of occlusive caps and sheaths or condoms.

Volpar Gels and Volpar Paste are sold only by pharmacists at the following prices (applicable to Great Britain only):

GELS: in screw-capped glass tubes containing 1 dozen gels, 2s. 0d.

PASTE: in collapsible tubes containing sufficient for 12 applications, 2s. 0d.

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Head off the secondary complications!

STREPTOCOCCUS ANTITOXIN (SCARLATINA)

GLOBULIN *Lederle* MODIFIED

WE collected the experience of 18 hospitals and found, as we expected, that our Globulin-Modified process of refinement had cut in half the percentage of reactions. The percentage of *sum* reactions was only 2%!

We also found in our hands new evidence of the efficacy of antitoxin in heading off sequelae, if administered *early*.

Irrespective of the apparent severity of the case, patients treated on the first or second day of the disease, in most instances, showed a prompt cessation of all symptoms within a few days. When treatment was delayed beyond this period, there was a sharp rise in the incidence of secondary complications and their severity.

| Number of Cases | 132 | 97 | 22 |
|--------------------|------------------|------------------|---------------|
| Antitoxin given on | 1st and 2nd days | 3rd and 4th days | After 4th day |
| Adenitis | 3.7% | 7.2% | 4.5% |
| Otitis media | 6.1% | 8.2% | 18.1% |
| Mastoiditis | .. | 1.03% | 13.6% |
| Nephritis | .. | 1.03% | 4.5% |
| Sinusitis | .. | 2.0% | .. |

For maximum clinical response, institute antitoxin therapy early and in adequate dosage.

The coming of the Globulin-Modified antitoxin largely relieves the physician from the old fears of reactions and clears the way for the use of the ideal therapy, even in the mildest cases, reducing the incidence of secondary complications.

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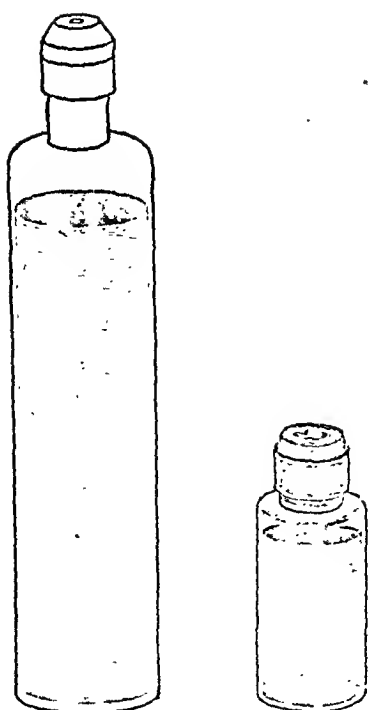
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ACTUAL SIZE — THERAPEUTIC DOSE

Send for Bottles
"Scarlet Fever Control and Treatment"

CRUNCHY FOODS *and health*

Most physicians agree that the soft foods of the modern diet endanger the perfect functioning of the digestive system, and that crunchy foods should have their place in everyone's diet.

The necessity for masticating crisp foods induces a more abundant flow of saliva, and this is generally held to facilitate the work of the digestive tract. Crunchy foods are therefore not only easier to digest in themselves; they also assist in the digestion of the softer foods eaten in conjunction with them.

Crunchy foods eaten regularly have also this advantage: they tend to induce the habit of proper mastication, so that soft food also will be more thoroughly chewed.

Ryvita is a dry, crisp food now frequently recommended by practitioners to their patients. Its consistency makes complete mastication a necessity, and it can be eaten with every meal. A complimentary carton of Ryvita will gladly be supplied on request.

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Pharmaceutical and Biological Products



TRADE MARK 'MERTHIOLATE' BRAND
Sodium Ethyl Mercuri Thiosalicylate

In the Operating Room

'Merthiolate' brand sodium ethyl mercuri thiosalicylate is an antiseptic with properties in keeping with the highest standards of aseptic surgical technique.

Tincture 'Merthiolate,' an alcohol-acetone-aqueous solution, is particularly suitable for preoperative preparation of the intact skin.

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Telephone: Gerrard 2144.

Distributing Agent in Britain for

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WEANING TIME

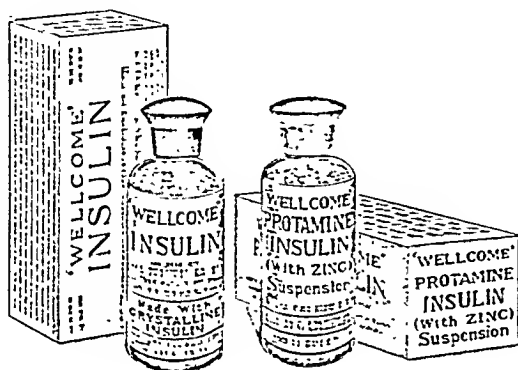


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Since insulin was first authorised for manufacture in Great Britain 'WELLCOME' Brand INSULIN has been notable for its supreme quality.

Prescribers and patients have good reason for confidence in its dependability.

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Made with CRYSTALLINE INSULIN

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(with ZINC)—Suspension

Prolongs the blood-sugar lowering action.
Patient may be maintained on one daily injection.

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PACKAGES:

5 mg. Tablets. 2% Solution.
Ampoules of 1/4 mg. for intravenous injection.
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TEA

Delicious "Ty-phoo", is so mild and pure it will not harm the most delicate digestion. This because "Ty-phoo" possesses none of the bitter astringency which is so prevalent in the common coarse varieties.

For over 30 years "Ty-phoo" has retained the confidence of the medical profession as testified by the hundreds of letters which are upon our file.

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"I consistently recommend "Ty-phoo" tea in cases of dyspepsia, where I find it of great benefit."—M.R.C.S., L.R.C.P.

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SOME NUTRITIONAL PROBLEMS OF CHILDHOOD*

BY

LEONARD G. PARSONS, M.D., F.R.C.P.

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It is within the discretion of the Trustees of the Dawson Williams Prize to ask the recipient to deliver a lecture on the subject of his researches, and since this is the first occasion on which they have exercised that discretion, it is surely fitting that I should pay homage to the memory of Sir Dawson Williams.

Dawson Williams achieved outstanding success in two spheres of medicine: first, as a paediatrician; and, secondly, as a medical editor. He edited the *British Medical Journal* for thirty years and won for it a position in the forefront of medical literature, and both it and the *Archives of Disease in Childhood*, of which he was one of the sponsors, are abiding memorials to his name. He was a great man physically and intellectually, and withal somewhat of an autocrat, as all who knew him will bear witness. The last sentence he ever wrote for publication was, "Its motto might be 'Thorough,'" and such certainly was his own motto. When he retired from the editorship of the *Journal* it was felt that his work should be commemorated by some form of testimonial, and he, true to his first love, wished that this should take the shape of a scholarship or prize for research in paediatrics. Unfortunately, before the testimonial could take form he died, and later the Dawson Williams prize in paediatrics, open to the British Empire, was founded in his memory. It is to this man that I pay in this lecture an inadequate but sincere tribute.

I wish also to express my thanks for the great honour conferred upon me by the award of this prize; an honour which gives me the greater pleasure in that I follow in the footsteps of my two distinguished teachers, Dr. F. J. Poynton and Sir Frederic Still.

In looking back over my work I find it difficult to choose a comprehensive title for the problems investigated, but since the majority have been associated with some disturbance of nutrition the title "Some Nutritional Problems of Childhood" will cover what I wish to say. I propose to use coeliac disease as a text, because the investigation of that condition has led to a consideration of many other deficiency disorders of childhood. In a paper of this nature it is obviously difficult to keep out "I." In some places "We" has been substituted, and in others the name of a colleague, because I have been assisted by an enthusiastic band of workers who have combined first-class executive and clinical ability with a high degree

of critical and constructive reasoning. My thanks are also due to the Medical Research Council for the generous help which they extended to me for many years.

Beginning my study of coeliac disease with the assumption that deficient absorption of fat was the key to its symptomatology, I now realize that its diverse symptoms are due to impaired absorption of many factors in the diet which are necessary for normal nutrition. At different times the subjects of coeliac disease show symptoms of all the well-known deficiency diseases, as, for instance, rickets, tetany, cataract, scurvy, night blindness, pyoderma, xerophthalmia, atrophic tongue, beriberi, microcytic and macrocytic anaemia, dental hypoplasia, stunting of growth—manifestations which Minot has called "conditioned deficiency diseases."

Coeliac Rickets

Diets severely restricted in their fat content have been used in the treatment of coeliac disease for many years, and although I observed the occurrence of rickets in coeliac disease in 1913, I did not connect its appearance with the diet until it was forcibly brought home to me ten years later by the following case:

In 1919 a girl aged 5 years was found to have coeliac disease and was given a fat-free diet with considerable benefit, but in 1921 she experienced the first of several attacks of tetany, and in 1922 developed knock-knee, which increased so rapidly that a year later walking became impossible. These symptoms were regarded as due to rickets, a diagnosis that was confirmed by radiographs. I was thus placed in the extraordinary position of having, by my treatment, improved one but produced another even more crippling disease; furthermore, if the treatment were continued, it seemed impossible to cure the rickets. Fortunately at this time ultra-violet irradiation was beginning to be widely used in the treatment of rickets; therefore in March, 1925, this form of treatment was started, and nine months later the child who had been bed-ridden for three years was once more able to walk.

Since then we have successfully treated coeliac-rickets by other methods—for example, irradiated cholesterol dissolved in paraffin, irradiated cholesterol in powder form, irradiated ergosterol and calciferol in tablet form dissolved in as little fat as possible and usually given in large doses. We have found that by employing such treatment as a routine in coeliac disease both tetany and rickets can be prevented; otherwise rickets is apt to occur at the growing periods and when the dietetic treatment of coeliac disease has produced a resumption of

* The Dawson Williams Memorial Lecture, delivered in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Plymouth, 1938.

growth, for, although osteoporosis may be present, rickets cannot develop unless the child is growing.

An observation made on one of these early cases of coeliac rickets is interesting in connexion with more recent investigations. This observation was the ineffectiveness of sunlight in the Birmingham area to cure rickets. The child to whom I refer was, when first seen, so black from exposure to the summer sun that he looked like an Ethiopian, yet there was clinical and radiological evidence of the most extreme and severe rickets without the slightest sign of healing. The inadequacy of Birmingham sunshine has been demonstrated by a series of experiments in which three groups of rats were given a rickets-producing diet for a period of four weeks: one group was kept in the dark; another exposed daily from 11 a.m. to 1 p.m. (Greenwich mean time) to the open sky, but not the direct sunshine; and the third group exposed for the same time to whatever direct sunshine was available. Brown and Tisdall found that when rachitic rats were thus exposed to direct sunshine healing should become obvious when the sun is about 35 degrees above the horizon, which, in Birmingham, occurs for about twenty-eight weeks in the year. In the first year the rats were exposed in the centre of Birmingham. In spite of the fact that the summer was hot and sunny, healing only occurred in the "sunshine" rats over a period of seventeen weeks and in the "skyshine" rats for a period of nine weeks. It was thought that this limitation in the healing powers of the sunshine and skyshine was due to the considerable smoke pall which hangs over Birmingham, and therefore in the following year we exposed a series of rats in the country on the north-east side of Birmingham about ten miles from the centre of the city, and another series in the centre of the city, and were amazed to find that healing in Birmingham was better than in the country. Therefore, during a third summer three series of rats were exposed; one in the country to the south-west and some seven miles from the centre of the city; one in Birmingham itself; and one in the same situation on the north-east side of Birmingham as in the last experiment. The results showed that healing was slightly better on the south side than in Birmingham and considerably better in Birmingham than in the country on the north-east side of the city. The explanation of these facts is, we believe, that the prevailing south-west winds carry the smoke from Birmingham and the surrounding Black Country to the north-east of Birmingham and that this cuts off much of the curative ultra-violet rays. The child to whom I have referred had been an in-patient at a country hospital situated ten miles to the east of the city centre, and subject to the same smoke drift.

Some deficiency symptoms appear more commonly than others in coeliac disease: for instance, rickets and tetany occur more often than xerophthalmia, scurvy, and beriberi, again, microcytic anaemia is the commonest deficiency symptom, whereas megalocytic anaemia is one of the rarest. The explanation of these vagaries cannot be the inability of the coeliac child to absorb fat, because xerophthalmia is rare, and scurvy and beriberi occur, but it may be that the "threshold level" required for their development is lower with some deficiency symptoms than with others.

Anaemia in Coeliac Disease

Hypochromic microcytic anaemia occurs so often as to constitute a characteristic symptom of coeliac disease. It is an iron-deficiency anaemia, and essentially similar to Wits's anaemia of adults, since hypochlorhydria is also a common finding. In a few cases megalocytic hyper-

chromic anaemia has been found; in one case this was apparently due to the absence of intrinsic factor, in others to the lack of absorption of the haematinic factor, since improvement occurred when the diarrhoeal period was over. This type of anaemia can be cured by giving liver extract orally or parenterally.

In investigating the anaemias of coeliac disease, my colleague, Dr. Smallwood, discovered in three children a condition of microcytosis without anaemia, the cell count being normal and the cells deeply stained. This he thought was probably due to spherocytosis, the cells being thicker and more globular than normal, as in acholuric jaundice. In view of more recent clinical and experimental investigations, however, I would suggest another explanation. During the cure of nutritional anaemia a condition known as Hagen's phenomenon sometimes occurs in which the red cell count rises to six millions or more per c.mm. before the haemoglobin reaches normal figures, but when the haemoglobin does become normal the red cells fall to the normal number. Recently Dr. Cleland has found that sometimes, after the progressive diminution in the red cells which is known to occur in early infancy, the cells increase to more than the normal number, while the haemoglobin still continues to fall—that is, the reverse of Hagen's phenomenon. In our opinion both this and Hagen's phenomenon are manifestations of a mild degree of iron-deficiency anaemia.

We believe that the first change in an iron-deficiency state is an increase in the number of cells but a decrease in their size without any alteration in the percentage of haemoglobin, probably because the available haemoglobin is used to better advantage if a small cell is well filled than if a large cell is relatively less well filled (Smallwood). I think, therefore, that the condition found by Smallwood was a manifestation of this early iron-deficiency anaemia. The experimental evidence on which my explanation is based was obtained by feeding rats on a diet which, although deficient in iron, is not so deficient as to produce a definite nutritional anaemia. Rats fed on such a diet from weaning at the age of 3 weeks until 3 months old showed practically normal growth and did not appear pale or anemic. Their haemoglobin was 100 per cent., but the red cells showed an increase of about two million cells per c.mm.; moreover, the red cells were smaller than normal. This combination of microcytosis, polycythaemia, and normal haemoglobin can be cured by adding iron and a trace of copper to the diet, thus proving that it is a response to a deficiency of iron.

Carbohydrate and Fat Metabolism in Coeliac Disease

A few years ago we repeated and confirmed the observation of several workers that oral glucose-tolerance tests in coeliac disease gave a flat and low blood-sugar curve. Moreover, we were struck by the similarity of these curves to the low blood-fat curves which we had found in coeliac disease after test meals of fat, and since there was considerable evidence that the latter were due to impaired absorption of fat from the intestine, we concluded that the low blood-sugar curves were also due to poor absorption, and not to an endocrine defect as suggested by other workers.

Defective fat absorption in coeliac disease has been repeatedly demonstrated by balance experiments, but this method cannot be applied to carbohydrates because bacterial fermentation in the intestine splits up carbohydrate, so that the amount unabsorbed cannot be estimated by faecal analysis. Our theory therefore could not be substantiated directly, but my colleague, Wallace R.

suggested that the problem might be solved by the comparison of intravenous and oral glucose-tolerance tests. He accordingly began work on those lines, and the results obtained have completely confirmed our view that carbohydrate is badly absorbed in coeliac disease, and have led to valuable advances in treatment. The suggestion that glucose tolerance should be estimated by the intravenous injection of glucose is not an original one, but in the test as devised by Ross the following points are new: the glucose (20 per cent.) is dissolved in normal saline, the amount of glucose being 5 grammes up to a weight of 10 kg., 10 grammes up to 30 kg., 20 grammes for older children; the maximum injection time is two minutes; the blood sugar is estimated directly after injection and at short intervals thereafter—namely, 2, 4, 6, 8, 10, 15, 20, 30, 40, 60 minutes—from an ear-lobe puncture, using only 0.02 c.mm. of blood.

There are certain other important points about the test: first, the child should be, as far as possible, on a normal diet from three to five days before the test; secondly, the test should be done after a night's fasting; thirdly, everything should be done to keep the child free from emotional disturbance, which itself affects the blood sugar. The diet is important because it is now recognized that the glucose tolerance of a healthy individual is directly proportional to, and solely dependent upon, the amount of carbohydrate the diet contains during the few days preceding the test. In the normal individual a low carbohydrate diet leads to impaired glucose tolerance, which is shown by a high and rather slowly falling blood-sugar curve, whether glucose is administered intravenously or orally; whereas a high carbohydrate diet will lead to the opposite effect—an increased glucose tolerance giving a low blood-sugar curve.

According to Thaysen a flat oral curve is one in which the rise from the fasting level is less than 40 mg. per 100 c.cm.; even more important, however, is the absence or great delay in the occurrence of a true peak and the failure of the curve to fall to the fasting level in two and a half hours even after a small rise. The form of an oral curve depends upon two factors: first, the rate at which sugar enters the blood—and this may be impaired as the result of gastric stasis or through failure of absorption; secondly, the rate of its removal from the blood—that is, the tolerance of the individual. In impaired absorption less sugar enters the blood, thus tending to produce a low curve; but because of this carbohydrate deprivation glucose tolerance is impaired, and this tends to produce a high curve. The resultant curve depends, therefore, on the degree and duration of the absorptive disability. A mild degree of impaired absorption, although leading to impaired tolerance, probably allows a considerable part of the test dose to enter and thus produce a high curve; whereas although as absorption gets worse the tolerance does also, the test dose cannot get in to show it. Actually during the early stages of coeliac disease the oral curve rises and then, as the disease develops, falls to the flat curve. This phenomenon was observed in a child whose symptoms when she first came under observation were failure to gain weight and listlessness, at which time a fairly high curve was obtained, whereas six weeks later, when the diagnosis of coeliac disease was obvious, a flat curve was obtained. During recovery exactly the reverse of this process has been found—namely, the replacement of flat curves by curves rising to a higher level, often with a delayed peak—these curves falling later to the normal level. It is not surprising, therefore, that some cases of coeliac disease and abdominal tuberculosis have shown almost normal oral curves, although the intravenous curves

revealed pronounced impairment of tolerance. It is just such variations in absorption which have enabled Ross to make out a strong case for his view that the correct estimation of glucose tolerance can only be made by intravenous blood-sugar curves, since they are concerned with a single factor—the removal of glucose from the blood.

These results, and the fact that in established coeliac disease the combination of low oral and high intravenous curves has always been found, furnish important evidence in favour of our thesis that the absorption of glucose from the bowel is impaired in coeliac disease. Furthermore, if our assumption were really true it would follow that the glucose tolerance and general condition of these children should be improved by the administration of glucose. This in fact has proved to be the case, and I have seen the most remarkable success follow this treatment in the severest exacerbations of coeliac disease.

The problem of carbohydrate absorption has been attacked in another way. It is known that glucose tolerance is directly proportional to the sensitivity to injected insulin; therefore, the fall in blood sugar when estimated every five minutes for half an hour after crystalline insulin is injected intravenously into a fasting person—the so-called insulin depression curve—is less in a normal individual on a low carbohydrate diet than when the individual is on a normal diet. If there is impaired carbohydrate absorption in children suffering from coeliac disease they should therefore show an insulin depression curve similar to that found in a normal individual on a low carbohydrate diet, and this is exactly what they do show.

"Insulin Kinase"

The third phase of these investigations was based upon the assumption that insulin, whether produced in the body or injected, is inert until acted upon by a "kinase," formed, chiefly in the liver, in response to the stimulus of an elevated blood-sugar level. If this assumption is true, kinase would be deficient—either as the result of lack of stimulus consequent upon a low carbohydrate intake, such as we have postulated in coeliac disease and in diets deficient in carbohydrate, or because the liver, possibly as the result of disease, is unable to respond to the stimulus and produce kinase. Attempts were therefore made to see if the glucose tolerance and sensitivity to insulin of children suffering from coeliac disease could be improved by giving liver preparations intravenously or orally. The same results were achieved by both methods, although more rapidly with campolon than with liver by mouth—namely, that the intravenous tolerance curves became normal, an effect which was not due to campolon itself having an insulin-like action. It was therefore clear that the poor absorption of carbohydrate in coeliac disease resulted in a diminished production of something, perhaps "insulin kinase," which is supplied by campolon or liver extract. Campolon was chosen by Ross because it is prepared by simple expression methods, and therefore is more likely than the more purified products to contain the kinase; actually a more purified and concentrated preparation—anahaemin—was found to have little effect on the glucose tolerance, indicating that insulin kinase is not identical with the haematinic factor. Another interesting fact is that although the intravenous curves are rendered normal by treatment with liver, and there is ample clinical evidence of improvement in the general condition of the children, the oral glucose-tolerance curves do not improve. The reason for this improvement cannot therefore be an immediate increase in carbohydrate absorption, but,

according to Ross, it may be due to better utilization of the carbohydrate formed in the body from protein. In view of these findings we now give liver extract as a routine in coeliac disease, and have been convinced of its value, although the results obtained are in no sense dramatic, like those obtained in severe relapses by the intravenous administration of glucose.

It is interesting to note that Minot and his colleagues regard sprue as primarily a deficiency disease closely allied to pernicious anaemia, and believe that in both there is involved a failure of a reaction between an extrinsic factor in the diet and an intrinsic factor present in the gastric juice of a normal person. Moreover, they class coeliac disease and idiopathic steatorrhoea with sprue, and state that those substances in liver extracts which are effective in pernicious anaemia have a highly beneficial effect on the major features of sprue. Recently, Barker and Rhoads have investigated blood-fat curves in sprue after a fat test meal and obtained results similar to those found by us in coeliac disease, but they also found that after the parenteral administration of liver extract the curves approached normal. In one patient a single injection sufficed to produce this change, but in two other cases several daily injections were required—a result which they say suggests that liver extract exerts some specific effect in converting malabsorbing intestines to normal function. Liver treatment does not produce this dramatic effect in coeliac disease, and low blood-fat curves may be found after months of liver treatment. Again, although carbohydrate absorption gradually improves as the child approaches normal health, it does not, as I have shown, improve immediately after, or even in a relatively short time after, the institution of liver treatment; moreover, the factor in liver which improves glucose tolerance in coeliac disease is not the haematinic factor. Coeliac disease is therefore not a conditioned deficiency caused by lack of specific reaction between extrinsic and intrinsic factors, although the megalocytic anaemia of coeliac disease can be cured by the parenteral administration of haematinic factor; furthermore, the results of the American observers, if confirmed, seem to differentiate sprue from coeliac disease.

I have followed Ross in postulating the existence of an insulin kinase produced chiefly in the liver. The theory that insulin requires an activator insulin kinase is due to Himsworth, but, unfortunately, with the help of McNair Scott he has recently proceeded to strangle the infant to which he had given birth. They now suggest that the reduction in carbohydrate tolerance and decreased insulin sensitivity produced by a low carbohydrate diet are better explained by an increased secretion of the anti-insulin substance of the anterior pituitary—that is, by an inhibitor rather than by an activator such as insulin kinase. It is, however, as pointed out in an annotation in the *Lancet*, possible that both inhibitor and activator may exist and that the anterior pituitary extract may act by inhibiting the production of insulin kinase. If an activator of some variety is not present in liver it seems impossible to explain the results which I have described, because Ross has quite convinced me of the accuracy of his observations.

Phosphorylation

There is, however, another interesting and possible explanation of the undoubted improvement brought about by liver extract in coeliac disease. According to Verzár, fat, glucose, galactose, and vitamin B₂ (lactoflavin) are absorbed from the intestine by phosphorylation, a process which, together with dephosphorylation, constitutes a

mechanism for the transport of phosphoric acid from one compound to another. By this process fatty acids are synthesized to phospholipoids and neutral fat in the intestinal mucosa, glucose to a hexose phosphoric acid, and vitamin B₂ to lactoflavin phosphoric acid. Furthermore, the "yellow respiration ferment" of Warburg, which is a combination of lactoflavin phosphoric acid with a specific protein, is probably necessary for phosphorylation to be carried out, and is also the form in which lactoflavin is chiefly absorbed and stored in the liver. If, therefore, phosphorylation does not take place the absorption of fat, glucose, and lactoflavin is greatly impaired, although a certain amount of glucose may be slowly absorbed by diffusion. Verzár maintains that phosphorylation is regulated by adrenal cortical hormone because it does not take place in adrenalectomized animals. Phosphorylation may also be prevented by the administration of monoiodoacetic acid, and young rats chronically poisoned by this acid become stunted in growth and show impaired absorption of fat and glucose from the intestine, a condition which Verzár regards as experimental coeliac disease. He found that this disease in rats could be cured "as effectively as in man" by the administration of yeast or liver, because these substances contain lactoflavin phosphoric acid, and he also found that injection of adrenal cortical hormone into adrenalectomized animals rendered their fat absorption normal. He therefore believes that coeliac disease may result from adrenal cortical insufficiency, and that the administration of liver extract, yeast, or adrenal cortical hormone will cure the condition by rendering fat, glucose, and vitamin B₂ absorption normal.

Now, all our patients suffering from coeliac disease are given liver and marmite (erude yeast extract) as a routine; therefore, if Verzár's theory is accurate and coeliac disease is due entirely to failure of phosphorylation, cure should be as rapid and absorption should be rendered normal as quickly as described by the American workers when patients suffering from sprue are treated with liver. Unfortunately, as I have already stated, our experience in coeliac disease has been that whereas clinical improvement undoubtedly does occur following liver treatment, there is no immediate and dramatic improvement in absorption of fat and glucose; that, moreover, absorption only approaches the normal after months of treatment; and that indeed, even after such a lapse of time, oral blood fat and sugar curves may still be low and flat.

I can therefore sum up by saying that all our work on coeliac disease supports the theory that the symptoms of the disease are the result of defective absorption from the bowel.

Carbohydrate Metabolism in Other Diseases

Observations on carbohydrate metabolism have also been made in many conditions other than coeliac disease; indeed, abdominal tuberculosis has already been referred to. I mentioned a short time ago that, accepting the formation of insulin kinase in the liver, impaired glucose tolerance might be expected to be found in cases of liver disease. This has been observed to be the case in catarrhal and chronic jaundice, cirrhosis of the liver, etc.

The suggestion has been made by J. H. Sheldon that anorexia nervosa is a "functional Simmonds disease—a pituitary black-out of psychological origin," but Ross, in a recent paper, maintained that it could be explained on the ground of starvation. Thus, if for psychological reasons there was a brief abstinence from food, an impaired glucose tolerance would be produced, and the

would lead to a high slowly falling alimentary hyperglycaemia. Now it is known that hunger pains are brought about by injecting insulin and that these are accompanied by gastric contractions of the normal type and an increase of hunger; therefore, hyperglycaemia should lead to failure of hunger and loss of gastric tone. The administration of liver, by improving sugar tolerance, should produce a fall in blood sugar and stimulate appetite, and if, after the appetite is stimulated, a high carbohydrate diet is given, improvement should occur. Treatment on these lines was carried out with great success in a child aged 12, weighing 40 lb. After seven weeks she increased in weight to 67 lb., and her intravenous glucose-tolerance test became normal. We have also used liver extract or campolon for restoring appetite and increasing weight in wasted infants and children. The results have been most encouraging, and almost as dramatic as in the case of anorexia nervosa which I have just described.

Conclusion

There are many other deficiencies of nutrition in coeliac disease, which time does not permit me to deal with, but I thought that an account of the work on liver and carbohydrate metabolism which was inspired by a study of coeliac disease, and of its applications in the treatment of nutritional states, might prove interesting.

A SYSTEM OF RADIUM DOSAGE

BY

H. S. SOUTTAR, Ch.M., F.R.C.S.

Surgeon to the London Hospital

It will be generally admitted that success in the treatment of malignant growths by radium depends upon accuracy of dosage, and that this again depends upon two factors. In the first place the radium must be so arranged that every portion of the region under treatment receives an equal amount of radiation. In the second place the total amount of radium and the time for which this is employed must be such that the total radiation received at each point is adequate for the destruction of the cells forming the tumour.

It is usual and convenient to define the total radiation received in r units, and in general it is found that a radiation of from 6,000 to 7,000 r is sufficient to destroy the cells of a squamous carcinoma. A milligramme of radium screened by 0.5 mm. of platinum may be taken to deliver at a distance of one centimetre a radiation of 8.4 r units per hour. For many reasons it is convenient to make the standard time of treatment 133 hours, or about five and a half days. In this case our one milligramme of radium will have delivered 1,120 r units at a distance of one centimetre. Moreover, there will have been evolved and discharged just 1 millieurie of emanation, so that we can describe our source as 133 mg.-hours, or as 1 millieurie destroyed, whichever is the more convenient. We assume throughout a screenage of 0.5 mm. of platinum. Our calculations are greatly simplified if we accept five and a half days as the standard time of treatment when radium element is employed, as then the number of milligrammes of radium and the number of millieuries destroyed are represented by the same figure. To this fundamental figure, which represents the total energy delivered by our combined sources, we shall apply the term "Index."

The problem before us is so to distribute our sources and to adjust the amount of radium they contain that every portion of the region treated receives a radiation of at least 6,000 r . In general this means the use of complicated charts and most intricate calculations. To avoid this I propose to suggest certain simple rules by which we can reach an approximately accurate solution, setting up certain standard distributions which can be modified to meet the requirements of any special case.

Simple Rules for Calculating Dosage

The two methods of radium treatment in most general use are by plaques and by insertion. Plaques may be constructed of any size in wax or other material on which the radium is supported, and they are generally applied externally. We have, however, recently employed small plaques made of dental wax and inserted temporarily into the tissues. One advantage of a plaque is that the radium can be distributed upon it in an exact manner, so that we can know with great accuracy the effect which will be produced.

In order that this effect should be as uniform as possible over the region of application, the radium must be distributed in a certain manner, and it can be shown that remarkably flat and uniform fields of irradiation are obtained if one-half of the radium is distributed uniformly over the surface of the plaque and one-half around its circumference. Moreover, with this arrangement the intensity falls off roughly as the distance from the plaque, and not as its square.

Assuming such an arrangement, how are the amount of radium required and the time of exposure related to the size of the plaque, or, in other words, what is the Index of the plaque? For circular plaques we suggest the very simple rule that the Index is the diameter of the plaque in millimetres. Plaques so constructed and employed give over a large range almost identical depth doses—that is to say, they form appliances of similar power for the treatment of tumours of different dimensions. Their exact characters will be clear from the accompanying table, from which it will be seen that they form convenient standards requiring only slight modification to meet special circumstances. In most cases plaques are built up by mounting needles or seeds directly on a model of wax or other plastic material, when it will be seen that the rules we have laid down form a very useful guide. Even where the plaque is not circular we have a sufficiently accurate approximation if we take its average diameter as a basis for calculation. Where, however, it is bent upon itself, as, for example, in treating a carcinoma of the alveolar margin or the lip, allowance must obviously be made for the effect of cross-fire.

Table for Calculating Depth Dose

| Diameter (Centimetres) | Index | Depth from Active Surface of Plaque in Centimetres | | | | | |
|---------------------------|-------|--|------|-----|-----|-----|-----|
| | | 0.5 | 1 | 2 | 3 | 4 | 5 |
| 3 | 30 | 24 | 13.9 | 6 | 3.1 | 1.9 | 1.3 |
| 4 | 40 | 21 | 13.4 | 6.7 | 3.8 | 2.3 | 1.6 |
| 5 | 50 | 19 | 12.8 | 7 | 4.2 | 2.7 | 1.9 |
| 6 | 60 | 17.2 | 12 | 7 | 4.5 | 3 | 2.1 |
| 7 | 70 | 15.7 | 11.2 | 7 | 4.6 | 3.2 | 2.3 |
| 8 | 80 | 14.5 | 10.5 | 6.7 | 4.6 | 3.3 | 2.5 |
| 9 | 90 | 13.5 | 10 | 6.6 | 4.6 | 3.4 | 2.6 |
| 10 | 100 | 12.5 | 9.4 | 6.4 | 4.7 | 3.5 | 2.7 |

Depth dose in units of 1,000 r for standard plaques.

Turning now to the methods of insertion, it often happens that what we are really constructing is an inserted plaque, when the above rules still apply. This is the case, for example, in the treatment of carcinoma of the breast, where in effect a plaque is formed on the chest wall, or in the treatment of some cases of secondary glands in the neck. In other cases, however, where we are dealing with a localized tumour it is better to regard the problem from a different aspect.

Suppose that we require to treat a spherical mass of growth and that it is possible to distribute our radium both around it and throughout its substance, how should it be distributed and how much should we employ? Again two very simple rules can be formulated. As regards the distribution, arrange one-quarter of the radium uniformly through the growth, and three-quarters just outside its palpable limits—that is to say, just beyond the growing edge. In this way it can be shown that every point of the growth received a nearly equal dose. As regards amount, the number of milligrammes required for a treatment extending over five and a half days or, what is numerically the same, the number of millicuries destroyed—that is to say, the Index—is given by the square of the diameter of the growth in centimetres.

This simple rule depends upon the physical fact that in the case of a sphere such a distribution gives a very uniform irradiation throughout, and at its centre a total irradiation of exactly 6,720 *r* units, whatever the diameter of the sphere may be. For clinical purposes where a tumour is only roughly spherical we obtain a sufficiently accurate result by taking its average diameter.

Comment

It is not, of course, suggested that the rules we have laid down form an infallible guide to radium dosage, or that they can in any way replace experience or the exact calculations of the expert. It is, however, felt that they form standards which even the expert may use as a starting-point, and which he can readily modify to meet any special requirements. The conception of the Index certainly simplifies calculation, and in effect reduces all our problems to a single scale.

The 1938-9 programme of the West London Medico-Chirurgical Society opened on October 7 with the presidential address by Dr. Maurice Shaw on heredity and medicine. Other meetings have been arranged as follows: Friday, November 4, 8.30 p.m., clinico-pathological meeting at West London Hospital. Friday, December 2, 7.45 p.m., at De Vere Hotel, Kensington, W., Discussion: "Illegal Operations." To be opened by Mr. Cecil Binney, Dr. C. P. Blacker, Mr. Aleck W. Bourne, and Dr. W. J. O'Donovan. Friday, January 13, 7.45 p.m., at De Vere Hotel, Discussion: "Some Aspects of Medical Folklore." To be opened by Dr. J. D. Rolleston. Friday, February 3, 8.30 p.m., clinico-pathological meeting at West London Hospital. Friday, March 3, 7.45 p.m., at De Vere Hotel, Discussion: "Pre- and Post-operative Treatment." To be opened by Dr. E. H. Hudson, Mr. Cecil Joll, and Mr. A. Simpson-Smith. Friday, April 14, 7.45 p.m., at De Vere Hotel, Discussion: "Sex Glands in General Practice." To be opened by Professor E. C. Dodds and Dr. L. P. E. Laurent. Friday, May 5, 7.45 p.m., at De Vere Hotel, Discussion: "Some Recent Advances in Medicine." To be opened by Professor Henry Cohen. The Cavendish Lecture will be delivered at Kensington Town Hall on Wednesday, June 7, at 8.30 p.m., and the annual dinner will be held at the Trocadero Restaurant on Wednesday, July 5, at 7.45 p.m.

THE ANTI-PERNICIOUS PRINCIPLE: SOME EXPERIMENTS WITH URINE

BY

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We have no proof that the anti-pernicious principle circulates in the blood, although some authors explain in this manner the partial efficacy of blood transfusions in pernicious anaemia. Its presence in organs other than the liver cannot be deduced from the experiments of Whipple and Robschey-Robbins (1925), which established that the haematopoietic power of the kidneys, for example, is equal to that of the liver, that of the brain one-third as great, etc. The experiments of Whipple were based upon the rate of blood regeneration in dogs exsanguinated by successive haemorrhages, and in no way prove the presence of *anti-pernicious* principle in the organs concerned. It remained for Minot and Murphy to apply clinically the discoveries of Whipple and to show that pernicious anaemia was peculiarly responsive to the action of liver. Furthermore, since the introduction of therapeutic extracts (Cohn, McMeekin, and Minot, 1930) of increasing purity it has become possible to distinguish the specific action due to anti-pernicious principle from that which causes blood regeneration in non-pernicious anaemia and is due to other haematopoietic substances (Farrar and Sturge, 1936; de Jong, 1938).

The presence of an anti-pernicious principle has, however, been demonstrated in the kidneys (McCann, 1923), the lungs (Hitzenberger, 1934), the brain, salivary glands, and pancreas (Dakin, Ungley, and West, 1936), and the saliva (Tempka, 1936). This substance, as emphasized by Wakerlin (1937), cannot be precisely identified with that of the liver, since the methods employed in preparing active extracts of liver are ineffective when applied to other organs.

Briefly, although we are in the realms of hypothesis, it would not appear unlikely that the anti-pernicious principle, widely diffused throughout the body and present in the kidneys, should be eliminated, like so many hormones, in the urine. In 1935 Wakerlin reported favourable results from the treatment of pernicious anaemia by intramuscular injections of a concentrated extract of normal urine, while Decastello (1935) obtained similar results with urine administered both by injection and per rectum. Wakerlin, however, in a more recent work (1936), based upon a greater number of cases, was unable to confirm his previous results.

The confirmation of such a fact as the presence of an active anti-pernicious principle in normal urine would not only possess a considerable theoretical interest—in establishing that the metabolism of the principle is not confined to the alimentary tract and liver—but would have a practical application in suggesting the elaboration of a method of biological diagnosis of pernicious anaemia based upon the absence of anti-pernicious principle from the urine. It is for this reason that the experiments to be described were attempted.

Choice of Method

The fact that pernicious anaemia does not occur in animals greatly limits our means, since animal experiments do not enable us to distinguish between a simple haematopoietic action and a specific anti-pernicious action. Such experiments have been far from valueless, since it was by their means that Whipple succeeded in demonstrating the therapeutic properties of liver; yet the interpretation of their results may lead to errors which can only be avoided by clinical control. Within certain limits, however, they may be employed to supplement the scarcity of cases of pernicious anaemia suitable for subjection to long and complicated investigations. (The difficulties of purely clinical experimentation explain the somewhat slow progress which has attended the study of everything touching upon the anti-pernicious principle.) Various methods have been used for such experiments, all of which consist in observing the action of the substance under investigation either upon anaemia or upon the reticulocyte content of the blood of certain animals: space forbids their enumeration here.

The method chosen in the present instance was that depending upon reticulocyte reaction in the white rat. Introduced by Singer (1932), it has been employed by numerous others (Fleischhacker and Schlesinger, 1935; Kamerling, 1935; Baráth and Fülöp, 1935; Leiner, 1935; Fejgin and Plonskier, 1936; Crosetti, Bajardi, and Margulius, 1937; Levi, 1937; Mark and Hauke, 1937); and, with certain differences of technique as previously described by one of us (Jéquier, 1936), has been in use for the past three years at the Lausanne medical clinic. Its details will not be recapitulated here.

The following table shows the results obtained with normal urines.

| No. of Tests | Test Material | Result | | |
|--------------|--------------------------------|----------|----------|----------|
| | | Positive | Negative | Doubtful |
| 10 | Normal urine, untreated .. | 7 | 1 | 2 |
| 10 | Normal urine, concentrated* .. | 10 | — | — |
| 10 | Normal urine, heated† .. | 10 | — | — |

* Concentrated to half its volume by evaporation *in vacuo* at laboratory temperature, as the animals appeared insufficiently sensitive to small quantities of urine.

† Heated to boiling point for ten minutes to destroy the thermolabile fraction of the anti-pernicious principle.

Owing to the comparative rarity with which untreated cases of pernicious anaemia are now seen at the clinic it was possible to obtain for experimental purposes only four such cases. All four presented a complete clinical picture with the characteristic triad—typical blood picture, disorder of the alimentary tract (glossitis, gastric anacidity, tendency to anorexia and diarrhoea, etc.), and disorder of the nervous system; the latter was especially marked in one case which showed typical pseudo-tabes.

The haematological abnormalities were studied not only in the peripheral blood, which revealed intense hyperchromic anaemia with leucopenia and thrombopenia, but also in the bone marrow obtained by sternal puncture. The latter showed inhibition of cellular maturation with predominance of young forms, of which the greater number were megaloblasts as described by Naegeli (1936). In all four cases the blood state was restored to normal by the administration of liver extract.

In each case, before the inception of treatment, a subcutaneous injection of 3 to 5 c.cm. of urine which had been concentrated to half its volume provoked a positive reticulocyte reaction in the white rat. The details of these

reactions, together with those of reactions obtained with one specimen of normal urine, are set forth in the following table.

Table showing Details of Reactions following Injection of Urine in White Rats

| Urine | Number of Reticulocytes per 1,000 Red Cells | | | | | | |
|-----------------------------------|---|-------|-----------------|-------|-------|-------|-------|
| | Before Injection | | After Injection | | | | |
| | Day 1 | Day 2 | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 |
| Normal | 11 | 9 | 12 | 27 | 30 | | |
| " concentrated .. | 15 | 13 | 16 | 35 | 19 | | |
| " heated | 13 | 11 | 14 | 16 | 14 | 39 | |
| Pernicious anaemia (Mme W. H.) .. | 16 | 23 | | 22 | 30 | 33 | 25 |
| " | 11 | 10 | | 25 | 39 | 14 | 13 |
| Pernicious anaemia (Mme S.) .. | 6 | 7 | | 31 | 40 | | |
| " | 10 | 9 | | 36 | 45 | | |
| Pernicious anaemia (Mme P.) .. | 7 | 5 | | 11 | 31 | 29 | |
| " | 11 | 13 | | 10 | 29 | 35 | |
| Pernicious anaemia (Mme P. A.) .. | 5 | 8 | | 11 | 23 | 40 | |
| " | 14 | 16 | | 12 | 41 | 30 | |

Conclusions from the Above Experiments

The urine of untreated cases of pernicious anaemia contains, like normal urine, a substance capable of provoking a reticulocyte reaction in the white rat. It may be assumed that this substance is not the anti-pernicious principle of liver, the presence of which could hardly be conceived in such cases; its existence nevertheless precludes the utilization of the present method as a means of demonstrating the absence of that principle. The results obtained are in contradiction to those of Leiner (1935), who found that untreated cases gave a negative reaction which became positive after specific treatment was instituted.

Although it appears that the positive reactions reported above were due to a substance other than the anti-pernicious principle, the possibility remains that the urine of healthy persons may contain this principle. The proof of such a hypothesis would be at least of interest with regard to the metabolism of the principle, and for this reason the clinical investigation now to be described was made.

Clinical Experiment

This experiment was carried out upon one of the four patients previously mentioned (Mme W. H.).

A daily blood count showed a constant level of between 10 and 15 reticulocytes per 1,000 red cells; there was thus no tendency to spontaneous amelioration. The haemoglobin was 58 per cent., the red cells 1,820,000, and white cells 4,000 per c.mm.

From January 24 to 28, 1938, the patient received, after going to stool, a drop-by-drop rectal infusion of 300 to 500 c.cm. of normal urine, specific gravity above 1020, filtered through paper, coloured with Congo red (one drop per 100 c.cm.) and warmed to body temperature. (Decastello in his experiments decolorized and deodorized the urine by filtration through animal charcoal. As this procedure lowers the specific gravity of the fluid to a considerable degree, it was feared that the principle under investigation might be retained by the filter, and filtration through charcoal was therefore omitted.) The first two infusions were well tolerated, but the ensuing ones provoked colic and diarrhoea. It is therefore probable that the urine was not completely absorbed by the intestine. The addition of tincture of opium did not prevent these manifestations.

A daily estimation of the blood urea did not show any elevation during the experimental period. The reticulocyte count remained between 10 and 16 per 1,000 throughout the ten days following the first infusion. On the last day the haemoglobin was 44 per cent., the red cells numbered 1,450,000, and the white cells 2,800. There was no subjective amelioration, such as can often be observed under liver therapy before any change occurs in the blood picture.

Interpretation

According to Minot and Murphy (1927), if ten days elapse without the appearance of a reticulocyte reaction it can be concluded that the substance given is inactive.

There was no question of a state of aplastic anaemia, since the subsequent injection of liver extract provoked a clear reticulocytosis, rising from 31 per 1,000 on the fourth day to 180 per 1,000 on the seventh, with steady improvement of the anaemia until at the end of two months the patient left the clinic with 87 per cent. haemoglobin, 4,000,000 red cells, and a practically normal blood picture.

The doses of urine given in this case were not less than those employed by Decastello. In fact, the latter obtained reticulocyte reactions with daily infusions of 50 to 150 c.cm. (total dosage, 2,000 c.cm.) and clinical and haematological improvement with larger doses—300 to 500 c.cm. per day to totals ranging from 3,000 and 4,000 c.cm. up to 26,000 c.cm.

Obviously no definite conclusion can be drawn from this single case, and it is unfortunate that a similar trial could not be carried out on the other cases, either because their condition did not admit of delay in instituting treatment of known value or because they manifested the alimentary troubles characteristic of their malady.

Until more amply informed, we incline to the opinion of Wakerlin, who, after first demonstrating, as he believed, the presence of anti-pernicious principle in the urine, concluded in the light of further experiments that it was in fact absent.

Summary

1. Human urine, in health and in untreated pernicious anaemia, contains a substance capable of producing a reticulocyte reaction in the white rat.
2. Normal urine, in the case of pernicious anaemia described, showed no therapeutic activity.

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THE EARLY DIAGNOSIS OF SCHIZOPHRENIA

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The recent application of new methods of treatment in schizophrenia (by hypoglycaemia and convulsions) has brought into the foreground the necessity for early diagnosis. Whatever their opinion of the absolute value of these new methods, all workers are agreed that the best results are obtained in early cases.

Many views are held as to the nature of schizophrenia. Some regard it as a distinct disease-entity, others as probably embracing a number of different morbid conditions, still others prefer to look on it as a preformed type of reaction shown at a certain level of cerebral disintegration. However that may be, up to now it can be diagnosed only by psychological means. This may change at any time. Biochemistry may provide us with a specific reaction for the whole or some of the cases we call schizophrenic; so may the study of the brain-waves, or any other method. There is perhaps some hope that even the modern therapeutic experiments may enable us to arrive at a physical method of diagnosis. But at present we still have to do without a "Wassermann" of schizophrenia.

Signs and Symptoms

In psychological medicine we cannot proceed, as in general medicine, by collecting signs and symptoms and fitting them into a sort of jig-saw puzzle. All the symptoms have to be related to the psychological background against which they appear. All the circumstances, even though they appear to be side issues, have to be taken into account, and the symptoms have to be evaluated in relation to the personality of the patient, his upbringing and education, and his present environment. Especial difficulty arises in cases with an insidious onset, slight but definite indications of which are often discovered in schizophrenies preceding the appearance of an acute illness.

The characteristic symptoms may be little marked or may be disguised by secondary features that are really the patient's reaction to morbid changes which may be as yet imperceptible. These insidious and slowly progressing cases are often mistaken for neuroses. It is important that they should not escape the attention of the physician, and that they should not be subjected to a prolonged and useless psychotherapy.

Three-quarters of the cases begin between the ages of 15 and 25. Slight depression, a tendency to oppose the older generation, and hypochondriacal concern about the bodily changes in later puberty are to some extent natural at the earlier age. But if these events are exaggerated and prolonged this may be a first premonitory sign. A well-educated, intellectually precocious youth changes from one profession to another, and seems quite unable to find his vocation in spite of all possible facilities and help provided by his relatives. A shy and seclusive girl exhibits an un-influencible stubbornness in her behaviour towards her friends, gradually losing all contact with her family, and becomes a member of a revolutionary sect or group, in which also she is regarded as strange. Others go from doctor to doctor with vague complaints of fatigue and rapid exhaustion under comparatively slight stress, increasing

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general nervousness, etc. They look pale, have a greasy skin and sluggish vasomotor response; otherwise no bodily illness can be found. Or the patient may come to the physician complaining of sexual anomalies, in themselves perhaps usual enough in puberty, but described in a cool objective manner devoid of normal bashfulness or concern. Or prolonged shyness or sexual indifference may give place to an exorbitant self-indulgence, regardless of convention or social standards.

If the disease starts later, ideas of jealousy, well founded or not, may be a first premonitory sign, and are usually reported by the partner. Relatives complain to the doctor of a husband's ruthlessness to his wife and children and his lack of interest in his business. Neighbours find a previously gentle and sociable lady becoming suspicious, quarrelsome, and inaccessible to reasonable argument; she becomes slovenly and avoids any contact until the neglect of her children provokes the attention of the authorities.

This catalogue could easily be extended. But though one's suspicion may be aroused by the recital of such histories, the attention should be directed to more specific symptoms.

As elsewhere in medicine, the significant and diagnostically important symptoms in schizophrenia are not the most impressive ones. The order in which they are given here is that of their diagnostic importance.

I. Thought Disorder

Bleuler regarded the loosening and breakdown of normal processes of association as the fundamental disturbance in schizophrenia, and therefore invented that name. Thinking is not disturbed because it starts from wrong suppositions which lead it astray; this would be the description of a certain type of delusional ideas. In schizophrenic thought disorder the single contents may be correct in themselves, but they are put together in a muddled and scattered manner. "There is an abundance of what one might term 'the knight's move' in association" (Mapother). Therefore, the result of thinking if uttered or written down often sounds like a silly joke, although not meant as such.

To give a few examples. A patient wrote in a letter to the hall porter of a hospital from which the former was absent on week-end leave: "If I should return during my absence, keep me here until I come back." Fragment of an interview between patient and physician: (In what way do you feel ill?) "You know the story of Adam and Eve? How Eve was tempted with an apple?" (What about your illness?) "All the people in the ward eat apples." (That is not unusual!) "In the ward the door is open and the window closed." (Yes, I think that is so.) "Nobody will be able to get to the apple-tree. . . . We are all ruled by electricity, all except my dog," etc. A schizophrenic patient mentions Napoleon and goes on to say that he was banished to Ellis Island. "That's where they psycho-analyse people" (W. L. Woods).

If the disturbance is so striking it is easy to recognize. In the beginning of the illness it may be very slight and only demonstrable under certain circumstances—for example, if one asks the patient to repeat a story or to explain a proverb or the point in a fable. The disorder may even only be a subjective symptom to which the patients react with uncharacteristic complaints. They speak of inability to concentrate, or complain that their ideas are diffuse or narrowed. But often the disorder is not regarded as an incapacity by the patient; on the contrary, he brings forward his vague nonsense as something quite natural, and feels himself not understood by the

persons of his environment. Simple things are expressed in a queer stilted language, and are uttered in the tone of mystical revelations. A student turns from science to what he calls philosophy. Uneducated people think themselves able to reform human life and solve the deepest problems.

It is sometimes not easy to differentiate this behaviour from the transitional intellectual inconsistencies of the adolescent age. Thought disorder in confusional states (due to intoxications or other severe cerebral impairment) is often of very similar incoherent kind. But in confusional states there is always a dimming or clouding of consciousness, which is clear and unimpaired in schizophrenia. In cases in which the state of consciousness cannot be ascertained the history and the somatic findings mostly make clear the nature of the disorder.

II. Disturbances of Volition

Symptoms which can be classified under this heading are easily overlooked, and are often only disclosed by direct questioning of the patient. Then he will say that he does not feel master of his will, his thoughts, or his activities; he is influenced by other people who make him think or do things; his ideas, words, or movements are not his own, he feels hypnotized, drugged, etc. These disturbances of volition, if expressed straightforwardly, are pathognomonic of schizophrenia. But there is often only a slackening of will-power, which may not be realized by the patient himself. This can be one of the first signs: the patient becomes unable to make any decision in the various things of daily life, as well as in important questions like marriage or choice of a profession. Well-educated intelligent men become idlers or vagrants without any detectable cause. As in most other schizophrenic symptoms, the striking change in the patient's behaviour compared with his former habits is important here.

It is sometimes impossible to distinguish psychologically the loss of volition in commencing schizophrenia from weakening of spontaneity in a neurasthenic or in a patient with organic deterioration. Circumstances and concomitant symptoms usually make differentiation possible. Moreover, slackening of will is not often the only volitional disturbance in schizophrenics. It occurs together with spells of unexpected hyperactivity, of absurd impulses, and with specific schizophrenic anomalies known by the terms "negativism" (morbid contrariness without any motivation) and "ambivalence" (presence of opposite tendencies, between which no decision is made).

Signs of this kind, if present, also permit the distinction of volitional weakness in schizophrenia from retardation in depressive states. This differential diagnosis can be difficult, especially if the depressive affect is not very pronounced. The affective anomalies characteristic of schizophrenia will, however, be of help here.

III. Inadequacy and Incongruity of Affect

The normal emotions of affection and sympathy for the patient's nearest relations or friends cool off or take on a quality of shallowness during a commencing illness. More primitive emotional reactions—for example, of fear or rage—are preserved longer. Some patients notice and complain of this loss of all warmth of affection: a similar complaint is often made by depressives, who do, however, in the very moment of making the complaint, show a normal affective response. In many schizophrenics their cool and uncouth behaviour is only remarked by their relatives: the patients deny it, or find nothing strange in their tactless or flippant manners.

It is due to the loss of affective response of the early schizophrenic that the physician is often unable to establish a natural rapport with his patient, in spite of efforts to do so. This test, if cautiously applied, can serve as a valuable diagnostic aid—for example, in cases in which early schizophrenia is disguised in the form of a neurosis.

The difficulty is that many persons of a schizophrenic diathesis show an inadequate affective response all their lives. In such people the onset of the psychosis may be signalized by gross anomalies of emotional reaction—for example, fatuousness, an out-of-place hilarity, or (of great practical and medico-legal importance) an unfeeling cruelty. Murder and similar crimes are often attempted and committed by unrecognized schizophrenics. The percentage of schizophrenics in institutions for criminal lunatics is much higher than that in the average mental hospital.

Incongruous affect—that is, an emotional response inappropriate to the circumstances—is more commonly seen in later stages of the illness. It needs skilled psychological observation to detect it in an early schizophrenic: it is a sign of great diagnostic value.

IV. Autochthonous Delusions

This symptom ranks first in respect of diagnostic significance among the *positive* symptoms of schizophrenia. It is the fundamental event from which are developed all paranoid schizophrenic states, and is especially noteworthy as the primary experience underlying ideas of reference and other delusions. As it is often cloaked in a secondary elaboration and in features derived from the personality and the environment, a few examples of its pure form may facilitate its recognition.

A patient said: "I went into a café, and there were three white tables; I looked at them, and suddenly I knew that this signified the end of the world." Again, "The clock was at eight; I knew from this that I had to devote myself to religion from now on." "There were red and white suits in the shop-window; this meant that I am of a different descent."

What is characteristic of these occurrences is that out of a casual and commonplace perception a morbid conviction has arisen. This conviction may have a definite content or meaning, or it may be quite vague and indefinite, "something terrible," "something extremely important," etc. It produces, or is perhaps produced by, a peculiar delusional attitude: one might say that the patient is submerged in an atmosphere of misinterpretation. It is unimportant from the diagnostic point of view whether the patient keeps to these delusional ideas or abandons them later on. The building up of a delusional system and the addition of explanation and justification are much less characteristic of schizophrenia than the original autochthonous experience, which in typical cases takes place out of a blue sky. It may be possible by industrious research to discover a connexion between the content of the delusion and previous experience, but this is of little significance. What is important is the readiness to plunge into a mystic conviction, which is beyond all reasoning with. The physician's natural efforts to understand the patient may obstruct his recognition of the morbid character of the delusional experience.

V. Catatonic Symptoms

These anomalies of motor behaviour were regarded as diagnostically specific by Kraepelin when he first created the concept of what to-day we call schizophrenia. They

have lost part of their significance since their frequent occurrence in so-called organic psychoses, especially in states of clouded consciousness, has been observed. Many catatonic features have been seen in encephalitis lethargica and after focal lesions of a like localization. Excitement and stupor in affective psychoses are sometimes indistinguishable from those in schizophrenia. Stereotypies, fixed attitudes, and mannerisms are easily recognized, but they belong as a rule to later stages of the disease.

In early schizophrenia one often finds a rather characteristic pre-stuporose behaviour, a kind of motor constraint lasting for hours or present all the time. To the layman the patients seem drowsy, but they are really not so; they are only as it were restricted in movement and speech. There is often insomnia, and headache is complained of. Others report states of rigidity, which is forced upon them for a short period at night. These akinetic states, and also periods of aimless restlessness, may be split off from everything else in the patient's mind and deprived of any true motivation. Sometimes the patients do not find anything abnormal in their motor peculiarity. A patient awoke from a stupor which lasted over weeks: when questioned why he did not move or speak, he only answered that he felt too bored.

VI. Hallucinations

These can occur in all types of mental illness. These characteristic of schizophrenia are significant not so much as hallucinations as by virtue of their combination with the symptoms mentioned before—voices reproducing the patient's thought disorder, containing neologisms; bodily sensations closely related to feelings of passivity or to catatonic movements; synaesthesiae with bizarre delusional contents—behind which the hallucination proper remains indiscernible. All these phenomena are relatively rare in early stages of the disease.

It must be remembered, however, that hallucinations in a state of clear consciousness are very common in schizophrenia, but uncommon in other psychoses. Isolated auditory hallucinations are most frequently met with. Commencing schizophrenics often describe phenomena in which they are unable to make a clear distinction between vivid thinking and actual hearing.

The attitude of patients towards their hallucinations is characteristic. Although they can distinguish between the false perception and a real one, they have no insight. Further, though convinced of the reality of their experiences, they may not draw the obvious conclusions or react in an unexpected way. For instance, a man who thought he was perpetually being molested by means of the telephone and the wireless took his complaints not to the Post Office or to the B.B.C., but to a psychiatrist.

Occurrence of Symptoms

Although all the schizophrenic symptoms mentioned in this survey may be found in one patient at the same time or in the course of his illness, many cases show a preference for one or for a small group of these symptoms and never exhibit the others. Thus, some patients develop shallowness of affect and thought disorder, but never have delusions or hallucinations. Some "catatonics" become only stuporose, without any psychological content; they may have a few hallucinations and autochthonous delusions in the introductory stage. There are "paranoids" or "paraphrenics" without demonstrable thought disorder and without disturbances of volition. In other cases the volitional anomalies may entirely predominate in the clinical picture. There is not one among

the main symptoms which cannot be absent in a case of schizophrenia provided the others, or some of the others, are present.

In view of this multiform symptomatology, numerous efforts have been made to establish one of the symptoms as the fundamental disturbance of schizophrenia. Although in each of these theories a certain core of truth is contained, none of them covers the facts with a satisfactory completeness.

General Qualities

There are, however, a few general and structural qualities of the schizophrenic picture which are of diagnostic value. The relative *clearness of consciousness* has been mentioned before. It can be present in states of severe motor excitement, in full-blown hallucinosis, and in deep stupor. The hallucinating schizophrenic who seems completely absorbed in his delusional world, but at the same time notes every detail in his real environment, is the classic example of this psychological picture which has been named "double orientation." It is perhaps not by pure chance that states of disturbance of consciousness like continuous sleep, hypoglycaemic coma, or epileptic fits seem to have some therapeutic effect on schizophrenia.

The tendency to "*splitting*"—that is, a non-systematic psychic disconnection, from which the name of the illness was taken—is another structural character evident in most cases. Fragmentation may separate ideas from accompanying emotions, mimic expression from proper affect, and speaking from thinking, but also a complex of delusional ideas may be separated from the rest of the personality and emerge only on certain occasions.

It has been said that many schizophrenic symptoms have a quality of peculiar *psychological remoteness from normality*. They are so far from normal understanding that they cannot be described in ordinary language. One cannot imagine what is going on in the patient as one can, to some extent, in all other psychoses. Thus, the reaction of the non-schizophrenic to the schizophrenic can be used as a diagnostic test. At the same time—and this is diagnostically much more significant—the patient himself finds his absurdities not at all strange, but quite natural, rational, and understandable.

As a final general character the *detachment from reality* (Bleuler's "*Autismus*") has to be mentioned. It often appears as an active withdrawal of the patient from anything that may disturb his delusional world. In later stages of the illness, if favoured by supporting circumstances, it produces a grotesque mental isolation of the patients. In the beginning a detached superiority of the patient to everything that really matters to him may provide the keystone of the diagnosis.

B. Albrigo (*Rif. med.*, 1938, 54, 1297) records two personal cases of aberrant vaccinia. The first was that of a woman, aged 25, vaccinated in infancy only and the subject of eczema of the vulva, who developed extensive vaccinia of the external genitals, perineum, and anal region. Infection in this case was probably due to her having scratched the eczematous lesions after attending to her recently vaccinated child. Subsequent vaccination on the arm had a negative result. The second case was that of a man, aged 38, who had been vaccinated in infancy and again at 18 years of age and was the subject of peri-anal eczema. The vaccinal nature of the peri-anal lesions in his case was shown by the production of a typical vaccinal keratitis after inoculation of the cornea of a rabbit.

INCIDENCE OF PATHOGENIC STAPHYLOCOCCI IN THE NOSE

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It has been suggested that a factor in the chronicity of some cases of furunculosis and osteomyelitis is the transference of pathogenic staphylococci by the patient's fingers from the nose to the skin or wound. Dolman (1935) found that staphylococci were present in the nose of nine patients with nasal sinusitis and also in the apparently healthy nose of several patients with staphylococcal infections elsewhere. Valentine (1936) obtained cultures of *Staphylococcus aureus* from the healthy nose of fourteen of eighteen cases of chronic furunculosis. In six out of seven of these strains the toxin production (α -haemolysin and Panton-Valentine leucocidin) was comparable to that of the strain isolated from the lesion elsewhere. Apart from the possibility of reinfection of a superficial lesion it is conceivable that pathogenic staphylococci in the nose may sometimes gain access to the blood stream and give rise to an acute osteomyelitis or a perinephric abscess. Thus it is of interest to gain an idea of the incidence of pathogenic staphylococci in the nose of individuals who are free from staphylococcal infection.

Individuals Studied and Methods Employed

During February and March, 1938, nasal swabs were taken from 101 undergraduates aged 18 to 22, thirty-three children in hospital aged 7 months to 16 years, and thirty-one adults in hospital aged 19 to 75 years. None of these had or had recently had a staphylococcal or nasopharyngeal infection.

The nostrils were swabbed through the anterior nares with sterile cotton-wool swabs mounted on a probe. Since the work of Thomson and Hewlett (1895) it has been agreed that, in a healthy nose, cultures from the walls of the nasal cavities proper yield relatively few organisms, while the vestibule, the vibrissae, and crusts of dried secretion yield a plentiful and varied growth (Küster, 1929; Cruickshank and Cruickshank, 1931). From the point of view of a possible source of infection of the patient's fingers it is the vestibule which might be important, so that it is no disadvantage in this investigation that the majority of the organisms obtained on the swabs came from that source.

A swab from each nostril was smeared directly on half an agar plate. The plates were incubated at 37° C. for twenty-four hours. Films were made of suspicious colonies, and when staphylococci were found two or three representative colonies were subcultured into a broth tube. When both *aureus* and *albus* were present colonies of each were examined. The broth cultures were incubated at 37° C. in an atmosphere of 30 per cent. carbon dioxide for forty-eight hours. After centrifugation the supernatant fluid was tested for α -haemolysin by diluting 0.1 c.cm. with 0.4 c.cm. saline, adding 0.5 c.cm. of a 2 per cent. suspension of thrice-washed rabbit red cells and incubating at 37° C. for an hour. A control tube containing 1 unit of antitoxin was set up for each fluid. In a few cases where haemolysis occurred in the control tube, proof that the α -haemolysin was responsible was obtained by showing that the antitoxin neutralized

a greater dilution of the fluid. A loopful of the sedimented cocci was inoculated into a sterile stoppered tube containing 0.5 c.cm. of a 1 in 5 dilution of human oxalated plasma in saline. The presence or absence of coagulation was noted after three hours' incubation at 37° C. and confirmed after the tubes had stood on the bench overnight. One per cent. mannite peptone water tubes were also inoculated, and were read for acid production after twenty-four hours, and after seven days' incubation.

Strains of Staphylococci-

In all, 167 strains of staphylococci were studied, and the results are given in Table I.

TABLE I.—*Properties of Staphylococci Isolated from the Nose*

| Strain | No | Haemolysin | | Coagulase | | Mannite | |
|-----------------|-----|------------|----|-----------|----|---------|----|
| | | + | - | + | - | + | - |
| Aureus | 59 | 55 | 4 | 51 | 8 | 55 | 4 |
| Albus | 108 | 23 | 85 | 23 | 85 | 29 | 79 |
| Haemolysin + .. | 78 | | | 74 | 4 | 74 | 4 |
| - | 89 | | | 0 | 89 | 10 | 79 |
| Coagulase + .. | 74 | | | | | 71 | 3 |
| - | 93 | | | | | 13 | 80 |

There is a high degree of association between *aureus* pigmentation, haemolysin production, coagulase production, and mannite production, which is in accord with the results of others. Four haemolytic strains produced no coagulation though tested on two samples of human plasma and on rabbit plasma on which other strains gave positive results. There is, therefore, not complete correlation of haemolysin production and coagulase activity as recorded by Cowan (1938), but agreement of the order found by Hallman (1937), Saski and Fegjin (1937), Cruickshank (1937), and Fisher (1936). Flaum (1938) records even more divergent results. The discrepancies are possibly due to differences in the plasma used or in the method of toxin production. It is, however, generally agreed that haemolysin-positive coagulase-positive strains are pathogenic. The four haemolysin-positive coagulase-negative strains in this series have been classed as pathogenic. They all occurred in the undergraduate group, and the figures are not greatly affected by their inclusion.

The figures in Table I and Cowan's results suggest that a very high proportion of *aureus* strains are pathogenic and a high but lower proportion of *albus* strains non-pathogenic. The percentage of *aureus* strains in a series can therefore be used, in default of other information, as a rough estimate of the percentage of pathogens.

Incidence of Staphylococci in the Nose of Healthy Persons

The numbers of persons in the various groups found to be carrying staphylococci in the nose are recorded in Table II, with the percentages and their standard errors. As mentioned above, swabs were taken from both the right and the left nostril. In most cases the growth from the two nostrils was similar. In fifteen cases the growth from one side was heavier or contained more *aureus* and less *albus* colonies than the other; but such differences were slight, and the results are given as positive or negative for each individual.

TABLE II.—*The Number of Persons with Staphylococci in the Nose*

| Group | No. | Staphylococci Present | | Haemolytic Staphylococci | |
|--|-----|-----------------------|------------|--------------------------|------------|
| | | No. | % ± S.E. | No. | % ± S.E. |
| Children in hospital (7 months to 16 years) .. | 33 | 24 | 72.7 ± 9.1 | 19 | 57.5 ± 8.6 |
| Adults in hospital (19 to 75 years) | 31 | 27 | 87.1 ± 6.5 | 13 | 41.9 ± 8.9 |
| Undergraduates (18 to 22 years) | 101 | 91 | 90.9 ± 3.0 | 33 | 34.4 ± 4.7 |
| Total | 165 | 142 | 86.1 ± 2.9 | 67 | 40.6 ± 3.8 |

The results are similar to those obtained by Hallman (1937). The figures in Table III have been extracted from her paper and the standard errors calculated.

TABLE III.—*The Number of Persons with Staphylococci in the Nose (Hallman, 1937)*

| Group | No. | Staphylococci Present | | Coagulase + Staphylococci | |
|--|-----|-----------------------|------------|---------------------------|------------|
| | | No. | % ± S.E. | No. | % ± S.E. |
| Children in hospital (2 months to 12 years) .. | 272 | 201 | 73.9 ± 3.1 | 159 | 58.4 ± 3.0 |
| Children in hospital (13 to 19 years) | 38 | 30 | 70.9 ± 8.3 | 23 | 60.5 ± 7.9 |
| Adults in hospital (over 19 years) | 49 | 37 | 75.5 ± 7.1 | 22 | 44.9 ± 7.1 |
| Students | 109 | 87 | 79.8 ± 4.3 | 40 | 36.7 ± 4.7 |
| Total | 468 | 355 | 76.3 ± 2.3 | 244 | 52.1 ± 2.3 |

The different percentages of carriers of pathogenic staphylococci recorded in the totals are due to the large number of children in Hallman's series. The difference between the carrier rates in Hallman's students and younger children is 21.7 per cent., which is more than thrice its standard error 5.6, and there is a difference of 23.1 per cent. between the undergraduates and children in my series, which is more than twice its standard error 9.8. Thus the differences in carrier rates of these groups are more than are likely to have arisen from sampling errors. Too much stress cannot be laid on the striking similarity of the carrier rates in comparable groups of the two series, since there are differences in the percentage of persons carrying non-pathogenic staphylococci, and neither author found the coagulase and haemolysin tests completely parallel. In both series the carrier rate of non-pathogenic staphylococci is higher as the carrier rate of pathogenic strains is lower. It is safe to conclude that in two samples of healthy and active young adults one of every three was found to be carrying pathogenic staphylococci in the nose. In adults in hospital the carrier rate was higher, but the numbers involved are not sufficient to make the difference certain. In children in hospital three out of five were carriers.

The statement of a carrier rate does not give a measure of the chance that an individual will be a carrier if observed over a period of time. Dudley (1932), during a year's observation of diphtheria carriers in a school, found that, with an average carrier rate of 6.6 per cent., 40 per cent. of the boys were carriers at one time or another. Davis (1921) concluded that cultures taken at short intervals from the throat of normal persons sooner or later revealed the presence of haemolytic streptococci in practically all of them. Hart (1937) noted during a 6 months' study of the nasal and pharyngeal flora of an operating theatre staff that there were many intermittent carriers of *Staph. aureus* and few persistent ones. The

figures he obtained for the carrier rate (Table IV) are of interest because they show a greater variation among the same community over a period of time than was shown between the various groups of the series recorded above.

TABLE IV.—Carrier Rates in an Operating Theatre Staff (Hurt, 1937)

| Group | Date | No. | Staphylococcus Aureus Present | |
|----------------------------|---------|-----|-------------------------------|----------------|
| | | | No. | % \pm S.E. |
| Operating theatre staff .. | Jan. 20 | 57 | 35 | 61.4 \pm 6.5 |
| | Jan. 29 | 44 | 44 | 100 |
| | Feb. 7 | 53 | 14 | 26.4 \pm 6.1 |
| | Sep. 30 | 56 | 9 | 16.1 \pm 4.9 |
| General population .. | Jan. 23 | 54 | 39 | 70.4 \pm 6.2 |

Bloomfield (1921) found *Staph. aureus* present in the throat only as a transient parasite except when there was a definite local infection. Eight laboratory workers examined by him carried *Staph. albus* constantly in the nose over a period of three months, while *Staph. aureus* was only occasionally present. Personal observations on patients in hospital showed that haemolytic staphylococci were not always isolated from later swabs of the nose of a patient whose first swab had been positive a few weeks before.

These observations and analogies make it evident that there is considerable variation from one community to another and in the same community from time to time in the percentage of persons carrying pathogenic staphylococci in the nose, that in healthy and active undergraduates the carrier rate may be one in three, and that the great majority of healthy individuals are carriers from time to time.

Incidence of Staphylococci in the Nose of Patients with Staphylococcal Infections

Owing to the limitations of available clinical material the incidence of pathogenic staphylococci in the nose of patients with staphylococcal infections has been studied only on small numbers of individuals. The methods used have been the same as for healthy persons, and the figures are given in Table V.

TABLE V.—The Number of Patients with Staphylococci in the Nose

| Author | Group | No. | Staphylococci Present | | Haemolytic Staphylococci |
|----------|--------------------------------------|-----|-----------------------|--------------|---------------------------|
| | | | No. | % \pm S.E. | |
| McFarlan | Osteomyelitis (over 19 years) | 10 | 10 | 7 | 70.0 \pm 14.5 |
| | Boils and carbuncles (over 19 years) | 19 | 18 | 13 | 68.4 \pm 10.7 |
| | Total .. | 29 | 28 | 20 | 68.9 \pm 8.6 |
| Hallman | Osteomyelitis (19 years or under) | 22 | 20 | 11 | 50.0 \pm 10.7 |
| | Osteomyelitis (over 19 years) | 29 | 22 | 13 | 44.8 \pm 9.2 |
| | Total .. | 51 | 42 | 24 | 47.1 \pm 7.1 |
| | | | | | Coagulase + Staphylococci |

The figures in my series suggest that there is a higher incidence than in persons with no staphylococcal infections, and the difference (27.0% \pm 12.4) is more than would often arise from errors of sampling. Yet Hallman's figures do not show a similar difference, and it would be premature to conclude that the incidence is in fact higher. In nine undergraduates who had had a series

of boils a year or more before investigation and were then free, there were seven who had haemolytic staphylococci in the nose. This shows that the local condition does not necessarily recur when pathogenic staphylococci are present in the nose. The growths of staphylococci obtained from the nose of some patients with staphylococcal infections were pure *aureus* and more profuse than usual, but similar growths were obtained occasionally from healthy persons.

It is certainly possible that pathogenic staphylococci may be transferred by the patient's fingers from the nose to a lesion elsewhere. The figures recorded here show that pathogenic staphylococci are so often present in an apparently healthy nose that it is reasonable to take all possible precautions to prevent reinfection from that source. Yet the frequency with which pathogenic staphylococci occur in the nose of healthy persons makes it possible that their presence in the nose of patients with staphylococcal infections in other parts of the body is merely a reflection of the carrier rate of the community in which they are living. If the serological types of staphylococci prove to be as stable and numerous as Griffith's streptococcal types it may be possible to obtain evidence in favour of the occurrence of reinfection from the nose by finding that the nasal strain is serologically identical with that isolated from the lesion elsewhere. At present the isolation of pathogenic staphylococci from the nose of a patient with a chronic staphylococcal infection cannot be considered as proof that reinfection is occurring.

Summary

1. Pathogenic staphylococci were isolated from the healthy nose of 34 per cent. of healthy undergraduates, 42 per cent. of adults in hospital, and 58 per cent. of children in hospital. Similar figures for the incidence in individuals with no staphylococcal infection have been obtained by Hallman in a larger series.

2. It is suggested that the great majority of healthy individuals are carriers from time to time.

3. Pathogenic staphylococci were isolated from the healthy nose of 69 per cent. of patients with staphylococcal infections elsewhere.

4. The isolation of pathogenic staphylococci from the healthy nose of a patient with a chronic staphylococcal infection is not in itself proof that reinfection from the nose is responsible for the chronicity of the infection, though the possibility of such reinfection cannot be denied.

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SULPHONAMIDE IN THE TREATMENT OF ACUTE MASTOIDITIS

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We feel diffident in making claims for a preparation which, by reason of its initial success, may have had an inflated popularity, but the results given below seem to be striking enough to warrant publication. The inconclusiveness of first results is well known, and these figures are published in the hope that further investigation and use of the drug by others will lead to its acceptance as a most useful prophylactic during the course of the all-too-common otitis media. The method of administration which has been carried out at the Royal Naval Hospital, Chatham, during the past year has been as follows:

All cases of acute suppurative otitis media (A.S.O.M.) were placed on "colsulanyde" (Crookes's), 1 drachm four-hourly by mouth, as soon as they were admitted. In addition they received the treatment of the acute ear which has been accepted practice for generations—namely: myringotomy, if the tympanic membrane was showing evidence of retention of pus, whether perforated or not; syringing of the ear thrice daily with saline or a solution of boric acid, followed by drops, those mostly used being gutt. hydrarg. nit. dil., gutt. acid. boric. in spirit, gutt. glye. acid. carbol., and where the tympanic membrane was inflamed, intact, but not bulging, "sedonan" or "otalgan"; constant inhalations of tinct. benzoin. co. and menthol, and attention to nasopharyngeal and sinus infection. They also had a smart sulphur-free purge on admission, and a sulphur-free analgesic, such as aspirin.

During the year following the introduction of this routine the ratio of acute mastoiditis to acute otitis media has been greatly reduced, in this series from 22.7 per cent. to 4.5 per cent. That the accuracy of these figures is open to question is beyond doubt, for many different factors come into play in assessing results of this kind. The possible causes of error will be discussed later. The figures were obtained from the statistical returns of the hospital, and the average for the years 1934, 1935, 1936, and the early half of 1937, when sulphonamide was not being used, is compared with the year comprising the latter half of 1937 and the early half of 1938, when the above routine was employed. The figures for "acute mastoiditis" are those cases which were actually operated upon, and which were therefore surgically proven.

| | A.S.O.M. | Acute Mastoiditis |
|---------------------------|----------|-------------------|
| 1934 | 245 | 41 |
| 1935 | 177 | 33 |
| 1936 | 152 | 58 |
| 1937 (first half) | 33 | 6 |
| Total | 607 | 138 |

Percentage of cases of acute suppurative otitis media to develop acute mastoiditis, 22.7.

| | A.S.O.M. | Acute Mastoiditis |
|----------------------------|----------|-------------------|
| 1937 (second half) | 69 | 2 |
| 1938 (first half) | 86 | 5 |
| Total | 155 | 7 |

Percentage of cases of acute suppurative otitis media to develop acute mastoiditis (sulphonamide used), 4.5.

Furthermore, during the period January, 1934, to June, 1937, the number of deaths per annum from the complica-

tions of acute suppurative otitis media averaged 2.85, while during the period June, 1937, to June, 1938, there were no deaths from this cause.

No claims are made in regard to the efficacy or otherwise of the drug in the treatment of otitis media *per se* (this side of the question is still under investigation), but the figures are consistent with the view that it is a preventive of the complications of this disease. Secondly, it is not claimed that every case of otitis media was streptococcal in origin, for not all of them were swabbed. All those in which swabs were taken proved to be due to a haemolytic streptococcus, and during the past winter and spring there has been, in the district from which these cases came, almost a streptococcal epidemic, comprising tonsillitis, scarlet fever (which has been very severe), etc.

The incidence during the years 1934 to 1937 (first half) may seem to be unduly high. However, the Royal Naval Hospital at Chatham draws its patients largely from establishments where a great number of individuals are massed together, and especially from those training establishments in which a large number of boys of the ages of 16 and 17 are accommodated. In this environment it is possible that an infecting organism may rapidly reach a high state of virulence, passing as it does through a large number of individuals of the age (at the boys' training establishments) when mastoiditis is most common and, in the case of the newly joined, finding an easy and non-resistant prey, often equipped with predisposing conditions such as massive pads of adenoids. The same treatment was adopted for any case of scarlet fever which developed otitis media, and these have been shown among the "A.S.O.M." section. Only one of these patients developed acute mastoiditis.

From the above it will be seen that the sulphonamide was used in a purely "shotgun" manner, and it is contended that the results justify its use, for, even if the otitis does not respond to the treatment and mastoiditis develops, no harm has been done and the patient's resistance is in no way impaired by the drug. In no case was the administration of sulphonamide prolonged for more than fourteen days, as it was considered that by the end of this time any good which would accrue from this mode of treatment had already been done, and, conversely, if the drug had failed, then no good purpose was being served by its continuance.

Chronic otitis media has not been considered in the above group of patients, the vast majority of whom had no previous record of otitis media.

Points Noted during the Series

In a small minority of cases colsulanyde, 1 drachm four-hourly, caused in the course of a few days a noticeable cyanosis, though no subjective symptoms were complained of by the patients. In these cases the sulphonamide was stopped for a few days and then begun again on a dosage of 1 drachm thrice daily. None of them showed any evidence of a true sulphaemoglobinaemia when tested spectroscopically, and Long and Bliss (1937) mention that they were not convinced of the existence of this condition.

A leucocyte count was performed as a routine on admission, and the tendency appeared to be for this count to drop after a few days' treatment, especially in those cases which already had a raised white count on admission, and a slight relative lymphocytosis appeared to be the rule. There was, however, little change in the blood picture relevant to otitis media, and this subject (the changes in the blood picture during sulphonamide treatment) is under investigation by Surgeon Commander McIntyre, to whom we are indebted for his co-operation.

The patients were not placed on a sulphur-free diet, as has been recommended by some, though sulphur-containing drugs were avoided in the concomitant treatment.

Discussion of the Results

It will be at once apparent that the percentages given above for the fall in mastoid incidence are open to question as regards their absolute accuracy. The seasonal and yearly incidence of mastoiditis varies widely and is naturally worse in an epidemic year, but it is claimed that, so far as Chatham is concerned, the last twelve months have included an epidemic. This, then, may be taken, if not as an error on the right side, at least to cancel out, more especially as the streptococcus had been active in many parts of the country during the early spring of this year.

Another cause of error which weights the scales in favour of the drug is the tendency of the surgeon, striving to show results such as these, to adopt a more expectant line of treatment of mastoiditis than he has formerly been accustomed to carry out. While the existence of the "doubtful" mastoid is undeniably common, there are a large number of cases which anyone would be forced to diagnose as acute mastoiditis, and even the most expectant treatment would not be able to reduce the mastoid ratio to the extent given above without an increase in the fatalities. Nor was the drug found to produce a "false cure," as Anwyl-Davies (1937) alleges it to do in gonorrhoea, though this side of the question is still under investigation and to be proved conclusively will need figures taken over more than one year.

It is reasonable, too, to assume that sulphonamide would have a beneficial effect on the course of acute streptococcal mastoiditis, because this drug is known now to be specific for the organism. The figures already published, from the original ones of Colebrook and Kenny to the most recent, all show that the virulence of the organism to the human body is reduced; and since in the type of mastoiditis under review, the virulence seems to be a big determining factor in the infection or escape of the mastoid process, the results might almost have been forecast, though it is gratifying to see them work out in practice.

What, in our opinion, is of the utmost importance is the early administration of the drug at a time when there is no question of mastoid infection. Probably pus is present in the mastoid antrum in many cases of otitis media, but this is still confined within a layer of mucous membrane. It is asking too much of any non-surgical measure to effect a cure after this membrane has broken down and there is already osteitis of the mastoid process, though Montandon (1937) reports two cases in which sulphonamide was given as a premedication before mastoidectomy and the condition settled without the need for operation.

It seems plausible to imagine that the sulphonamide reduces the streptococcus in the middle ear to a virulence low enough to enable the antrum to shut itself off by granulations (which it undoubtedly does in middle-ear infections of a low virulence), and thus guards against the all-too-common type of case where very acute mastoiditis develops within a few days of the onset of the otitis media. None of the seven cases operated upon during the second half of 1937 and the first half of 1938 were of this type: they were all operated upon because of a persistence of the discharge, coupled with a low pyrexia, slight mastoid tenderness, and a high leucocyte count. Sulphonamide in these cases appeared to have failed; this is a well-known phenomenon, and one for which no explanation is offered.

In all cases the mastoid cells were found to be hopelessly involved.

In fact, since the adoption of this line of treatment the classical "acute mastoid" has become a rarity in the hospital.

Conclusions

In spite of the possible sources of error in the figures published above, the incidence of acute mastoiditis in the Royal Naval Hospital, Chatham, has been notably reduced. Since the only difference in the accepted treatment of the acute ear has been the introduction of routine administration of sulphonamide on admission, it is reasonable to suppose that the aforementioned drop in mastoiditis is due to the drug. Therefore the sulphonamide group of drugs have a very real place in the treatment of acute suppurative otitis media.

We would like to express our indebtedness to Surgeon Rear-Admiral Dudley for his invaluable assistance in compiling these results.

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Clinical Memoranda

The Use of Prontosil in Sprue

As early as 1914 I recorded two cases of sprue, with prominent soreness of the mouth, in which lasting benefit followed the use of autogenous streptococcal vaccines prepared from cultures from the sore tongue. In 1918 I published seventeen further cases, and suggested that oral streptococcal infection might play a part in the aetiology of sprue, even if it is only a secondary infection. Later in that year Dr. Lucius Nicholls confirmed my observations regarding the beneficial effects of autogenous oral streptococcal vaccines in sprue, and pointed out that his cultures belonged to the non-haemolytic *Streptococcus viridans* type. In 1920 I reported on forty-four cases of sprue treated in Calcutta by the vaccines, in addition to milk diet and drugs for controlling the looseness of the bowels, and compared the results with those in forty-five cases that I had analysed from the earlier Calcutta European Hospital records (Rogers, 1921). In the old series, which were probably more severe on the whole than the vaccine series, there were no recoveries while in hospital, and only five cases had greatly improved. In the vaccine series twenty-one had recovered, eighteen of them remaining well for upwards of one year, and thirteen, mostly more recent cases, had greatly improved. In six other cases relapses occurred. Later I obtained good results with the vaccines in clearing up the symptoms of sore mouth, followed by much gain in weight with cessation of the diarrhoea, in patients treated at the Hospital for Tropical Diseases, London; but it is difficult to assess the relative influence of diet and vaccines respectively.

A recent experience leads me to return to the subject. During the last five years I have from time to time attended for sprue a retired Indian tea-planter living in the country and now over 80 years of age. Since he moved to Southwold I had not seen him, until recently Dr. E. C. Cordeaux reported to me that his condition had become serious, being complicated by a fall of haemoglobin to 48 per cent., and by febrile bronchitis. On August 2, 1938, I saw the

patient with Dr. Cordeaux, but found he was already improving, with decline of the fever and the bronchial symptoms, following prontosil rubrum orally and injections of liver extract. The stools before the treatment numbered up to seven daily, and the use of prontosil was immediately followed by a fall in temperature and a decline of the stools to two or three daily, a result which Dr. Cordeaux had no doubt was due to the new drug. I have since heard that the soreness of the mouth has also greatly declined, and this confirmed the impression I had formed that the prontosil may possibly have exerted a beneficial action on the oral streptococcal infection, the presence of which I had verified by cultures at an earlier date; I had not, however, been able to give more than two or three vaccine injections some two years ago.

Of course, no conclusions can be drawn from improvement, which may be only temporary, in a chronic case of sprue. It is only the improbability of opportunities arising for a reliable test of the prontosil group of drugs in this depressing and intractable disease that prompts me to suggest its cautious trial, in moderated doses and for a limited period.

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Salyrgan in the Reduction of Localized Oedema of Traumatic Origin

The remarkable effect of salyrgan in the reduction of dropsy in medical cases led me to consider the advisability of its use in surgical oedema. [The official preparation, mersalyl, listed in the Addendum to the *British Pharmacopoeia*, is the sodium salt of salicyl-(γ -hydroxymercuri- β -methoxypropyl)amide-O-acetic acid.]

The first case was that of a man with a cut finger and hand which had healed well, but, as often happens, recovery was delayed by some oedema. One intramuscular injection of 1 c.cm. of salyrgan produced a diuresis of about 100 per cent.; there was a considerable and sudden improvement in the movement of the fingers and a great reduction of the swelling. A few days later the injection was repeated, with a further satisfactory result. This case showed that the diuresis produced was accompanied by a diminution of a given localized oedema. The discovery of an adjunct to physiotherapeutic treatment seemed to have been achieved, and, accordingly, the procedure was put to further tests.

OTHER CASES TREATED

Severe Fracture of the Lower End of the Radius.—Ten days after the injury two injections of salyrgan produced a considerable difference in the oedema, and within five days no oedema remained.

Fracture of the Tibia and Fibula.—This was a malunited fracture which was wired in good position. Six weeks later, on removal of the plaster, union had occurred, but there was considerable oedema, which was greatly reduced within twenty-four hours of the injection of salyrgan.

Ununited Fracture of the Tibia and Fibula.—Treated with inlay bone grafts. On removal of plaster six weeks later there was pronounced oedema, which was uninfluenced by an injection of salyrgan.

Sepsis Hand.—The little finger and fifth metacarpal had been removed for sepsis. Traumatic arthritis of the left wrist

and considerable peri-articular oedema benefited immediately as a result of salyrgan injections.

Fracture of the Os Calcis.—Treated by Böhler technique. The patient evinced considerable pain on walking about in plaster. Salyrgan was given, and the next day the patient was free from pain and the foot felt lighter and looser within the plaster. In this case the relief lasted but a few days, and repeated injections were necessary before a satisfactory result was obtained.

Fracture of Lower Limb.—Several cases of lower limb post-fracture oedema, first noted when the patients began to walk, benefited extensively and immediately. A few cases, however, failed to respond.

Oedema of a Thigh Stump.—Amputation for suppurating tuberculosis of knee-joint. The oedema diminished so that the Unna-paste covering, placed to prevent post-operative swelling of the stump, became quite loose.

CONCLUSIONS

1. Salyrgan given intramuscularly is useful in reducing localized oedema after injuries.
2. For some unknown reason a number of cases fail to respond.

Buenos Aires.

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Severe Night Blindness due to Vitamin A Deficiency

The following case illustrates the rapid response to treatment that can occur when gross lesions due to vitamin A deficiency are present. It shows a striking difference from the extremely slow progress of the average beriberi case under treatment.

CASE RECORD

A Malay youth aged 18 was admitted to the Brunei Government Hospital on June 3, 1938, complaining of inability to see clearly at night. His vision was so poor at night that he could not find his way about without help.

On admission he looked a poor specimen: his weight was 86 lb., his skin was dry, and numerous black keratinous plugs blocked the sweat pores of the face. The conjunctivae were dry and lustreless, but no ulceration was present. His diet consisted of polished rice, fish, and bread, with small amounts of vegetables twice weekly. He showed no signs of beriberi. No elaborate apparatus was available for testing his capacity for dark adaptation, but the deficiency was so severe as to be easily demonstrable. He was taken into a darkened room, in which a normal person's vision was 6/9 with the ordinary test types, and at a distance of one yard from the test type he could with difficulty read the line D 60 (visual acuity 1/60). In daylight his vision was 6/5. He was given 36,000 units of vitamin A by the mouth (four capsules of haliverol, Parke, Davis and Co.), and was again tested in the darkened room one hour later. His visual acuity was now 6/60, and at one yard distance he could read the line D 12.

He was put on a liberal mixed diet in which local unpolished rice was substituted for the polished variety. Four capsules of haliverol were given three times daily, and cod-liver oil drops were instilled into the eyes twice daily. At the end of a week there was a great improvement. In the darkened room his visual acuity was now 6/9, but his skin was still dry, although the conjunctival sacs were moist.

On June 18, a fortnight after admission, his visual acuity in the darkened room was 6/6 partially; his general condition was also much improved, his skin was smooth and moist, and there were few horny plugs showing on the face. He had gained 8 lb. in weight.

He was discharged on June 30 fit and well.

O. E. FISHER, M.B., Ch.B.,
Brunei, Medical Officer.

Reviews

RADIOLOGY OF THE DUODENUM

Le Duodénum: Atlas de Radiologie Clinique. By P. Cottenot, Max Lévy, and Ed. Chérigie. Preface by M. Robineau. (Pp. 223; 496 figures. 285 fr.) Paris: G. Doin et Cie. 1938.

Since the war there has been not only great advance in x-ray technique but also a wider dispersal of x-ray apparatus, so that there are many more workers in the country. For their instruction and refreshment of knowledge a series of reference books have appeared, especially in the United States and in France. There is so much variation in the normal and abnormal appearances of even such a small portion of the body as the duodenum that a large textbook is needed to cover the subject adequately. Such a one has recently been produced by three workers in Paris and published by the well-known firm, Doin et Cie. The authors have brought together all variations of the normal and pathological radiographs of the duodenum, with a minimum of explicatory text, allowing the radiographs to be elucidated by semi-diagrammatic drawings, and have been well served by the publishers. In a short chapter on the technique for radioscopy of the duodenum they mention the essentials; they advocate the Berg compression bag to obtain strial pictures, and point out the need to see every portion of the duodenum in profile.

There is much variation in the appearance of the normal duodenum both in position and shape. Radiologists, or those to whom x-ray prints are submitted, must be prepared to allow for this and for anomalies caused by insufficiency of the mesentery or by fixation or variations in length bringing about redundancy. The position, filling, and movement of neighbouring organs must be taken into account in diagnosis. There is very full treatment of the appearances of duodenal ulcer and many illustrations of its varieties and the differential diagnosis. Duodenal diverticula are discussed and the fallacies that may make their interpretation difficult. As well as partly filled portions of small intestine which may be superimposed, there are dilated orifices of the ducts from pancreas and gall-bladder. As well as the ampulla of Vater, the duct of Santorini may be noted as giving rise to the appearance of diverticulum. Short but instructive sections deal with tumours of the duodenum, foreign bodies, or worms in this part of the alimentary tract, and the appearances of perforation of duodenal ulcer.

The last quarter of the book covers a discussion of the duodenum which has been subjected to operation, the effects of a normal gastro-entero-anastomosis, and stomal and jejunal ulcerations. The authors have brought a large amount of material together, and their atlas will find many grateful readers.

DEAFNESS AND HEARING AIDS

The Handicap of Deafness. By Irene R. Ewing, M.Sc., and Alex. W. G. Ewing, M.A., Ph.D. (Pp. 327; 3 plates, including a frontispiece; 84 diagrams. 12s. 6d. net.) London: Longmans, Green and Co. 1938.

The moral which is strongly urged throughout this book is that the problems consequent on deafness should be early and boldly faced by the doctor, the patient, and his relatives; in order that the ensuing physical and psychological handicaps may be minimized. The subject has

been treated with a view to a wide public, who would naturally approach the matter from divergent points of view. It forms a volume (albeit rather a large one) which a doctor might recommend to deafened adults who tended to become aggrieved because of their disability and loath to take any active steps to overcome it by the use of a hearing aid or by lessons and practice in lip-reading. The second part of the book might be read with profit by any intelligent parents, faced with the knowledge that their child was severely deaf, who were anxious to learn about modern educational methods of dealing with these unfortunate children, and to hear of successes which have been achieved by boys and girls with perhaps even greater defects of hearing than that suffered by their own child.

Besides its missionary purpose the book is important because it summarizes the results and opinion of the authors, who, with Dr. T. S. Littler, were pioneers in this country in the utilization of hearing aids for the educational use of severely deaf children. Also, at the request of many doctors, they conducted the first clinic for giving advice to deafened adults as to whether their hearing residue was such that they would be likely to benefit from an electrical hearing aid. They report that of 1,037 deaf people about whom this question was asked the reply was in the affirmative for 80 per cent. This is a very encouraging figure for the deaf. But it is acknowledged in the text that not every deaf person could buy, or would use, the hearing aid recommended by them. It is interesting to note in this connexion that the authors insist on recommending the instrument which they have found by scientific test to give the best reproduction of speech. This is of course idealistic, but the practical fact remains that some deaf people will only use smaller instruments, even if they can hear more clearly with better but larger ones. The individual notes of the deaf patients who have been given as examples would have been more interesting for medical readers if greater details of the history and results of medical examination had been included. This probably could not have been easily done by the authors, as cases were usually referred to their clinic after the medical profession had indicated that they could do no more for the patient. Now that hearing aid clinics have been started at several hospitals greater facility in obtaining details of the ear condition may be expected to make progress in the improvement of hearing aids more rapid; and, moreover, the deaf will have another advantage in that they will have an easy opportunity to obtain advice about hearing aids at an earlier stage.

PREVENTION THROUGH AETIOLOGY

Causes and Prevention of Disease. By William Harvey Perkins, M.D. (Pp. 713. 35s. net.) London: Henry Kimpton. 1938.

The charge is sometimes brought against the art of medicine that, while it proclaims from time to time some notable advance in medical knowledge, it is too little concerned to follow up such discoveries by putting them into operation in a practical way. This lag of achievement behind opportunity is perhaps more in evidence in the preventive field than in the therapeutic. A new remedial instrument, whether a method or a substance, can be conveyed to the bedside, tested there by the clinician, and, if found to work, straightway added to the armamentarium of the doctor. In the case of a proposed new preventive method the course of events is not so speedy. Organization is required to test the novelty on a sufficiently ample scale to carry conviction, and even then its final acceptance into the class of genuine effectives may have to be delayed until its results can be subjected to statistical

inquiry. In the book under review Professor W. H. Perkins of the Tulane University of Louisiana deals candidly with these alleged or surmised shortcomings of the preventive art. He admits that many lacunae exist in our knowledge of prophylaxis, but at the same time he deplores that so little of what is well known already to the medical preventive expert is being competently used by administrators for the control of community disease.

Beginning with causation and prevention in their relation to heritable diseases, the author proceeds next to explore the nutritional aspects of the problem. He then deals with poisons, ingested or parenteral, and discusses such physical agents as atmospheric pressure, radiant energy, and the lightning stroke. He regards pathogenic parasitism as a more or less fortuitous stage in a blind reaching out after amicable symbiosis. His excursions into this wide and diversified field are interesting and suggestive. In later chapters he rises from the material plane into the world of thought and emotion. He considers aetiology in its bearing on personality, behaviour, and mental states, and puts forward as essential for the prophylaxis of psychological and social disease conditions the training of people in the control of feeling and emotion and the use of their intellectual faculties, as well as in the appreciation of personal values and the acceptance of social ties.

With regard to eugenics the view is expressed that the physician in a community must be a potent force to create sane attitudes towards the improvement of the inheritance pattern. If he believes, he should speak out. By so doing he will add to his usefulness. In another place the author indicts the American public for its unintelligent acquiescence in the pressure of commercial firms trading in health drinks and attractively attired sweets. He draws attention also to the needless frequency of accidents of all kinds. In order to evade the perils of the modern world the individual should possess a sound well-balanced body, alertness of mind and understanding, co-ordinated voluntary control, and responsive reflexes. Rickety ladders, worn brakes of motor cars, unsafe scaffolding, and polished floors are preventable causes of injury. Unpredictable hazards are explosions, the collapse of buildings, and assault by man or animals, but even in these unforeseen emergencies the quick response will often save beyond expectation. "Nowhere near the limit has yet been reached in the prevention of preventable accidents."

A special merit of the book is the serviceable tabulation of the community diseases according to their origins, paths of transmission, portals of entrance to the human body, methods of specific therapy, and principles of control. In the spacious domain of his choice the author has left little unsaid. As an aid to speculation upon the ultimate origins of disease and the repression of its noxious influences his book will be found of value.

FACTORS THAT PROLONG GESTATION

Studies in Prolonged Pregnancy in Rats. By Finn Boe. *Acta Pathologica et Microbiologica Scandinavica*. Supplementum 36. (Pp. 146, 26 figures, 27 tables. Free to subscribers.) Copenhagen: Levin and Munksgaard. 1938.

Various methods have been used in the investigation of the hormone factors which are concerned in the maintenance of pregnancy and in the initiation of parturition. Dr. Finn Boe, in his "studies on prolonged pregnancy in rats," has described his investigations into the effects of procedures which cause a prolongation of the gestation. Like several previous observers he has found that the expulsion of the uterine contents can be prevented at full term by the administration of gonadotropic hormone

or of the ovarian hormones, and that a similar effect is also brought about in the rat when the pituitary is removed in the later stages of pregnancy. The effect on the foetal development varied with the hormone administered; when gonadotropic hormone from mare serum or oestronc was injected a pronounced inhibition of foetal development occurred; on the other hand, the weights of the foetuses were distinctly increased during the prolonged pregnancy when gonadotropic hormone from human pregnancy urine or progesterone was administered. From these results the author concludes that the effects of various types of gonadotropic hormone on pregnancy are essentially due to the ovarian hormones secondarily produced in the organism.

Unfortunately, in his interesting discussion of the action of the gonadotropic and ovarian hormones in pregnancy, the author has not taken into consideration the recent findings that oestrogens may play an important part in the control of the luteal function, and it is possible that some of the results which Dr. Finn Boe has attributed to the action of oestron on the uterine contents may in actual fact be due to effects on the luteal activity.

Though the author, in his own words, has obtained "very little which can be said to throw light on the initiation of parturition," he has carefully collected many interesting results which may ultimately help in the elucidation of this very difficult problem.

PULMONARY TUBERCULOSIS IN THE APPARENTLY HEALTHY

La Tuberculose Pulmonaire chez les Sujets apparemment Sains et la Vaccination Anti-tuberculeuse. By L. Sayé. (Pp. 255; 88 figures, including 32 plates, 24 tables. 60 fr.) Paris: Masson et Cie. 1938.

An extensive literature has in recent years accumulated on the subject of pulmonary tuberculosis in apparently healthy groups of the population—students, nurses, army recruits, industrial employees, etc. In his book Professor Sayé reviews most of the papers that have been published from several countries in Europe and America, and adds his own valuable observations made at the University of Barcelona. Moreover, he discusses in detail the types of lesions that may be found during such mass examinations, and attempts to define their pathogenesis, trace their course, and suggest their management. It is obvious, however, as he frankly states in his introduction, that many problems arising out of this aspect of pulmonary tuberculosis still remain to be solved. The volume is illustrated by radiographs, many of which are reproduced full-size in part. Since the lesions depicted are often small and inconspicuous, reproductions of radiographs of such lesions need to be particularly good to be convincing. This has not been achieved by the publishers in every instance.

Professor Sayé traces the development of the systematic radiological examination of groups of the population. As far back as 1902, Salles published the results of the examination of 286 soldiers belonging to a battalion at the battle of Vincennes. Since 1909 Ledoux-Lebard had had the chest of every patient examined by x rays before an operation. But it is only since 1920, when Myers in the United States began the examination of students, that much interest has been taken in such investigations. In 1921 Redeker initiated it for contacts in Germany; in 1923 Rist in Paris was charged with the routine radiological examination of all those seeking employment at the *Assistance Publique*, and Adler in Switzerland first used it among army recruits. Since then the number of investigations and the variety of groups investigated has

increased yearly. Professor Sayé has therefore done a service in making available most of this work in a concise and readable form.

The last section of the book comprises a full discussion of B.C.G. vaccination. He admits the statistical errors previously made in assessing its value, adds some recent investigations on hypersensitivity following vaccination, and discusses the possible use of the method in adolescents. The account is particularly interesting for the inclusion of a description of the tuberculous lesions found in children who had been vaccinated about ten years previously.

Notes on Books

Like everything else about the "man of destiny," his diseases and their explanations never cease to excite interest, and *Napoleon: A Medical Approach*, by BORIS SOKOLOFF (Selwyn and Blount, 10s. 6d.), which is not strictly confined to medical aspects, contains plenty of attractive information about the great Napoleon. The author, who is stated to be working in a cancer institution, considers in detail the evidence about the incidence of malignant disease in the Napoleonic family. As the age of 40 approached a profound change took place in the Emperor's physical constitution; in 1913 the late Leonard Guthrie explained this as due to hypopituitarism, and Dr. Sokoloff now comes to the same conclusion.

The Human Body, by Dr. LOGAN CLENDENNING, which has now reached its third edition (Heinemann, 12s. 6d.), was written with the intention of explaining some of the intricacies of the human body to the intelligent layman. The success of the book indicates that the author has succeeded very well in his difficult task. He has taken great pains to bring his information up to date in his latest edition, and the book can indeed be recommended to medical practitioners who wish to read a general survey of modern knowledge of physiology. Dr. Clendenning has a critical mind and a wide experience of medical practice, and he discusses in an interesting manner problems of general medical concern, such as the influence of heredity and environment, the causation of high blood pressure, etc.

The safe, and at the same time efficient, radium treatment of lesions of the mouth, orbit, and antrum has long presented a problem of no small difficulty to the radiotherapist. In his monograph *The Construction of Vulcanite Applicators for applying Radium to Lesions of the Buccal Cavity, Lips, Orbit, and Antrum* (John Murray, 5s.) Mr. D. G. WALKER gives the results of three years' work carried out at the Middlesex Hospital in collaboration with the department of radiotherapy. About a third of the book consists of excellent photographs by Miss D. F. Clephan, illustrating constructional methods and modes of application. The apparatus described, in addition to combining efficient dosage with adequate protection, is specially planned to add to the comfort of the patient during irradiation. The book is a valuable record of great progress in an important field of radiotherapy.

The *Formulaire des Médicaments Nouveaux* was instituted in 1891 and has now attained its thirty-eighth edition (Paris: J.-B. Baillière et Fils, 70 fr.). The original editor was Bocquillon-Limousin and the present editor is Dr. R. WEITZ. The scope of the volume is somewhat similar to that of the *Extra Pharmacopoeia*. Drugs are described in alphabetical order and a short monograph is devoted to each drug. The chief information provided is the synonyms under which the drug is known, its chemical structure and properties, its therapeutic properties, and the manner in which it is used. A number of references to

recent work are included. The scope of the work is indicated by the fact that the index contains about a thousand titles. The volume will be found particularly useful by those who wish to obtain information regarding the nature of French proprietary drugs and preparations.

Allgemeine Pharmakologie, an outline for doctors and students by Dr. FRIEDRICH AXMACHER (Berlin: Julius Springer, RM. 9.60), is a short volume (189 pages) in which the author sets out certain general pharmacological principles. The subject is one of peculiar difficulty because pharmacology presents a vast mass of detail in which singularly few general rules are discernible, and such rules as exist are distinguished by the number and variety of the exceptions with which they are encumbered. The following are some of the problems dealt with: distribution and excretion of drugs, relation between concentration or dose and action and time; drug tolerance and allergy; alteration of drugs in body; synergism and antagonism of drugs; chemical constitution and pharmacological action. Dr. Axmacher has made important researches on fundamental problems in pharmacology and has a wide knowledge of the literature. Here he makes a judicious selection of his evidence and provides an excellent introduction to a difficult subject.

Preparations and Appliances

A DEVELOPMENT IN VITAMIN THERAPY

Hesperidin (vitamin P) tablets G.L. (Glaxo Laboratories, Ltd.) represent an interesting new development in vitamin therapy. Szent-Györgyi and his school concluded that certain of the manifestations of experimental scurvy in guinea-pigs were not amenable to treatment with pure ascorbic acid, but were cured with crude preparations of vitamin C. They also made clinical observations on cases of vascular purpura, and finally hesperidin, a flavone present in citrus fruits, was identified as an active principle with curative action in spontaneous capillary haemorrhages. Scarborough and Stewart, working in Edinburgh, have confirmed the activity of hesperidin in clinical cases. The compound is now made available for general clinical use. The dose suggested is about 1 gramme daily by mouth.

HIGH POTENCY CALCIFEROL

High potency "Ostelin" tablets (Glaxo Laboratories, Ltd.) each contain 50,000 units of vitamin D. The pharmacopoeial therapeutic dose of this vitamin for an infant is 5,000 units daily. The high potency tablets are intended for intensive therapy in cases of gross vitamin D deficiency and in certain other conditions. Satisfactory results have been described with this method in various disorders, including parathyroid tetany, rickets, chronic arthritis, and psoriasis. Overdosage of calciferol is known to produce characteristic toxic effects, and the high potency of the remedy indicates the necessity for care in its employment. The preparation is marked "To be taken only under medical supervision."

NICOTINIC ACID TABLETS

Nicotinic acid G.L. (Glaxo Laboratories, Ltd.) is put up in tablets, each containing 50 mg. nicotinic acid. In recent years it has been shown that this substance produces a remarkable curative action in pellagra and is effective by either oral or parenteral administration. The dosage suggested is 200 to 500 mg. daily.

NASAL JELLY

Nasal jelly (Glaxo Laboratories, Ltd.) contains the antiviral of *B. pneumoniae* (of Friedländer), *M. catarrhalis*, and mixed streptococci. It is recommended for local application in the common cold, chronic rhinitis, and influenzal sinusitis.

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THE WATCH ON THE THAMES

There are features of unusual interest in the report for 1937 of the medical officer of health for the Port of London, Dr. C. F. White, who, after ten years' tenure of this important position, has recently been appointed medical officer of health for the City. The report summarizes the revised instructions of the Board of Trade with regard to crew accommodation. These overdue reforms will be carried into effect in all new ships, and it is hoped that these fresh regulations may also stimulate owners to undertake reasonable and practical improvements in existing ships when opportunity occurs.

As an example of the deplorable conditions still ruling to-day, the case is cited of one ship in which no fewer than twenty-eight defects were reported by an inspector of the Port. It is satisfactory to record that the owners concerned had the necessary work put in hand immediately, while on its completion two members of the crew wrote grateful and appreciative letters to the Port M.O.H. on behalf of their shipmates. The report especially stresses the unhygienic conditions in small coasting vessels. "In the small ship there are no messrooms, no wash-place, no clothes lockers, no drying-rooms, no oilskin lockers." Food is kept in all sorts of places—in boxes in alley-ways and under bunks, and has even been found in water-closet compartments. Of 128 vessels, the subject of a special inquiry, thirty had no cooks. Tired men preparing their own food rely on the frying-pan, the tin-opener, and strong tea. It is thus scarcely surprising that digestive troubles appear to be very common among the crews of coasters. The hard lot of these men is further aggravated by the long hours of work, stated in some cases to total as much as 120 hours and reaching on an average 110 hours a week.

The report contains a most interesting account of the measures employed with regard to a ship in which rodent plague was suspected. The vessel arrived at Gravesend on July 1 with a general cargo from Far Eastern ports and showed a clean bill of health. Proceeding to King George V Dock, she was inspected on the following morning by a sanitary inspector and rat officer, when a "deratiza-

tion" certificate was produced, issued on April 28 in Kobe, where thirteen dead rats had been recovered after fumigation. The vessel continued to discharge cargo over the week-end, but on the morning of July 5 the sanitary officer was notified that a number of dead rats had been discovered in the holds, and that stevedores were complaining of the smell of the decomposing bodies. Further inquiries elicited the information that 261 rats had been caught and destroyed in the course of the voyage. Two dead rats, together with another freshly killed by the rat officer, were immediately dispatched to the Seamen's Hospital, Greenwich, where, in the case of two animals, macroscopic examination revealed a condition strongly suggestive of plague, while in films from glands and spleens bacilli morphologically identical with *B. pestis* were demonstrated. All work on the ship was stopped forthwith, and fumigation with hydrogen cyanide began the same evening. As a result 432 dead rats were taken from the ship, all of which were dispatched for examination. When, however, the holds were empty, a further space offering extensive rat harbourage was discovered, and a second fumigation was ordered, yielding another 103 dead rats. The difficulties of the Port health authorities were increased by several complicating factors. Before the discovery of the suspected rats most of the London cargo had already been unloaded, the greater part, fortunately, into lighters. Forty-three lighters were fumigated with the cargo *in situ*, and the remaining seven, which had discharged their freight, were also dealt with. In addition to the London cargo the ship carried goods consigned to Hamburg, including 20,000 cases of chilled eggs. This Hamburg cargo had to be unloaded before fumigation and reloaded, maintenance of refrigeration of the eggs further complicating the procedure. The report states that owing to the advanced degree of decomposition of the two rats which appeared to be infected, it was not found possible to confirm the diagnosis of plague by culture and animal inoculation.

This interesting account throws light on the magnitude of the task confronting the Port health authorities in such cases. To trace numerous lighters dispersed throughout the Port, to arrange for the follow-up of all personnel involved, and to ensure the collaboration of shipowners (for whom the necessary measures inevitably involve no small financial loss) demands a highly efficient organization, more especially since the time factor is so important. It is obvious how readily such a disease as plague might establish itself in the metropolis but for the constant vigilance of the Port of London health authority.

MALE HORMONES

The testicle of vertebrates has at least two functions: the first is the formation of germ cells; the second is the secretion of substances which are liberated directly into the blood stream—the male hormones. The failure of development of secondary sexual characteristics which follows castration of the young male has been recognized for centuries, but it was not until 1849 that Berthold demonstrated that this result of castration could be overcome in the cock by grafting testicles elsewhere. Much work has since been done on isolating the substance responsible for this effect. A crystalline substance with male hormone activity, androsterone, was isolated from urine in 1931 by Butenandt.¹ A closely related substance, testosterone, was isolated from bull's testicle in 1935 by David,² and other substances having androgenic activity have also been discovered. They are all steroids and are closely related to a group of compounds with oestrogenic activity and to another group with progestin activity.

Injection of pure male hormone into normal and castrated animals soon led to an understanding of its function. Zuckerman and Parkes³ in 1938 showed that the fur of the male hamadryas baboon changed after castration to that of the female, but prolonged treatment with testosterone propionate led to the gradual change from the greenish brown of the female to the grey of the male. The characteristic cape of the male was also restored. Injection of the same substance into a castrated immature rhesus monkey⁴ made the animal fiercer and more dominant. Flushing of the "sexual skin," such as occurs in the normal male, also came on gradually and the external genitalia grew appreciably larger. There was a notable effect upon the internal reproductive organs, which normally atrophy after castration. At necropsy the prostate, vas deferens, and Cowper's glands of the experimental animal were found to be as large as those of a normal mature rhesus monkey and histologically similar. In the female androgenic substances inhibit follicular maturation and luteinization and suppress the menses, as Zuckerman⁵ has demonstrated in the rhesus monkey. The observations of Papanicolaou and Falk⁶ suggest that androgenic hormone may cause a general muscular hypertrophy. Castration of a male guinea-pig led to a diminution in size of muscles which was most readily recognized in the temporals. These returned to normal after injection of testosterone

propionate but were unaffected by oestrogens. They found, too, that injection of gonadotropic hormone over a period of weeks gave rise to muscular hypertrophy in the normal guinea-pig but not in the castrated animal. They regarded this as additional evidence that the effect was wrought through the testicle. The injection of androgenic substances into the normal rat leads to a histological change in the pituitary gland, which according to Wolfe and Hamilton⁷ consists of a degeneration of basophil cells. They observed an even more striking effect in the castrated rat, in which the pituitary gland underwent remarkable changes, most notable of which was an increase in number and size of basophil cells with the formation of basophil signet ring or "castration cells." The pituitary gland of the castrated rat returns to normal after injection of male hormone.

In the human being male hormone is excreted in the urine in measurable quantities in both the male and the female. After a certain degree of purification the excreted hormone is estimated by measuring the comb growth in the caponized cockerel that follows injections of this material. Recently N. H. Callow, R. K. Callow, and Emmens⁸ have described an improved colorimetric method of estimating the amount of male hormone in the urine which has considerable advantages over methods of biological assay. The amount of male hormone excreted by the adult female is almost as large as that excreted by the adult male. In some disorders it may be much increased, as, for example, in cases of suprarenal cortical tumours associated with the clinical conditions of virilism or basophilism. R. K. Callow⁹ described a girl aged 6 in whom the excretion was of the order of twenty to forty times the normal: trans-dehydroandrosterone was isolated from the urine of this patient. It is evident that androgenic substances may be produced by some other organ as well as by the testicle, and it seems likely that the suprarenal cortical tumour was responsible for this in Callow's case.

A pure substance having male-hormone activity—testosterone propionate—is now being used in many different clinical conditions. Benign enlargement of the prostate has been treated by injections of male hormone in the belief that it is due to excessive secretion of oestrogenic substances thought to occur when the secretion of male hormone falls off in old age. A number of workers have reported benefit in selected cases in which the residual urine is small, but Clarke¹⁰ points out

¹ *Z. Angew. Chem.*, 1931, 44, 905.

² *Acta brev. neerl. Physiol.*, 1935, 5, 85.

³ *J. Anat., Lond.*, 1938, 72, 277.

⁴ *Ibid.*, 264.

⁵ *Lancet*, 1937, 2, 676.

⁶ *Science*, 1938, 87, 238.

⁷ *Endocrinology*, 1937, 21, 603.

⁸ *Biochem. J.*, 1938, 32, 1312.

⁹ *Chem. Ind.*, 1936, 55, No. 51, 1030.

¹⁰ *Brit. J. Urol.*, 1937, 9, 254.

that in his series of ninety-three mild cases of prostatic enlargement there was sustained improvement in a large number after no other treatment than instrumentation. There is obvious need for further carefully controlled work before the value of hormonal treatment of enlarged prostate can be assessed. There has been much talk about rejuvenating the aged by implanting monkeys' testicles into them. Venzmer¹¹ carried this treatment a step further by injecting male hormone into aged and prematurely aged subjects. He claimed good results, but made no attempt to control his experiments; and, after all, there is no evidence that the eunuch dies young—on the contrary, in many respects he never grows up. Desmarct and Capitain¹² have claimed beneficial effects from treating with male hormone a small series of cases of painful enlargement of, and cysts in, the female breast. Patients with irregular, painful, or retarded menstruation and with menopausal disturbances are also stated by these authors to respond well to treatment with male hormone. Similar results have been recorded by Loeser¹³ and by Foss.¹⁴ The effect of androgenic substances on a physiological castrate has been studied by Hamilton,¹⁵ who reported the case of a sexually underdeveloped male aged 27 in whom testosterone acetate and propionate caused definite growth of the genital organs associated with priapism. Similar results were reported by Foss¹⁶ in one case and by Kenyon, Sandiford, Bryan, Knowlton, and Koch¹⁷ in a group of seven cases. Carolli and Girrard¹⁸ recorded a male aged 54 with testicular atrophy, absent beard, and deficient axillary and pubic hair associated with a myxoedema-like infiltration of the skin. They described the condition as the "syndrome thyroïdo-testiculaire," and found the polypeptide nitrogen to be increased to 0.186 gramme per 100 c.cm. of blood. This fell to 0.036 gramme per 100 c.cm. of blood after treatment with testosterone propionate, rising again to 0.069 gramme after cessation of treatment and falling again to 0.026 when it was once more resumed. This was associated with disappearance of the myxoedema-like infiltration, and with increased suppleness of the skin. There was a return of erections, which the patient had not had for a year. Experimental evidence shows that injection of male hormone in normal and castrated animals has a masculinizing effect. Clinical evidence from the increased excretion of male hormone in sufferers from suprarenal corti-

cal tumour with basophilism, or of virilism in females, also suggests a masculinizing role for this hormone. The most obvious clinical applications of male hormone would appear to be, therefore, in men whose virility is incomplete or has regressed, and possibly in women whose uterus or breasts are over-active.

MATERNAL MORTALITY RATES

Maternal mortality has in recent years come in for so much public discussion that one notes with surprise that a striking fall in the maternal mortality rate in 1936-7 has enjoyed but little public notice. Indeed, the leader in the *Times* of November 1 dealing with the report of the Chief Medical Officer of the Ministry of Health for 1937 contains no reference whatsoever to this event. Despite the very considerable activities of local authorities in the provision of ante-natal clinics and hospital accommodation the maternal mortality rate showed, over a considerable period of years, no decline. Although, during 1928-31, the tendency was in a slightly downward direction, in 1932-4 the puerperal mortality rate per 1,000 total births was 4.04, 4.32, and 4.41 respectively—that is, substantially higher in 1933 and 1934 than in any of the years since registration of stillbirths. If the rates are compared on the basis of live births alone, it will be found that they remained fairly constant from 1911 to 1932. In short, the puerperal mortality rate was not falling in 1934. In 1935, 1936, and 1937 the puerperal mortality rates per 1,000 total births were 3.94, 3.65, and 3.13 respectively. Analysis of these figures shows that the greatest decline is in the puerperal sepsis mortality rate, the figures for the last four years being 1.95, 1.61, 1.34, and 0.94 respectively per 1,000 total births. There is little doubt that the discovery and use of sulphanilamide in the last two years have contributed to this reduction, although possibly a more important factor is the lower incidence of streptococcal diseases of all kinds. In this connexion it is significant that the figures for the notification of erysipelas for 1937 are lower than those for 1934 by 25 per cent. On the other hand, toxæmias of pregnancy show a rising mortality, though 86 per cent. of all investigated fatal cases (excluding cases of abortion and ectopic gestation) had received ante-natal care.

All other causes of death ascribed to child-bearing and pregnancy, including abortions, show a decline. It is reasonable to infer that there is in the country at present a higher standard of midwifery practice amongst general practitioners, midwives, and hospital staffs than was general ten years ago when the Departmental Committee on Maternal Mortality and Morbidity was making its investiga-

¹¹ *Diagn. med. Res.*, 1937, 63, 1402.

¹² *Presse med.*, 1937, 46, 184.

¹³ *Lancet*, 1938, 1, 373.

¹⁴ *ibid.*, 1937, 1, 373.

¹⁵ *Endocrinology*, 1937, 21, 649.

¹⁶ *Lancet*, 1937, 2, 1307.

¹⁷ *Proc. Soc. exp. Biol. N.Y.*, 1935, 37, 693.

¹⁸ *End. Mon. Soc. med. Rec. Paris*, 1935, 54, 272.

tion. Whatever the value of the work undertaken at ante-natal clinics the conclusion must be drawn that some other factor or factors are responsible for this gratifying improvement in the figures for maternal mortality. Furthermore, it is desirable to place on record that the improvement has taken place before local authorities have had an opportunity of implementing the proposals contained in Circular 1705 of the Ministry of Health. Discussion on the subject of maternal mortality has too often evoked more emotion than accuracy, and it is as well that the profession and the public should realize this fact.

"WILKIE'S CHRONIC DUODENAL ILEUS"

The publication of the William Mitchell Banks Memorial Lecture for 1938 by the late Sir David Wilkie in the current issue of the *Liverpool Medico-Chirurgical Journal* is of special interest not only for its intrinsic value as a contribution to surgery but also because it records one of the last lectures delivered by Sir David before his untimely death. His writings, especially upon abdominal surgery, always commanded the greatest of attention and admiration among surgeons, but this dissertation upon chronic duodenal ileus deals with a subject which was peculiarly his own, and records an experience of the condition which is probably unparalleled. It was, indeed, an earlier article upon this subject in the *British Journal of Surgery* in 1921 which may be said to have aroused interest in the condition in this country. It has at times been referred to as "Wilkie's chronic duodenal ileus." Sporadic reports of acute duodenal ileus had appeared for many years previous to this; it was the special value of Wilkie's work that he recognized and described as a clinical entity the symptoms of a chronic form of the same lesion. In an early paragraph he addresses himself to the question: "Does a chronic obstruction of the duodenum occur as a pathological and clinical entity?" His conclusive answer is that there are abundant records by many observers of the demonstration of such obstruction both *in vivo* and at post-mortem examination. In these cases the obstruction resulted from many different causes, the chief being (a) congenital anomalies of intestinal rotation; (b) a drag upon the mesentery in visceroptosis and other postural defects; (c) infiltration of the mesentery by malignant disease; (d) pressure from enlarged mesenteric glands, tuberculous or lymphadenomatous; (e) cicatrization following anastomotic ulceration after gastro-enterostomy. The possibility that the condition may arise from an achalasia, as in Hirschsprung's disease of the colon, is also considered, although no cases of this type were met with. The chief complication of the condition is acute duodenal ileus and dilatation of the stomach, but stasis in the duodenum appears to predispose to the development of gastric and duodenal ulceration, since such ulcers were found in no fewer than thirty-five of the 135 cases operated upon. On the contrary, in only six cases was a recognizable cholecystitis present. The clinical picture, while in some cases unmistakable, is often "overcast and un-

convincing." Gastric flatulence is the most constant symptom, with recurring attacks of bilious vomiting. These, in a patient of visceroptotic build, are very suggestive, and the diagnosis is greatly helped if the symptoms are relieved by the adoption of the prone or genupectoral position. The association of migraine with the condition has attracted the attention of many writers. Obviously, the ultimate diagnosis depends upon the radiographic demonstration of a very dilated actively contracting duodenum, often with a "mosaic" pattern of the mucosa. Treatment of chronic duodenal ileus must of necessity vary with the cause. In the milder visceroptotic cases rest in recumbency followed by postural training and the use of a suitable belt will bring about a symptomatic cure. For the majority of cases, however, Wilkie believed that operative treatment is advisable. Since the cause of the obstruction can but rarely be relieved most surgeons rely upon a short-circuiting by anastomosing the dilated duodenum to the first loop of jejunum. This operation was performed upon 127 cases in this series; in thirty-eight the operation was combined with some other procedure such as gastro-enterostomy, gastro-duodenostomy, etc. The mortality rate of the operation was between 6 and 7 per cent. Operative treatment "gave on the whole a gratifying impression." Reading between the lines one gets the feeling that the results in the really pronounced cases were excellent, but that, as would be expected, in cases where the diagnosis was not so well established the results were correspondingly doubtful. This is in accord with experience in other branches of abdominal surgery, and is a point to which insufficient attention is paid in assessing the value of various operations. It has not escaped Wilkie's notice, for he wisely remarks "that after initial successes in marked cases there is a tendency to try any new treatment in 'less pronounced cases and in a number of doubtful examples when the early promise of success is not fulfilled. . . . The surgeon thus becomes more discriminating and critical in the selection of his cases. . . ." If the article contained no more than this penetrating commentary on surgical philosophy it would be well worth most careful study; as it is, it constitutes a memorial to Wilkie's pioneer work in this particular field.

THE UNITED KINGDOM AND THE DRUG TRAFFIC

The report of H.M. Government to the League of Nations on the traffic in opium and other dangerous drugs for the year 1937 might serve as a model for some other Governments which are parties to the several conventions. It follows the now familiar lines dealing with the administration nationally and internationally, with the Conventions of 1912, 1925, and 1931, with illicit traffic, and with addiction. The assurance is repeated that "addiction to narcotic drugs is not prevalent in the United Kingdom." The known addicts number 620, 300 men and 320 women; of the total 132 were medical practitioners, five were pharmacists, two were veterinary surgeons, and one was a dentist. In 72 per cent. of the cases morphine was the drug of addiction, in 17 per cent. heroin, and in 8½ per cent.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

ACUTE INFECTIONS OF THE BREAST

BY

CHARLES DONALD, Ch.M., F.R.C.S.

The ideal management of any disease is its prevention. Acute mastitis and its possible sequel, acute mammary abscess, occurring in the period of lactation, are often preceded by conditions the suitable treatment of which may have a preventive effect. Lack of care of the nipples in the later weeks of pregnancy and during lactation, inadequate treatment of a cracked or sore nipple, and failure to prevent stasis within the breast may all contribute to the production of those infections; but it should be added that in spite of every care they may occur, sometimes in epidemic-like form in institutions.

While such infections may occur apart from lactation, the great majority arise during that period, and it is these which will be considered here. The infection is associated with a cracked or sore nipple in probably less than half the cases. In the others it is presumed usually to have passed directly along the milk ducts from the nipple. It may be that infection has been blood-borne in some instances. The *Staphylococcus aureus* is the usual organism found—far less commonly the streptococcus. While the organism may gain access through it, a cracked or sore nipple is of much greater importance in that stasis occurs, because of the mother's inability to allow suckling on account of the pain. The retained milk then provides a suitable medium for the multiplication of organisms.

Cleanliness of the nipples, the avoidance of cracks and sores, their efficient treatment if they occur, and, above all, avoidance of stasis within the breast, then, are all of prime importance in the prevention of conditions which, if rarely dangerous to the life of the mother, are productive of much pain and discomfort, are a source of keen disappointment, and may have lasting effects on the health of the child. Efficient prophylaxis requires unremitting care on the part of the mother, the nurse, and the medical attendant.

Care of the Breasts in Pregnancy and During Lactation

Obstetricians are divided in opinion on the need for active treatment of normal nipples in preparation for pregnancy. Some consider that any such treatment is useless; others advise that in the last few weeks the mother should draw them out and cleanse them with soap and water twice daily, and massage them between thumb and forefinger with a little lubricant such as lanolin. The fashion of hardening the nipples with spirit or spirituous preparations has been falling into disuse as likely to favour the occurrence of cracks. The depressed nipple must of course be drawn out, and it is well treated by the measures related; but if for nothing else than instilling in the mother's mind the need for scrupulous cleanliness which will be required in the puerperium, it seems sensible to advise washing with soap and water twice daily during the last few weeks of pregnancy.

By far the greater number of breast infections occur in the first few weeks after parturition. A drill-like routine in the matter of cleanliness is required, therefore, right

from the outset. Before feeds the mother should thoroughly cleanse her hands in soap and water, paying particular attention to the finger-nails, which should be kept short. The nipples should be washed with warm boracic solution and care taken that neither nightdress nor bedclothes touch them. After the feed they are again washed with the solution, thoroughly dried, and covered with a piece of sterile gauze or gamgee pad held in position by the breast binder.

Night and morning in these first weeks the nurse should inspect the breasts with a view to the early detection of such conditions as may favour infection, since by their adequate early treatment such may be avoided. Any residual milk after feeds should be expressed manually or by the breast pump. Such a procedure prevents blockage of ducts with consequent future stasis. Again, the appearance of a cracked or sore nipple calls for immediate attention. The application of cold cream or of glycerin and borax in conjunction with the use of a nipple shield usually suffices to heal this condition. If stronger measures are needed, the application of a little friars' balsam effects a cure in most cases. A nipple shield should be employed where there is pain on suckling, whether a lesion be visible or not. Nipple shields should preferably be of the all-rubber type: glass shields tend to constrict the erectile nipple. As has already been said, not only is there the danger of infection passing by means of the crack, but the pain on suckling usually results in inefficient emptying, and therefore even more thorough precautions must be taken to express residual milk. Should the pain be too great to allow of suckling even with a nipple shield, direct feeding from that breast should be temporarily suspended, the milk being removed by manual expression by the mother and fed to the child through a bottle. Later, direct feeding is resumed.

Occasionally the nurse's inspection will reveal hardened tender nodules in the breast unaccompanied by any great constitutional disturbance. These are probably small areas of retention, and because of the possibility of their becoming foci of infection they require treatment. The breast should be completely emptied after each feed, manually or by breast pump. Light massage, working from the base of the breasts up to the nipple, should follow, the idea being to free any blocked ducts. Between feeds the breast should be supported in a raised position by brassière or bandage.

Acute Engorgement and "Breast Flush"

Two conditions occurring in the early puerperium require mention because of the necessity for differentiating them from acute pyogenic conditions. The physiological milk engorgement of the breast which takes place about the fourth or fifth day may in some patients, particularly elderly primiparae, be so severe in symptoms and signs as to suggest acute inflammation. The breasts are tense and flushed, with pronounced veining, there is a transient rise of temperature and the patient feels "seedy." Relief is afforded by the use of a saline aperient night and morning and the use of a breast pump after the feed; in persistent cases fomentations will help.

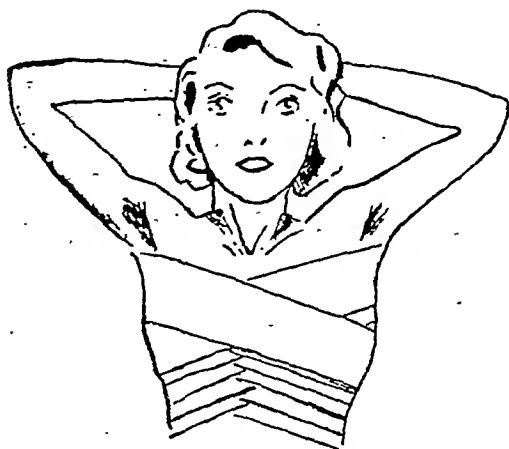
About the tenth day there may occur what is known as a "breast flush." This is a sector- or quadrant-shaped

flush of the surface of the breast accompanied by marked constitutional disturbance. The patient often expresses the idea that she is going to have influenza. Starting commonly with a rigor, the temperature reaches 103° to 104° F. The breast is hot rather than tender, and there is no underlying induration of the sector. Most important of all, little breast pain is complained of. "Breast flush" only very rarely passes on to suppuration, and usually subsides in forty-eight hours. It is regarded by some as streptococcal in nature, and by them treated with 15 grains of sulphonamide eight-hourly. By others it is regarded as a local acute engorgement. There is no need to use fomentations, and these conceivably might tend to produce suppuration.

Acute Mastitis

Human breast milk in a proportion of cases contains organisms, not infrequently the *Staphylococcus aureus*. Any condition of stagnation, therefore, will offer a chance of multiplication of these organisms. Such stagnation may occur by the blocking of ducts from inspissated milk. Stagnation, again, may be the result of the inflammation of the wall of a duct or ducts by organisms that have gained entrance by the nipple. A local engorgement is thus the forerunner of an acute mastitis, and there is no clear dividing-line between the two. Severe pain within the breast, often preceded by a shiver or rigor, is the most characteristic early symptom. The breast is tender, locally or diffusely. In the case associated with a cracked nipple a lump is usually palpable early—not always so in other cases. About twelve hours after the onset of pain a cellulitic appearance of the breast, local or diffuse, appears. The temperature is raised and keeps swinging up to about 100° F.

At this stage attempts to aid resolution constitute the line of treatment. The application of heat by antiphlogistine or linseed poultices, leaving the nipple clear, is



The tight figure-of-8 bandage.

helpful and comforting. Any attempt at massage now is contraindicated. The child may still be suckled unless pain be caused, but the breast pump should be employed to extract any more milk possible. Resolution may then be accomplished.

Where the symptoms become more severe in spite of treatment, it is likely that the condition is to pass on to abscess-formation. The application of large fomentations

should now be employed to aid the process of localization. The vexed question of whether or not to wean the child then arises. There is no doubt that infection subsides much more quickly after weaning, and therefore in severe and moderately severe cases this should be done. There are, at the other extreme, mild cases in which feeding may still be carried on from one or both breasts. If the affected one is not used, the milk is extracted by the breast pump. Each case must be considered on its merits. The mother's milk is the best for the child, and there are economic considerations against its lightly being abandoned. Weaning is satisfactorily accomplished by the use of magnesium sulphate crystals, a tablespoonful each morning in half a glass of warm water, followed by hot tea. There is no need to diminish the intake of fluids. A supporting dressing is applied to the breast. This is well accomplished by a figure-of-8 five-inch calico bandage, running over both breasts but not over the shoulders, put on while the arms are extended above the head. This bandage should be applied so tightly as to make the patient complain of slight constriction of the chest (see figure). The amount of magnesium sulphate crystals is gradually diminished. Weaning should thus be satisfactorily accomplished within a week.

Acute Mammary Abscess

Although it is usual to describe three types of acute breast abscess—the subareolar, the intramammary, and the retromammary—the intramammary is by far the commonest and most important. The retromammary form in lactation is almost invariably secondary to a deep intramammary abscess: its importance, apart from lactation, is concerned with its differential diagnosis from abscesses arising in the breast wall. The subareolar abscess is a small superficial collection unrelated to any deep process, and fluctuation and the time for a small incision are early determined.

What is the correct time for incision of an intramammary abscess? There is no doubt that many, possibly the majority, are prematurely incised. The temptation to insert a knife into any cellulitic area seems irresistible to some people. Incisions in the various forms of milk engorgement and acute mastitis are a disappointment to both patient and doctor. This practice, often associated with the making of counter-incisions for so-called dependent drainage, is utterly to be condemned. Not only is further incision likely to be needed later, but by cutting through normal breast tissue in making counter-incisions the infective process at this diffuse stage is allowed to spread further afield. A well-localized acute abscess opened fully by a single incision at a point nearest the surface, whatever its position in the breast, will discharge its contents freely without the need for counter-incision. (The latter should be reserved for the very rare cases which go on to a sort of chronic diffuse suppuration throughout the breast.)

In the determination of the optimum time for incision let it be said that there is little hurry. It is not a matter only of being sure, from the symptoms and signs, that pus is present: pus may be formed at several points in the involved area. Given time, these will coalesce and tend to form an abscess which, although loculated, is only poorly so, and which can be dealt with thoroughly through a single incision. By daily inspection of the breast it will be seen that in the average case the cellulitic appearance of the skin lessens and becomes more circumscribed, in some deep cases practically disappearing. The underlying indurated area gradually becomes more defined

and somewhat spherical in shape. Where the abscess is not situated very deeply the overlying skin begins to become a more pronounced red and to pit on pressure. This—and it may take a week or more—is the time for incision. Left a little longer the pus would burrow through the covering fascia of the breast and point on the surface as the smaller portion of a collar-stud abscess. There is no need to wait for this. Where, however, the abscess is situated deeply, apart from an actual retro-mammary abscess, the time for incision is not so obvious. The pus, however, tends to gravitate to the apex of the breast, and in time a break in the fascia underneath the corresponding segment of the areola can be felt by the tip of the finger. This is the premonitor of a collar-stud abscess, and an incision at this time will allow complete evacuation.

Incisions into the breast should be radial from the nipple over the swelling. Much has been needlessly written on the subject of planning incisions for cosmetic effect. The ordinary radial incision made at the right time leaves surprisingly little trace. The operation is easily carried out under gas or gas-and-oxygen anaesthesia. The length of the incision will vary in different cases, but it should always be ample. After the abscess has been incised, a finger is introduced and free communication established between the loculi, which, if the proper time has been allowed to elapse, are already communicating. No undue force should be employed in doing this. Stout strands passing across the cavity should not be torn, for within them are intact ducts and blood vessels; and the breasts should not be squeezed roughly. A drain is now introduced. This is best made of soft corrugated rubber dam or rubber glove material. Where the child has been weaned it is not desirable to use rubber tubes (and indeed they should never be necessary), since the figure-of-8 bandage could not be applied tightly enough. This bandage, over gauze and wool, obviates also any need for packing the wound on account of haemorrhage, which, however, should not occur to any alarming extent if the abscess has been opened at the right time. Assuming still that the child has been weaned, this tight bandage should not be moved for forty-eight hours, and subsequent dressings, except in cases with very copious drainage, should be done at the same interval. The glove drain is removed at the first dressing. Irrigation with antiseptics is unnecessary. When the child has not been weaned and the condition does not clear up readily, weaning is usually followed by rapid cure.

After constitutional symptoms have abated the patient should be kept in bed until progressive healing is taking place. Ambulatory treatment, except in the mildest of cases, is unsatisfactory and prolongs convalescence.

There are rare forms of acute pyogenic infection in which either the whole breast becomes the seat of diffuse suppuration or there is a slow-spreading cellulitis which keeps breaking down at various points. Such conditions require the full scope of hospital treatment, and need not be considered here.

O. W. H. Mitchell, T. L. Bryant, and O. D. Chapman (N.Y. *St. J. Med.*, 1938, 38, 1022) record 135 cases of gas gangrene which occurred in New York State, exclusive of New York City, in the years 1932 to 1936 inclusive. The predisposing factors were as follows: trauma ninety-one, clean amputations thirteen, pregnancy seven, gunshot wounds five, and miscellaneous nineteen. Eighty-four patients were treated with specific serum (*perfringens* antitoxin) with twenty-nine deaths, and fifty-one without serum with thirty-five deaths:

GROUP PSYCHOLOGY AND SOCIAL POLICY

[FROM A CORRESPONDENT]

The era which has seen the greatest advances in medicine has witnessed two highly significant social trends. In economic life the old cohesion of groups has broken down, leading to more individualistic behaviour and greater mobility of labour. At the same time, medicine has learnt to serve the individual by studying the needs of the group to which he belongs. Both tendencies have worked to form a somewhat impersonal attitude towards the motivations behind social life. No one will deny that man is wise to seek the highest economic status open to him or that money is an urgent incentive, but there is something more. Professor E. P. Cathcart recently referred to "malnutrition of the spirit." This is no sentimental evasion but rather a profound and neglected truth.

"There is a social motive in economic activity so that routine which first develops as a technical convenience grows into stable custom and becomes shot through with sentiment." These sentiments have been analysed by Professor T. North Whitehead of Harvard,¹ and the conclusions he reaches are of considerable importance at a time when social and economic custom the world over is literally in the melting-pot. You cannot break up social groupings in factories or industrial areas, you cannot remove skilled men into new environments, and you cannot play fast and loose with the inner disciplines of established forms of life solely for financial or economic ends without grave risk unless a vital prophylaxis is established. There must be a new form of emotional satisfaction ready to take the strain the moment the old ties are slackened or broken unless there be a continuity of emotional satisfaction over and above these. Medicine, which has with such success studied the group needs of man in regard to physical hazards, has failed, however, to take full account of these aspects of group psychology, with a result that much of the individual emotional disturbance of men and women is incompletely diagnosed.

Spiritual and Emotional Unity

Professor Whitehead has much to say on group ways and sentiments, and though it is addressed mainly to industrial administrators it would be well if doctors and statesmen paid heed to his advice. He makes it clear that a financial and an emotional incentive are necessary for healthy and effective work, and that it is no use strengthening the former at the expense of the latter unless we wish to produce serious imbalance and breakdown in social and economic life. It is no secret that democracy has given such rein to free economic development that the financial aspect of industrial life has run away with itself, and that, whether we like it or not, certain other forms of government have concentrated on giving scope for an overriding emotional outlet which has offset to a large extent the discontents that would otherwise have become manifest. Hence we find our own statesmen suddenly waking up to a realization that some form of spiritual or emotional unity is necessary in this country: something which will hold men and women on their course, despite breaks in their more immediate personal systems; something which will cause them to hope and live for a greater end than that which lies close to them. If this unity is

¹ *Occupational Psychology*. Vol. xii, No. 4, Autumn, 1937. National Institute of Industrial Psychology, Aldwych House, London, W.C.2. 5s.

to be attained by mass hysteria, war preparedness, or fear it may last for a time, but the reaction will be terrible. We have not got a deep slough of despond as formerly existed in Germany, a sense of national inferiority such as preceded Mussolini in Italy, or a vast social chaos as in post-war Russia, to act as the spur to effort or as the focus of emotion. Our problem is more complex. With a relatively high standard of living, a great degree of personal freedom both to serve and to exploit, and a sense of greatness as a people, we find also a disillusionment regarding the use we have made of our opportunities, a bewilderment at the blots on the fitness of large sections of our people, and a realization that too many people are playing with the tokens of life and too few concentrating on the supply of real satisfactions. What spirit can we create to unify our people without loss of individuality, to vitalize all our social services, to give scope and satisfaction to the young, and to guide our relations abroad in the light of biological truth?

National Health and Fitness

We shall not raise our standard of health and fitness by the methods of the recruiting sergeant or by emotional appeals, which ignore realities. The only method, and it is to be hoped our statesmen will realize it, is to stop financial exploitation, to produce goods and to supply services because they are needed and not solely for profit, to suppress waste of life and labour, and to let youth see that their welfare is the prime concern of the State, that their labour is used for the welfare of the whole, and that their basic physical and mental needs are going to be met at all costs. Remembering that rights and duties coexist, they will in return be expected to give of their best; but before the demands are made we must know why we make them and see that our policy at home and abroad is directed biologically in such a way that sectional interests shall not under any guise be allowed to divert national aims from the goal of a happy, peaceful, and productive world.

THE STATE OF THE PUBLIC HEALTH

SIR ARTHUR MacNALT'S REPORT

The nineteenth Annual Report of the Chief Medical Officer of the Ministry of Health, Sir Arthur MacNalty, for the year 1937 was published on October 31.* It is a composite document, the work of many hands, and gives an account of the main aspects of the work undertaken by the seven sections into which the Medical Department is subdivided.

Specialist Services and Health

The report opens with a review of specialist services in their relation to the public health. An account is given of the historical development of specialism in England, the present provision of specialist services by local authorities and at voluntary hospitals is reviewed, and the need for co-ordination and integration of the existing services stressed. Consideration is also given to developments which could reasonably be undertaken by local authorities, with the aid of voluntary hospitals, to provide more specialist advice and treatment in the areas for which they are responsible. Finally, it is claimed that, in spite of the present financial stringency, "much of this co-ordination, integration, and development could be effected by wise administration and good will with little expenditure of public money."

* H.M. Stationery Office, price 3s. 6d.

Vital Statistics

Last year there was a rise of 5,265 births over the number registered in 1936, representing a birth rate of 14.9 per 1,000 living—a slight improvement on the rate of 14.8 for 1936. It is 0.5 above the rate for 1933, which was the lowest recorded, though it is only 0.1 above that for 1934. The infant mortality rate is 58 per 1,000 births, as against 59 for 1936, though it is still one point higher than the exceptionally low figure of 57 reached in 1935. The deaths in 1937 were 509,574, compared with 495,764 in 1936, an increase of 13,810. The five principal killing diseases remain the same as for many years past and occur in the same order:

- (1) Diseases of the heart and circulatory system.
- (2) Cancer—malignant disease.
- (3) Bronchitis, pneumonia, and other respiratory diseases.
- (4) Diseases of the nervous system.
- (5) All forms of tuberculosis.

If, however, the diseases are rearranged to show the principal killing diseases operating during the years of working life—15 to 65—then tuberculosis takes the third place instead of the fifth and diseases of the nervous system occupy the fifth place. The chapter includes statistical reviews of the trend of mortality in childhood and in old age.

Maternity and Child Welfare

The maternal mortality rate per 1,000 total births continues to fall, being 3.13, compared with 3.65 for 1936, 3.94 for 1935, and 4.41 for 1934. Puerperal sepsis accounted for 0.94 per 1,000, leaving 2.19 for other causes. The rates from both puerperal sepsis and other puerperal causes have shared in the fall, but in each year the greater reduction has been in the rate for puerperal sepsis. The rate expressed per 1,000 live births which admits of comparison with each year from 1911, when the present classification was introduced, was 3.26 in 1937, and is the lowest rate recorded during that period of twenty-seven years. The following table extracted from the tabular maternal mortality statistics shows year by year the maternal death rates per 1,000 total births (live and still births) from the year 1928, when stillbirths first became registrable.

| Year | Puerperal Sepsis | Other Puerperal Causes | Total Puerperal Mortality | Non- puerperal Causes | Total Maternal Mortality |
|------|------------------|------------------------|---------------------------|-----------------------------|--------------------------------|
| 1928 | 1.72 | 2.52 | 4.25 | 1.15 | 5.39 |
| 1929 | 1.73 | 2.43 | 4.16 | 1.43 | 5.59 |
| 1930 | 1.84 | 2.38 | 4.22 | 1.14 | 5.36 |
| 1931 | 1.59 | 2.35 | 3.95 | 1.38 | 5.32 |
| 1932 | 1.55 | 2.49 | 4.04 | 1.11 | 5.15 |
| 1933 | 1.75 | 2.57 | 4.32 | 1.37 | 5.69 |
| 1934 | 1.95 | 2.47 | 4.41 | 1.20 | 5.61 |
| 1935 | 1.61 | 2.32 | 3.94 | 1.14 | 5.08 |
| 1936 | 1.34 | 2.31 | 3.65 | 1.06 | 4.71 |
| 1937 | 0.94 | 2.19 | 3.13 | 1.19 | 4.32 |

A summary is given of confidential reports on individual maternal deaths. The Interdepartmental Committee set up by the Minister of Health and the Home Secretary to inquire into the prevalence of abortion and prevention of deaths from this cause is still deliberating. An account is given of the progress of schemes under the Midwives Act, 1936, and of the Rules now framed by the Central Midwives Board under Section 7 (1) of this Act.

Among other matters dealt with in this chapter of the report may be mentioned investigations into puerperal sepsis, recent research on the treatment of puerperal fever by sulphanilamide, and an account of child welfare

activities. Increasing difficulties in meeting the demand for trained nurses and allegations of unsatisfactory conditions of service, etc., led the Minister of Health and the President of the Board of Education to set up an Inter-departmental Committee on the Nursing Services to investigate this important and complicated problem. The chapter ends with an account of the maternity and child welfare services in Wales.

Epidemic Diseases

On a general review there has been a decline in the incidence of encephalitis lethargica and scarlet fever, and a slight decrease in both the incidence of enteric fever and the number of deaths from the disease, though both these figures are appreciably higher than in 1935. For the comparatively small decline in enteric fever incidence and fatality the outbreaks of typhoid at Croydon and paratyphoid at Liverpool, Bootle, and the surrounding district are mainly responsible. On the other hand there has been a rise in the incidence of cerebrospinal fever, diphtheria, dysentery, acute influenzal pneumonia, acute poliomyelitis, and acute polio-encephalitis. In respect of these and some other infectious diseases further details are as follows:

Scarlet Fever and Other Streptococcal Infections.—In 1937 there were 95,737 notifications of scarlet fever with 349 deaths, as against 104,862 notifications and 495 deaths in 1936.

Enteric Fever.—During the year there were (including paratyphoid fever) 2,151 notifications with 206 deaths—a mortality of 9.6 per cent. For 1936 the corresponding figures were 2,490 with 257 deaths and for 1935 1,750 cases with 174 deaths. An account is given of the Liverpool and Croydon outbreaks.

Influenza.—The total number of influenzal deaths was 18,635, of which a large proportion occurred, as is usual, in the first quarter of the year. The heavy death roll was, however, due to excessive prevalence and not to any increase of virulence in the type of the infection. The point is made that remarkable waves of notified pneumonia have followed upon modern epidemics of influenza, and these waves have neither been accompanied nor followed by serious mortality from influenza. This phenomenon accompanied the epidemic of 1937.

Diphtheria.—Of this disease 61,339 cases were notified, with 2,963 deaths—a fatality rate of 4.8 per cent.—as compared with 57,795 cases in 1936 and a fatality rate of 5.3 per cent.

Other Epidemic Diseases.—In 1937 there were notified 4 cases of small-pox—3 variola major and 1 variola minor. There were no deaths. The notifications for the three preceding years were 12, 1, and 179 respectively. Five cases of post-vaccinal encephalitis were reported in 1937 and there were five in 1936. The number of cases of dysentery notified during 1937 was 4,167, as against 1,333 in 1936. A proportion of the increase is believed to be due to better diagnosis and more care in notification of the Sonne type, but a completely satisfactory explanation is lacking. The number of deaths from whooping-cough was 1,750, as compared with 2,090 in the preceding year. The evidence as to the value of vaccines in this disease is conflicting. A substantial rise in the incidence of poliomyelitis and polio-encephalitis occurred in 1937, but the fall in the notifications of encephalitis lethargica continues. The notifications of cerebrospinal fever have again increased a little over those for 1936, the figures being 1,140 and 994 respectively. Though the incidence has not decreased, the total number of deaths from puerperal sepsis and puerperal pyrexia shows a notable decline from 843 in 1936 to 596 in 1937. Three suspected cases of psittacosis were reported to the Ministry in 1937, but one was finally shown to be due to another cause, and the diagnosis of the other two remains in some doubt. No case of malaria acquired in England and Wales was recorded during the year.

The Insurance Medical Service

Two important innovations were made during 1937. The first was that the medical benefits of national health insurance were extended to cover all young persons over

the school-leaving age who become insurably employed, thus closing the gap which had existed between the medical supervision afforded by the School Medical Service and that available under the Insurance Medical Service, which hitherto only became effective in the case of persons of 16 years of age and upwards. The second was a great extension of the scheme of postgraduate courses for medical practitioners. Under this larger scheme, which will apply to practitioners irrespective of where they practise, it is intended that they shall be able to obtain a free course once in every five years. Within specified limits, not only will the course fee be paid, but also travelling and subsistence costs and the cost of a whole-time locum tenent where one is required.

In 1937 the number of insured persons entitled to medical benefit in England and Wales was 17,032,000 and the number of insurance practitioners was 16,800—increases of 712,000 and 50 on the previous year. The total cost of medical benefit, exclusive of cost of administration, was £10,436,000, of which £7,914,400 represented the doctors' remuneration and £2,521,600 the cost of medicines and appliances. The sum of £2,448,000 was expended from the disposable surplus of approved societies for additional treatment benefits in 1937 in England alone, of which additional benefits the most important are dental and ophthalmic benefits.

Water Supplies and Disease

This country has long enjoyed relative immunity from serious outbreaks of water-borne disease. An account of the outbreaks which have occurred since 1911 emphasizes the serious responsibility which rests upon the various authorities concerned and the need for maintaining the utmost vigilance to prevent any breakdown in the defences. Stress is laid upon the necessity for protecting water supplies derived from chalk or similarly fissured strata, especially in areas where building in the vicinity of waterworks has increased since the time when the wells were originally sunk. Advice is given respecting the measures desirable to attain and safeguard the purity of supply.

(To be concluded)

CONGRESS OF COMPARATIVE PATHOLOGY, ROME, MAY, 1939

The fourth International Congress of Comparative Pathology, which is to be held in Rome from May 15 to 20, 1939, promises to be of special interest. Professor Rondani, Member of the Royal Academy of Italy and Director of the Cancer Institute at the University of Milan, will be the President, and already about twenty rapporteurs have been chosen for the following subjects:

- (a) Ultravirus diseases.
- (b) Heredity in pathology.
- (c) The association of antigens and their function.
- (d) Regressive processes in plants.

The British rapporteurs include Professor F. A. E. Crew on heredity in pathology, and Professor J. R. Marrack on antigens. The Congress Committee will be glad to receive shorter communications on any of the above-named subjects not later than March 31, 1939. The Secretary of the Congress is Professor Zavagli, to whom such communications should be sent, addressing them to him at Consiglio Nazionale delle Ricerche, Piazzale delle Scienze, Rome.

The membership subscription is 250 lire, or in English money £2 12s. 6d. This subscription gives the right to reduced rates granted by the railways, shipping companies, and hotels; to participate in all excursions and ceremonies including the banquet, and to receive the general reports of the Congress. The ladies' subscription is 100 lire (£1 1s.). Subscriptions may be sent to the Secretary of the British National Committee, Dr. Fred Bullock, at 9, Red Lion Square, London, W.C.1, who will undertake to pass them on to the Secretary in Rome. The last date for the reception of subscriptions by the Rome Secretariat is March 31, 1939.

EXTENSION OF INCOME TAX ALLOWANCE FOR CHILDREN

It is a matter of common knowledge that though the allowance for a child normally ceases when the child attains the age of 16, it is continued while the "child" receives whole-time instruction at a recognized educational establishment. This usually covers the case of a "child" who is receiving training at a hospital, but hitherto has not applied to training as an articulated pupil or an apprentice. During one of the later stages of this year's Finance Bill, however, the Chancellor of the Exchequer added another concession, intended primarily, it would seem, to meet the case of an apprentice, but in fact having a somewhat wider scope. The concession is embodied in Section 20 of the Finance Act, 1938, and the possibility of relief under that provision might well be borne in mind in connexion with the notices of assessment to tax which are now reaching the hands of our readers.

The old relief is now extended to include "a child undergoing training by any person for any trade, profession, or vocation," but this extension is subject to two conditions. The first is that the child is required to devote the whole of his time to the training for a period of not less than two years, and the other is that during the period of training the emoluments of the child do not exceed £13 a year. There is provision for setting off the amount of the premium paid in respect of the training from the emoluments payable by the employer. The net effect is to give the child allowance in cases where the ordinary education has ceased and the child is receiving technical training under apprenticeship indentures or articles—for example, as an articulated clerk to a solicitor or accountant. As the allowance represents tax on £60—that is, £16 10s. at the present standard rate of 5s. 6d. in the £—the relief is not insubstantial. Medical practitioners who have a child coming within the extended relief should communicate with the local Inspector of Taxes requesting him to supply them with the appropriate form of claim.

RESEARCH FELLOWSHIPS IN TROPICAL MEDICINE

The Medical Research Council, on the advice of its Tropical Medical Research Committee, has awarded the following Junior Fellowships:

SCOTT GLADSTONE COWPER, B.Sc., Ph.D., M.R.C.S., L.R.C.P.

ALEXANDER JOHN HADDOW, M.B., B.Sc.

WILLIAM HEPBURN RUSSELL LUMSDEN, M.B., B.Sc.

These Fellowships are tenable for three years, during the first two of which the holders will undergo training in this country in tropical medicine and in the use of research methods.

The Premio Alvarenga do Piahy (Brazil) Prize for 1939, about 200 dollars, will be conferred by the College of Physicians of Philadelphia on July 14, 1939, upon the author either of the best memorial or of the best unpublished essay on any branch of medicine which may be deemed worthy of the prize. In selecting the winner of the award the committee will consider recent publications brought to its attention prior to May 1, 1939; also unpublished typewritten manuscripts submitted before that date. Manuscripts not in English must be accompanied by a translation in English. Communications should be addressed to the Alvarenga Prize Committee, 19, South Twenty-second Street, Philadelphia, Pennsylvania, U.S.A.

Reports of Societies

UTERINE INERTIA

Blair-Bell Memorial Lecture

Among the benefactions of which the British College of Obstetricians and Gynaecologists became possessed under the will of its first President, the late Professor Blair-Bell, was the foundation of a lectureship. The first William Blair-Bell Lecture was delivered at the College on October 28 by Mr. T. M. A. JEFFCOATE of Liverpool, who took as his subject uterine inertia.

Mr. Jeffcoate said that the subject of uterine inertia was one in which Blair-Bell himself was particularly interested. His views were at variance with those of most of the obstetricians of his period, but they were now coming to be more and more accepted, although in a modified form. Blair-Bell considered that uterine inertia, whether primary or secondary, was for the most part caused by a deficiency of pressor substances in the blood stream. Later he included oestrogenic substances with the pressor substances.

A study of the treatment of uterine inertia demanded a knowledge of the normal physiology of the uterus and of the factors which ordinarily controlled it. The oestrogenic hormones had a share in the control of its contractions, passivity, and tone. As pregnancy advanced the amount of oestrogenic hormone in the circulation increased, and during the period immediately preceding labour it became activated and free to exert its full biological effect. When the uterus was fully sensitized by the oestrogenic hormone any minor stimulus might be sufficient to cause the onset of labour. It was logical to assume that the factors bringing about expulsive contractions were of assistance also during labour itself. The nature of the uterine contraction and the progress of cervical dilatation were largely dependent upon the relation between the passages and the "passenger." Endogenous factors were a first concern in the preparation of the uterus during pregnancy and also for the onset and maintenance of the expulsive uterine contractions, and here the oestrogenic hormone was of great importance. In animals this hormone was the only substance known that would stimulate an inactive uterus.

A Clinical Investigation

In view of these considerations it was decided to carry out a clinical investigation of patients treated for inertia with oestrogenic hormones. Emotional disturbances were often concerned in the aetiology of inertia, and any method of treatment might improve uterine action solely by means of its psychological effect. It was therefore always difficult to assess the results and difficult also to ascertain in all cases the exact time of onset of labour. In this trial, however, the utmost precautions were taken, only cases of inertia of long standing and characterized by complete or almost complete cessation of pains being selected. Only eighty-eight cases suitable for treatment were encountered in a series of many hundreds of confinements, and the duration of uterine contractions and the interval between them were charted before, during, and after treatment. Various oestrogenic hormone preparations were employed, but mostly oestrone benzoate in 2 mg. doses in an oily medium. This was administered intramuscularly and, with few exceptions, at one-hour intervals, continuing for eight to ten hours unless delivery was completed before the end of that time. The results are shown in the table on the next page.

There were sixty-seven primary cases, thirty of them complicated and thirty-seven uncomplicated; twenty-one secondary cases, seven of them complicated and fourteen uncomplicated; and successful results were reported in fifty. The mechanical fault with which inertia was com-

plicated was in twenty-two of the thirty-seven cases malposition or malrotation of the head. Among the successful cases nineteen had instrumental delivery and four Caesarean section, the other twenty-seven being delivered

Results of Treatment of Uterine Inertia by Oestrogenic Hormones

| | Successful | | | Unsuccessful | | Doubtful | Percentage of Successful Cases |
|------------------------------------|------------|------|-------------|-----------------|-------------|----------|--------------------------------|
| | Very Good | Good | Fairly Good | Slight Response | No Response | | |
| Primary : | | | | | | | |
| Complicated by mechanical fault .. | 1 | 3 | 6 | 8 | 12 | — | 33.3 |
| Uncomplicated .. | 20 | 5 | 4 | 2 | 2 | 4 | 78.4 |
| Secondary : | | | | | | | |
| Complicated by mechanical fault .. | — | — | 2 | — | 5 | — | 28.5 |
| Uncomplicated .. | 7 | 1 | 1 | — | 5 | — | 64.3 |
| Total | 28 | 9 | 13 | 10 | 24 | 4 | 56.8 |

by natural forces. Of the cases in which treatment was unsuccessful, eighteen had instrumental delivery and five Caesarean section.

The cases required further analysis from the point of view of the aetiology of the inertia. There was no theoretical or practical reason for regarding primary and secondary inertia as separate clinical entities, and it was often impossible in practice to say whether the inertia was primary or secondary. As alternative terms the first stage and second stage of labour were preferable. Of the eighty-eight cases, seventy-four showed inertia in the first stage, and forty-two successful results were achieved; fourteen showed inertia in the second stage, with eight successful results.

The response to oestrogenic treatment bore no relation to the time of onset of inertia, nor to the stage of labour at which the treatment was started. This offered further support to the belief that inertia was a single clinical entity, though it might make its appearance at different stages in parturition. It seemed permissible to state that the treatment was free from risk to either mother or child. In some of the later cases tests were made using an aqueous rather than an oily medium, but the results showed very little difference.

Prophylactic Treatment

Prophylactic treatment had been tried in another series of fifty-one patients in all of whom some abnormality was present or there was a definite reason for supposing that labour would be difficult. In these cases 2 mg. of the hormone substance was injected at intervals of from one to twelve hours for periods of from one to twenty-one days before delivery. The best results followed administration at eight- or twelve-hourly intervals for four days or longer. Of these fifty-one patients only three developed inertia in labour. The average duration of the labour in the twenty-one primigravidae was 15.6 hours, and in the multiparae 9.7 hours, leaving out of account six cases in which the duration of labour was unknown. There were four instrumental deliveries in this series and two Caesarean sections.

One deduction from this work was that it was the middle-aged woman with a large family, however much burdened by domestic cares, who had usually the uncomplicated and easy labour, and the primigravidae who were particularly the subjects of inertia, especially those over the age of 30. Again, it was the athletic woman rather than the effeminate who was likely to have disordered uterine action.

Twin Pregnancies

He had also investigated 100 cases of twin pregnancy—forty-four primigravidae and fifty-six multiparae. The average duration of labour was well within normal limits, as the following table showed:

Average Duration of Labour

| | First Stage Hours | Second Stage Hours | Total Duration Hours |
|------------------|-------------------|--------------------|----------------------|
| Primigravidae .. | 12.3 | 2.5 | 15.1 |
| Multiparae | 7.8 | 1.1 | 9.1 |

Five of the original eighty-eight cases were also of multiple pregnancy. Thus the conception that overdistension of the uterus did not directly produce inertia was borne out.

It would be wrong, Mr. Jeffcoate concluded, to omit reference to emotional factors, of which fear was the most important. Emotional causes were as far as possible excluded from the series under discussion, but he did not wish to diminish the importance of administering morphine and other sedatives. Inertia was a wide subject, and it had been necessary to confine the lecture to a few of its aspects. He was of opinion that oestrogenic hormones should be used where the uterine inertia was not improved by sedatives and anti-spasmodics. They served to regulate and co-ordinate the uterine contractions. The endocrinological viewpoint of uterine inertia was intriguing and one in which investigation had only just started, but it was clearly not the only important aspect of the subject, the mechanical relationship being also of considerable account for any patient exhibiting feeble or irregular uterine contractions in labour.

BENZEDRINE: USES AND ABUSES

A combined meeting of the Sections of Medicine and of Therapeutics and Pharmacology of the Royal Society of Medicine was held on October 25, Dr. H. LETHBRIDGE presiding, for a discussion on benzedrine, its uses and abuses. Dr. Tidy said that benzedrine, a synthetic drug allied chemically to ephedrine, illustrated the new tendency for pharmacological discoveries to have more in them than was originally claimed. In the old days a drug was put upon the market with a thousand indications in the hope that some more or less accurate observer would report success in one of them; the process with some recent introductions had been the reverse.

Summary of Recent Experience

Dr. IVOR J. DAVIES (Cardiff Royal Infirmary) opened the discussion by referring to his review of the toxic effects of benzedrine which appeared in the *British Medical Journal* (1937, 2, 615). In that review he described the case of a student who administered benzedrine to himself (190 mg. in nineteen days) with the idea of equipping himself better for his examination. Severe aplastic anaemia resulted, together with failure in the examination. The student had now recovered and done well. He had informed him that the drug was a good deal used by students in these circumstances.

Dr. Davies went on to say that since the publication of that review he had had no further personal experiences, and could only comment on the physical effects observed recently by others. He referred to the work of Gwynne and Yater, who had studied the immediate effects of benzedrine sulphate in therapeutic doses on a large number of students, and who concluded that the use of the drug might be permitted or even prescribed for normal persons suffering from lack of self-confidence or mild depression who deemed it advisable to overcome these drawbacks temporarily, but they emphasized that such use of the drug should only be an emergency measure. The same workers considered that the drug was not habit-forming. Hill of the R.M.S. *Aquitania* had studied 100 cases of seasickness treated with benzedrine alone or combined with other remedies, and concluded that the drug had great possibilities of usefulness in certain cases of seasickness in which there were signs of excessive vague activity.

Boyd and others had studied the use of the drug in the relief of the common cold. It was found to relieve the symptoms resulting from nasal turgescence, but not to shorten the cold's duration. Davidoff and Reifstein, in studying some of the physiological effects of benzedrine sulphate, found them to be "variable, uncertain, unpredictable, and at times paradoxical." Detrick and others had studied the stimulant effect of the drug on the central nervous system, and Rosenberg had described its effects on the gastro-intestinal tract and its limitations in the treatment of the spastic colon. Of eighteen cases of spastic colon, three improved, one showed improvement followed by relapse, eleven were not improved, and three were made worse.

From January 1, 1939, the drug would be placed in the First Schedule of the Poisons Act. With all due respect to the Home Office and its advisers, he thought it should have been placed in the Fourth Schedule. Under the First Schedule, it was true, it could be obtained only by a doctor's prescription, but it could be repeated on the same prescription, whereas under the Fourth Schedule it could only be dispensed once.

Psychological Effects of Benzedrine

Dr. E. GUTMANN (Maudsley Hospital) also referred and added to the paper he, with W. Sargent, had contributed to the *British Medical Journal* (1937, 1, 1013). With regard to the effect of benzedrine on normal individuals, the difficulty was for the psychiatric inquirer to find such normals among the people with whom he commonly had to do. One psychological effect following the use of the drug with normal people was an alteration in the sense of time. The subjects said that time passed more quickly; the same time intervals when repeated seemed to be shorter. There was no evidence of sexual excitation. The effect of a single dose usually passed off within a day. The effects observed from continued administration of small doses, were of the same kind, but of gradually weakened intensity. Myerson and his co-workers in the United States had reported no improvement under benzedrine in the cases in their psychiatric clinic, and said that fifteen out of eighty cases showed temporary accentuation of the psychosis. It was now generally agreed that benzedrine did not improve schizophrenia psychosis, also that severe depression and depressive stupors did not benefit, small doses having little or no effect, while large doses produced anxiety or untoward physical symptoms. The drug seemed to produce its best effects at the end of a depressive attack. He agreed with Myerson that the psychological effects with benzedrine were best produced by small doses. In most cases 2.5 mg., given two or three times during the morning, would yield better results than one large dose. The difficult cases were those of psychasthenia, seen in the type of person easily fatigued or exhausted. Addiction was rare. He had come across only one case of possible addiction, and he doubted whether that could properly be so described. It was the case of a woman who had taken 10 to 25 mg. daily for several months. At first she was so stimulated that her well-doing at work aroused the jealousy of her workmates, but toxic effects presently appeared. On coming to Maudsley she gave up the drug without much trouble, did not describe any deprivation symptoms, and never made an attempt to get a fresh supply.

Pharmacological Aspects

Dr. J. W. TREVAN said that benzedrine might be regarded as a derivative of the ephedrine series, nor-ephedrine differing from benzedrine in the replacement of a carbon atom in the side-chain of benzedrine by a hydroxyl group. In the form in clinical use it was a racemic mixture of *d*- and *l*-phenylisopropylamine, the end carbon atom being asymmetrically combined. It was first introduced for its vasoconstricting effect on the nasal mucosa. In animals it produced a rise in blood pressure

which was about the same as that produced by phenylethylamine, and, as with ephedrine, repetition of the dose produced a smaller effect. Doses of 50 mg. by mouth were followed by a rise of arterial blood pressure, which might last for some hours. It caused contraction of smooth muscle. Its action was not sympathomimetic, as its activity was not reversed by ergotoxin. It was extremely active in awakening animals from anaesthetic sleep; at least as active as coramine but less active than cardiazol or picrotoxin, but, unlike these, it did not at any dose produce clonic convulsions. It produced, however, a great increase in voluntary motor activity in mice. The experimental mice on recovering from the anaesthetic sleep showed perfectly co-ordinated motor activity, but carried out at something like twice the normal rate. When resolved the *d*-form was considerably more active than the *l*-form. Substitution of one hydrogen atom in the amino group by a methyl group increased the anaesthetic action in mice; substitution of both hydrogen atoms in the amino group destroyed this action. The determination of the anaesthetic activity of a drug as judged by the usual methods was very crude, but it seemed clear that the benzedrine group and the picrotoxin group acted by influencing different parts of the central nervous system, and it was possible that the awakening was brought about by the mediation of nervous stimuli originating for the benzedrine group in the cerebrum and for the picrotoxin group somewhere in the neighbourhood of the red nucleus. Where the stimuli originated for the ephedrine he could not say. Dr. RICHTER added a few words on the pharmacological properties of these amines of the benzedrine and ephedrine series. Instead of acid appearing in the urine the amine appeared to come out unchanged. Ephedrine was excreted a good deal faster than its fellow.

Addiction

Dr. G. RUDOLF said that he had used benzedrine in some fifty cases of mild depression, and it struck him quite forcibly that the patients who benefited most were those who were depressed in the early part of the day. If the patient were asked, "Are you depressed in the morning or evening?"—carefully accentuating the words "or evening"—and it was found that the depression was usually in the morning, benzedrine in almost every case brought about improvement. But it was necessary to start with small doses. The experience of one who had never previously taken the drug was that with 2.5 mg. he felt improved, but with 5 mg. he felt "drunk," though actually he walked straight. Dr. Rudolf knew one doctor who used the inhaler for a cold, applying it about once an hour, and remained awake all night reading Shakespeare's dramas, which next morning he was able to remember with surprising accuracy.

Dr. A. P. CAWADIAS mentioned the case of a young man who for years had felt rather tired and sleepy. He consulted three years ago a distinguished neurologist, who told him that his sleepiness was due to Raynaud's disease and put him on benzedrine. During the last two years he had taken 40 mg. of benzedrine every day, and showed very distinct symptoms of mental depression. But he declared that with 20 mg. he could not get on, whereas with 40 mg. he was able to do so. Was not that a form of addiction?

Dr. E. R. CULLINAN mentioned the case of a woman aged 60 with considerable coronary disease who had been taking 10 mg. twice a day for ten months. The longer she took it the greater was her depression when she left off taking it, but she did not require a larger dose to produce the effect at the end than she had done at the beginning. He also mentioned a child of 3½ years who had chewed a benzedrine inhaler left in the nursery and afterwards ebattered incessantly for eighteen hours.

Dr. IVOR DAVIES, in replying on the discussion, said that he believed, though the substance had a wide use in psychiatric medicine, the only accredited indication for it

in general medicine was Parkinsonism. The dose in Parkinsonism was raised to as much as 20 mg., and it might be combined with the ordinary remedies.

CLEFT-LIP AND CLEFT-PALATE

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on October 14, with Mr. A. A. McCONNELL in the chair, the president, Mr. WILLIAM DOOLIN, delivered an address on congenital clefts of the lip and palate.

Mr. Doolin said the usual incidence of congenital defects of this kind would appear to be about one in rather less than 1,000 births; at this rate some fifty to sixty cases a year should be met with in the hospitals of Ireland. His own experience consisted of 196 cases seen in six years, 122 of which were clefts of the lip. The cases were grouped according to Veau's classification: simple unilateral (cleft of lip only without cleft of alveolus or palate), forty cases; total unilateral (cleft of lip, alveolus, and palate), sixty-eight cases; simple bilateral, two cases; total bilateral, twelve cases. In the case of the simple cleft-lip, the operator's task was to provide an effective closure of the interrupted oral sphincter within its muco-cutaneous envelope. Elaborate cosmetic efforts were not to be encouraged. In the total unilateral cleft the surgeon had a triple objective—closure of the nasal floor, closure of the lip defect, and reconstruction of the nostril. The bilateral cleft lip was best treated by a two-stage operation, each side being closed separately with an interval of three or four months between the two stages: the remaining cleft in the soft palate was best closed in the second half of the second year. There was a definite mortality attached to these operative procedures: in 107 operations for closure of unilateral clefts five deaths had occurred—two from post-operative hyperpyrexia, two from bronchopneumonia, and one from sepsis; in fifteen closures of bilateral clefts there had been one death, also from hyperpyrexia. This post-operative hyperpyrexia haunted all operative procedures on infants: its aetiology was unknown and its treatment purely empirical.

Local News

ENGLAND AND WALES

Obstetricians and Gynaecologists: College Dinner in London

The eighth dinner of the British College of Obstetricians and Gynaecologists was held at Claridge's on October 28, with the President, Sir Ewen Maclean, in the chair. Beside him were the President of the Royal College of Physicians of London (Dr. Robert Hutchison), the President of the Royal College of Surgeons of England (Mr. Hugh Lett), the President of the British Medical Association (Dr. Colin Lindsay), and the Secretary of the Ministry of Health (Sir George Chrystal). The guests, who included many ladies, were received by Sir Ewen Maclean and Miss Maclean. After the loyal toast had been honoured the health of "The College" was proposed by Dr. Robert Hutchison, who said that the early disapproval of the Royal College of Physicians at the birth of the College of Obstetricians and Gynaecologists had not perhaps been a disadvantage. The new College had flourished and justified its existence as a focus of information on all public matters relating to the twin subjects with which it was concerned. In his reply Sir Ewen Maclean spoke of the bonds of common interest between the Colleges,

old and new, and recalled how Dr. Herbert Spencer in his Harveian Oration had brought out Harvey's contribution to obstetrics. He himself was now at the end of three years' presidency, and his gratitude to the officials was as great as the gratitude he felt when quitting the presidency of the British Medical Association. Reviewing the present position of the College he noted that it now numbered 800 Fellows, Members, and diplomates, 231 of these living over-seas. In its efforts to raise the standard of midwifery practice throughout the British Empire it was consulted by great public bodies such as the Ministry of Health and the L.C.C. Sir Ewen Maclean ended with a tribute to the late Sir Robert Johnstone, a reference to Mr. Jeffcoate's Blair-Bell memorial lecture, of which a report appears this week at page 959, and a welcome to his successor in the presidential chair, Professor Fletcher Shaw, and to Professor Shaw's successor as honorary secretary, Mr. G. F. Gibberd. The toast of "The Guests" was proposed in a felicitous speech (which he called a "joint indictment") by Professor Daniel Douglass. Mr. Hugh Lett as first responder, in the absence of Lord Horder, made sympathetic reference to the history of the British College of Obstetricians and its fine ideal for improvement of the standard of midwifery. The Cinderella of ten years ago had now grown up; she had a home of her own and a lovely gown. The toast was also responded to by Mr. Norman Birkett, K.C., who, in an amusing speech, said that nowadays it was a rare experience for him to follow a "leader." Ending on a serious note Mr. Birkett declared that the co-operation of medicine and the law was of the greatest importance to the welfare of the State.

Congested Populations:

On October 27 Dr. Norman Macfadyen delivered a Chadwick Public Lecture on "The Evils of Congestion and the Way Out." Dr. Macfadyen showed how great cities provided an unsuitable environment for families, and urged the creation of new towns as a means of opening up the big cities and thus providing better environments for the citizens of the too crowded townships. The slums were not merely collections of decrepit insanitary houses; they constituted places where the inefficient members of the population herded together, and poverty, ill-health, crime, vice, drunkenness, discontent, and mental feebleness congregated, producing a stifling atmosphere which tended to standardize undesirably the physical and mental lives of the young. Slums were to be found in every congested area, and rats, flies, bugs, and other unwholesome organisms flourished in them; they produced bad citizens as well as ill-health. Members of the "social problem" group in these areas tended to intermarry and to cluster together. This group cost the nation an enormous annual expenditure on the treatment of disease, both physical and mental, in respect of the police and of courts of law, and in the relief of misery. Its members were not restricted to congested areas, but where the standard of life was higher and the individual citizen had an opportunity of wholesome life there was a much greater chance of dealing with them satisfactorily. It was well known that the dispersal of such groups to better environments, where they could have their own houses and gardens and fresh air to breathe, produced an immediately favourable response in at least 80 per cent. of them. Dr. Macfadyen had found from his own experience that persons rescued from some of the most crowded boroughs in London and brought to Letchworth had changed into good citizens, the children had become healthy and more responsive and alert, influencing their own parents most favourably. Environment had both physical and intellectual aspects, including the nature of the domicile and its surroundings, the parents and the social life around them. The clearance of one small congested area in consequence of tuberculosis had been calculated to amount to a saving of £32,000 in three years. Dr. Macfadyen condemned blocks of flats because they increased the density of the

population on a given area, making the actual congestion worse. Even though, by a great expenditure of money on land, building, and public health services, the conditions of flat-dwellers might be ameliorated, they would not promote health. Flats were unsuitable for healthy family life; they seemed to have been designed for the storage of "hands" for industrial purposes. The congestion in great cities should also be blamed for most of the modern neurosis, which in its turn was responsible for one-third of the disease treated under national insurance. These neurotic conditions caused untold misery, suffering, social disability, and even physical diseases. In respect of the new towns advocated by Dr. Macfadyen, he added that each should be surrounded by an open belt of country, sufficient to demarcate it from other towns and to limit its own size. This open belt should provide the new town with playing fields, open spaces, and agricultural and dairy produce. If possible, the new town and its rural belt should be under a common ownership of the land. The town should be big enough to provide all the functions of an active social life, but it need not try to compete with the amenities of a great city.

Surgical Instrument Makers at Dinner

Surgical instrument makers and their guests met at dinner on October 28 under the chairmanship of Mr. Guy Radcliffe Drew. The health of the Surgical Instrument Manufacturers Association was proposed, in a speech full of historical lore, by Professor R. E. Kelly of Liverpool. He congratulated those engaged in this craft on the guild spirit which they were instilling into their younger members. As the son and brother of cutlers he himself from his earliest years was interested in the shaping of steel tools. Although an enormous number of surgical instruments had been invented, very many of them had enjoyed only a brief period of use, but the simplest instruments used to-day were extraordinarily old. Surgical operations were of great antiquity, none of them could have been done without tools, and the craft of the surgical instrument maker was probably the oldest in existence. At the Royal College of Surgeons there were skulls from Peru dating from the Stone Age showing holes laboriously made. The purpose of the drilling, no doubt, was not for the removal of cerebral tumour, but for the letting out of evil spirits or the letting in of good; the fact remained, however, that craniotomy was done in that early period. In the time of Hippocrates trephines, knives, bone drills, probes, needles, forceps, and bone elevators, among other instruments, were in existence. In the Naples museum, among the instruments which had been found in the doctors' houses of ancient Italy, were rectal speculae. Nor was bronze the only metal used in those days. Years before Hippocrates iron, and he believed steel, were made. A very strong and pure ore was used, and iron was produced by means of charcoal. Many of the "new" inventions, added Professor Kelly, were a good deal older than was supposed. Mr. Radcliffe Drew, in responding to the toast, mentioned that one of the problems of the surgical instrument maker was that he worked for the most part with alloys. It was true that he also worked with gold and a number of other pure metals, but not to any great extent. The properties of alloys were not fixed by their composition. If chromium were mixed with ferrite or carbon the end-result did not depend purely on the percentage of one material or the other, but very much on the temperature at which cooling took place. It was on account of the varying qualities possessed by alloys that the surgical instrument industry had become a rather difficult but also a fascinating business. The first problem was to train the workpeople to handle the material. At least five years was spent by the apprentice in learning to shape materials as required. The technical staffs in their workshops had not only to understand the laws of the material with which they were dealing, but also the exact conditions—environment, pressures, and so forth—under which the material was going to be used. It was on that account that contact between surgical instrument makers

and surgeons was necessary. The health of the guests and of the ladies was proposed by Mr. T. M. Proudfoot, and responses were made by Mr. H. S. Souttar and Mr. St. John Buxton. The former mentioned some amusing answers given by students at examinations for diplomas of the Royal College of Surgeons; some of them had a confused idea as to the uses of surgical instruments.

Silver Jubilee of Ruthin Castle

An interesting landmark in the history of clinics, nursing homes, and private hospitals in this country is reached with the celebration this autumn of the silver jubilee of Ruthin Castle in North Wales, the institution of which during the whole of the twenty-five years Sir Edmund I. Spriggs has been senior physician. Actually this clinic has been located at Ruthin only during the last fifteen years. It began its operations at Duff House, Banff, in 1913, when, it is claimed, it was the first institution of its kind in Great Britain. The hospital for private patients with nursing staff was already known, but Duff House had a whole-time salaried medical staff, with what would now be called registered auxiliaries for physical treatment, dietetics, radiography, and so forth, all under one roof. The original suggestion was for a sanatorium for gastric diseases, but the range of work was at once extended to include the scientific investigation and treatment of all diseases except infectious diseases, active pulmonary tuberculosis, and mental and severe nervous disorders. The work was carried on in Scotland for ten years, and then, in response to a desire to be nearer the centres of population, the move was made to Ruthin Castle, which was purchased, together with some five hundred acres of land. Ruthin Castle, overlooking the broad valley of the Clwyd, was one of the great fortresses erected by the first Edward as military bases in Wales. The ruins of the Plantagenet castle are still to be seen, with moat and dungeon complete, but they have been surrounded by another group of buildings of various ages. When the property came into the hands of those responsible for conducting the clinic the older buildings were made only the nucleus of the new hospital, and two new wings containing forty-six rooms for patients, as well as rooms for treatment and administration, were added. During the quarter of a century there have been 12,000 admissions. A special matter of pride to the highly qualified staff which has worked under Sir Edmund Spriggs's direction is the amount of research on various aspects of internal medicine which has been possible under these conditions for the study and treatment of disease; this is illustrated in about one hundred published papers.

Extension at Manor House Orthopaedic Hospital

A new wing, comprising three wards with sixty beds, was opened by Queen Mary at the Manor House Hospital, Golders Green, in North-West London, on October 24. Manor House is an orthopaedic hospital, owned and controlled by a quarter of a million industrial workers, each of whom is entitled to its services on a subscription of one penny a week. Mr. A. V. Alexander, formerly First Lord of the Admiralty, who is the president of the hospital, stated that the opening of the new wing coincided with the coming-of-age of the institution, which was started in 1917 to assist in the care of wounded soldiers. The present membership included shipwrights, engineers, printers, transport workers, and men engaged in every form of industry in all parts of the kingdom, but some of the most valued members of the hospital were employers of labour who had given valuable time and thought as well as money for the hospital's welfare. Mr. Alexander also said that, including the clinic for rheumatic patients and the special departments for dental and ophthalmic treatment, the hospital had raised since 1920 for maintenance purposes over £650,000, and nearly 100,000 patients had been treated, 19,000 of them in the wards. In order to complete the main hospital scheme for men it would be necessary to raise nearly £200,000, and it was also desired to extend the services to women. A house near by had

been already purchased for this purpose, and about £20,000 was in hand towards the erection of the first block of women's wards to cost not less than £40,000. Qucen Mary declared the hospital open, and after making a tour of the new wing and of an occupied ward in the older part of the hospital, took tea in the quarters of Sir Ambrose Woodall, who has been resident surgeon at the hospital almost since its foundation.

SCOTLAND

Wilkie Research Surgical Laboratory

At the half-yearly meeting on September 28 of the General Council of Edinburgh University, Principal Sir Thomas Holland, who presided, said that as a memorial to the late Sir David Wilkie it had been decided to call the Department of Surgical Research, which was opened last July by the Minister of Health, the Wilkie Research Surgical Laboratory. At that time it had been intimated that the extension of the laboratory had been made possible by the help of a donation from an anonymous friend. He might now announce that the donor had been Sir David Wilkie himself. Parliamentary grants to Scottish universities for the present year, it was stated at the same meeting, amounted to £378,000, representing 41.8 per cent. of the total income, while the grants from local authorities amounted to 4.2 per cent.

Hospital Co-ordination in Edinburgh

Professor L. S. P. Davidson, in his inaugural address on taking up the duties of the chair of medicine at Edinburgh University, advocated a co-ordinated hospital policy. He pointed out that large numbers of beds in the municipal general hospitals were empty, while the Royal Infirmary had a waiting list of 3,000. One reason was that patients entering a municipal hospital had to pay part or all of the cost of maintenance if they were able to do so, while patients entering the Royal Infirmary paid nothing. He saw no objection to the principle that those who could afford to pay should do so, but the method adopted by the local authority of applying this principle was wrong. A hospital policy for the south-east of Scotland should be planned on a regional basis. This, however, presented many difficulties, and meanwhile it might be advisable to concentrate on the problem of a local hospital policy for Edinburgh with its half-million inhabitants. There were some twenty separate hospital governing bodies, but the problem might be simplified if the two main groups of hospitals, voluntary and municipal, were considered. The standard of teaching remained as high as it had ever been, but there was an excess of students undergoing clinical instruction. The local authorities might lighten the load of the voluntary hospitals; every vacant bed in the municipal hospitals might be made available for the care of the sick of Edinburgh who required institutional treatment. Much had been done to improve the municipal hospitals during the past six years, and he believed that the principle of patients contributing to their maintenance should be applied in the voluntary hospitals also. Admission to the municipal hospitals should be under the control of the medical officer of health, not the public assistance department, and the question of recovering the cost of maintenance should be investigated by professional almoners. It would appear, Professor Davidson continued, that a proper solution would be found in the formation of a contributory scheme open to all persons in Edinburgh with an income below a certain level. Subscribers to this would be admitted free to any hospital in the city, while non-subscribers would be questioned by the almoners to decide their ability to contribute to the cost of maintenance. Contributory schemes and organized almoner services had literally saved the voluntary hospitals in England, and the time was coming when the great Scottish institutions would have to follow suit.

Correspondence

Treatment of Poliomyelitis

SIR,—In your leading article on the above subject (October 22, p. 841) you stress as an important result of the investigation into Miss Kenny's work, although having no direct connexion with it, "the great value of collecting cases of poliomyelitis at an early stage of the disease into the wards of a hospital in which they can be subjected to intensive treatment by a team in which medical, surgical, nursing, and physiotherapeutic services are included." Anyone who visits orthopaedic clinics run in connexion with school medical and infant welfare services will hope that this comment may gain the fullest attention in the profession.

In spite of all the light that has been focused on this disease in recent years certain unfortunate tendencies are still apparent. In many hospitals, and not a few teaching hospitals, anterior poliomyelitis in its early stages is regarded as a "medical" condition, with the result that the patient is admitted to a medical ward under the care of persons unaccustomed to orthopaedic problems during the all-important early weeks of the disease. The heavy and largely inefficient plaster splint in which deformity has been allowed to occur (representing, not infrequently, a house-physician's first attempt at plaster work) is still no rarity.

Cases of anterior poliomyelitis—particularly the milder cases—are frequently discharged from hospital—perhaps with instructions to attend a massage department twice a week—very early in the convalescent stage after little or no hospital treatment and with no adequate arrangements for subsequent supervision. Many of these cases ultimately find their way to orthopaedic clinics or outpatient orthopaedic departments, but only too often after valuable weeks or months have been lost, and not infrequently after the patients have developed contractures that should never have been allowed to occur. If only it could become a universal practice for all cases of infantile paralysis to be referred to orthopaedic clinics or outpatient departments having facilities for prolonged hospital treatment for patients requiring it and an efficient follow-up system, not a little of the disabilities which are so often seen as a result of this disease could be prevented. —I am, etc.,

Lord Mayor Treloar Hospital,
Alton, Oct. 26.

H. H. LANGSTON.

Civil Medical Organization in War

SIR,—The views expressed so clearly by Sir Frederick Menzies on civil medical organization in war (*Journal*, October 22, p. 860) must carry weight seeing that he has been a member of five committees which have come and gone and left little mark behind them. He points out the danger of collecting large numbers of valuable medical personnel under one roof, and although the risk is the same for all, the loss in the case of the medical personnel is much greater. This argument, however, applies anywhere where technical knowledge is gathered together, either in the staffs of armics or the organizing centres of large manufactories, and is one of the risks to be faced in war time. This risk, however, should be cut down to a minimum. The senior students are to be exempted from conscription so as to enable them to help in the hospital where their knowledge is most useful.

and pursue their clinical studies practically, becoming medical officers eventually.

The junior student's position was doubtful; but I hear that it is practically decided to exempt him also and allow him to pursue his studies, replace the senior student in the hospitals, and eventually, if war lasts long enough, to become a medical officer. But it will be useless to keep him in London, where he would certainly do no work even if any teaching was available. One hospital proposed using junior students as stretcher-bearers, but far less valuable material can be used, and exemption should mean that they seriously pursued their studies. A constantly bombed town is no place for them. They should be transferred at once to medical schools at a distance: Bristol, Cardiff, Liverpool, and the great medical centres of the North. Arrangements to do this should be made now. Perhaps each medical centre might agree to take all the students of one hospital, so that they could keep together and the deans could keep in touch with them. Whatever steps are deemed necessary should be taken *now*, and it is for the deans to move; no Government official is going to make suggestions to them.

What Sir Frederick Menzies states about ambulances and first-aid posts is equally true. The ambulance service was quite inadequate, and no stretchers were available. The ambulance service can be supplemented to start with by private cars, which can deal with sitting cases, the few ambulances being reserved for the lying-down cases. Most hospitals had collected the names of those willing to help with cars, and any hospitals which have not done so should do so at once. Many drivers were ladies. To be really prepared each driver should be asked to drive once or twice at night with lights dimmed and wearing a gas mask. They will not find this easy.

In organizing first-aid posts these should not be regarded as something apart from the hospital. They are all extremities of the hospital centre, and the most suitable place to have the largest and most important first-aid post is the hospital itself, to which the inhabitants are already in the habit of going for medical aid. What the hospital should avoid is the admission to its doors and corridors of the slightly wounded walking case who is brought in by a friend or neighbour, who must, of course, come in with him. They do more to get in the way and upset organization than anything I know. A school or large garage close to the hospital and joined by a covered way, even if it is only canvas, is the ideal, and the whole casualty department of the hospital should if possible be transferred to it, and the hospital buildings reserved for the more severely wounded cases. This is near enough to allow cases requiring further operation to be transferred to the hospital without an ambulance. So many organizations are making the mistake of setting up these centres just a little way from the hospital, under the impression they are helping. They actually double the work, as the hospital must have a casualty department. It can be largely run by the neighbouring practitioners, the St. John Ambulance, and Red Cross; the hospital staff attending to the more serious cases.—I am, etc.,

London, W.1, Oct. 31. DUNCAN C. L. FITZWILLIAMS.

Air Raid Precautions

STR.—It would appear to me to be extremely unhealthy and wasteful if the plans for our safety in war time are completely divorced from the necessities of peace. In rehousing our people where tenements are necessary in large cities it can surely be arranged that the basement is half underground and therefore easily sand-bagged;

it could be used during the busy time of the day as a garage for cars and after school hours and during the week-end as a playground for children on wet days, with a warden in charge of the basement to issue to our somewhat unruly children bats and balls according to the games which are locally encouraged in such spaces. A small space under a large tenement could be so constructed that it could easily be converted into a first-aid post or decontamination centre in war time. It has been considered wise to issue gas masks in certain areas; we have yet to hear the price we must pay for the renewal of this life-saving apparatus.

In peace time we have an enormous number of road smashers, and injured people remain for quite a long time on the roadside until the ambulance arrives without first-aid dressings. Could not every motor-car be compelled to carry two "field" and two "shell" dressings as part of their essential equipment. These "field" and "shell" dressings should be so stitched that they can be opened out to cover twice the area, and should be identical with those issued to the troops in order that everyone is familiar with the size and use. The storage of such dressings would then become part and parcel of civil life, easily turned to advantage during war time, the present dressings in first-aid boxes in factories being useless for road accidents or air raid casualties.

We are inclined to scoff at the Government departments, but if an intelligent observer were posted at the entrance of a large hospital for one week he would be astonished at the various shapes and sizes of stretchers which bring in the sick from the ambulances supplied by the police, contributory schemes, corporations, and private firms. How can waste be avoided if in peace time stretchers do not conform to a standard pattern, duplicates of which should be stored in racks in the main casualty departments, so avoiding unnecessary delay while police, etc., wait for stretchers to be cleared, and again in war time affording a tremendous stock of available stretchers? Indeed, every hospital should be required to store a minimum of eight stretchers for every hundred beds. The training also of the various enthusiastic first-aid workers should be more closely linked with the hospitals. Most of these hospitals have rooms, models, etc., for the training of their nurses, which could be used and be better equipped by massing this type of social service, whether it be given by ambulance teams of dock workers, miners, V.A.D.s, A.R.P. personnel, Boy Scouts or Girl Guides—all valuable auxiliaries but requiring better co-ordination and a dash of experience which the hospitals alone can supply.—I am, etc.,

R. KENNON.

Liverpool, Oct. 24.

STR.—May an outsider be allowed to comment upon the recent correspondence in your columns regarding the medical profession and air raid precautions. That the bomber will get through in large numbers, that congested populations are military objectives of the first order, and that the outbreak of war would mean, from the first, many thousands of casualties a day, these are facts admitted even by the most complacent of our politicians. Hospitals and hastily improvised accommodation crowded beyond capacity within a week; doctors and nurses working, themselves unprotected from the ceaseless relays of bombers, on intricate surgical cases—these are but the milder scenes we must anticipate. The Government, which has as yet evolved no proper plans for clearing stations, emergency accommodation, or structural protection for the great hospitals, is laying a most unfair burden upon the medical profession.

In my own comfortable profession, whose members have little responsibility beyond themselves, some apathy and complacency seems inevitable. But doctors should be the first to put forward a demand for a vigorous and extensive policy of protection. More readily than politicians or civil servants, who talk so airily of "half a million casualties in the first week," doctors realize that prevention is better and easier than cure. Air raid shelters are the solution. As a professional historian and a realist I pin my faith, like Hitler, to steel and concrete and paid labour, rather than to our present fantastic blend of gas-drill and voluntary principles. If members of the medical profession joined my college history classes and noticed how every British Government to date has fought its wars in the light of the *last* war, they would be doubly disturbed to see the old story now repeating itself.

I envisage a strict non-party propaganda organization for air raid shelters. It would principally consist of professional men, who possess the grasp of principles, the technical knowledge, the foresight, the freedom from political and commercial ties in sufficient measure to form the spearhead of the attack. If any members of your profession are interested in the idea I should be glad to hear from them.—I am, etc.,

A. G. DICKENS,

Fellow and Tutor in Modern History,
Keble College.

Oxford, Oct. 27.

Prognosis of Anxiety States

SIR,—The comments in your correspondence columns on my paper on prognosis of anxiety states call for some reply. Dr. R. Macdonald Ladell (October 8, p. 763) stresses "the willingness of the patient to contribute to life" as the chief prognostic point. The absence of this is surely what I have referred to as psychopathic personality, allotting it great importance, especially in persistently Grade I cases. On the other hand, many chronic neurotics are capable of constructive work, so that its significance should not be overestimated. I endorse his remarks concerning the difficulty of determining the goodness or badness of the environment without a profound knowledge of the patient's circumstances, and readily admit that I did not possess this knowledge, but it would have been of interest if the presence or absence of gross social evils had shown some consistent effect.

Dr. F. Dillon (October 15, p. 812) reproaches me for having made no attempt to assess the value of treatment. This is a matter of the greatest difficulty, which is enhanced by the chaotic way in which the end-results of treatment are published, and I make no apologies for failing to tackle it. I could not determine accurately how much and what type of treatment each case had received, especially since many had attended other clinics also. Only three had had prolonged analytical treatment: one, a full Freudian analysis; two, shorter ones of about six months' duration. All three persisted in their original grades. It was noticeable that many of the completely recovered cases had only made one or two visits to the out-patient department, and so had evidently received very little treatment. It is therefore obvious that spontaneous recovery may occur.

I must apologize to Dr. T. A. Ross (October 1, p. 721) for having misrepresented the duration of his follow-up, and must thank Dr. A. M. B. Walker (October 29, p. 922) for having drawn attention to a very interesting paper.—I am, etc.,

London, W.1, Oct. 31.

ARTHUR HARRIS.

Catarrhal Jaundice

SIR,—In the *Journal* of August 27 (p. 437) Dr. C. E. Lakin surveys the different forms of jaundice. He describes the two possible types of catarrhal jaundice: (1) catarrhal jaundice proper; caused by a blocking of the common bile duct secondary to an acute gastro-duodenitis; and (2) a subacute liver necrosis. He lays stress on the difficulty in distinguishing between these two forms, and he is right, I think, in being doubtful about the help given by the pre-icteric history. May I be allowed to refer to the Takata-Jezler reaction in the serum: the modification I have described (*C. r. Soc. Biol.*, Paris, 1935, 48, 534; *Guy's Hosp. Rep.*, 1936, 86, 166) seems to help in the differential diagnosis of the two forms. I have found that this simple reaction, which consists in a precipitation of the globulin fraction of the serum by a complex mercury salt (formed by mixing sublimate of mercury with sodium carbonate), gives a massive precipitation with the sera of patients suffering from parenchymatous liver disturbances, but is negative, or only slightly positive, in cases of catarrhal (obstructive) jaundice. G. Cozzutti (*Diagn. e Tecnic. di Labor.*, 1936, 7, No. 15) has had similar results. The number of my own cases (fifteen) is too small to allow of a final conclusion being drawn, but I think it would be worth while for someone who has the facilities to study the results of this test on a larger number of suitable patients.—I am, etc.,

London, W.1, Oct. 28.

H. Ucko.

Adrenaline Treatment of Asthma

SIR,—Dr. Joah Bates raises an important question in his letter (*Journal*, October 29, p. 921) on the adrenaline treatment of asthma. He points out that the employment of adrenaline during a cold in the head is not seldom followed by a very rapid spread of the infection to the lower bronchial tract. This, I believe, only occurs if the adrenaline is applied locally. I have drawn attention to the fact (*Journal*, March 21, 1936, p. 609) that the local application of any remedy containing adrenaline or ephedrine to the nasal mucous membrane, although it produces a very pleasing immediate effect due to the vasoconstriction of the mucous membrane, does ultimate harm because the vasoconstriction is followed by a reaction, when the turbulence becomes greater than ever; and the more frequently the vasoconstrictor effect is produced the more marked is the resulting vasodilatation. This is more striking when a spray containing adrenaline or ephedrine is used for the relief of asthma. The immediate effect is delightful, but the ultimate result from the reactionary vasodilatation of the bronchial area in most cases is disastrous. So bad may the dyspnoea become that neither the injection of a large dose of adrenaline nor any other remedy will afford relief.

I believe that I was the first in England to give adrenaline by injection for asthma, and in the many years since then I have not met with a case in which addiction to adrenaline has resulted when given by injection. Repeated hypodermic injections of adrenaline produce no pleasurable effect beyond the relief of the dyspnoea, and after a time they make the skin so hypersensitive that patients are only too glad to make use of another remedy to avoid the pain of an injection. I had one asthmatic patient who, as the result of repeated operations for the removal of nasal polypi, had required over 60,000 injections of adrenaline, and the only adverse effects these had

upon him were that his skin became so tough and hypersensitive that he needed a specially sharpened hypodermic needle, and his blood pressure became abnormally low. He never needed to increase the dose above 5 minims.—I am, etc.,

London, W.1, Oct. 29.

ALEXANDER FRANCIS.

Idiopathic Epilepsy

SIR,—I was much interested in Dr. Robert G. Linton's remarks on idiopathic epilepsy (*Journal*, October 22, p. 837). I have no definite theory, but my own observations have led me to rely on two remedies that I do not know to have been used by others. I have found that apomorphine injected hypodermically in amounts sufficient to cause vomiting invariably stops fits immediately, sometimes even before the needle has been withdrawn. For the prevention of fits I have found hyoscine usually effective in doses of 1/100 grain by the mouth every night. I believe many cases of nocturnal incontinence of urine are due to epilepsy, though not diagnosed as such, and hyoscine is very effective in these cases also.—I am, etc.,

Bristol, Oct. 24.

E. BLAKE GARLAND.

Ether Convulsions

SIR,—In the correspondence about late ether convulsions which has appeared in the *Journal* of October 22 none of your correspondents mentions too deep an ether anaesthesia as a cause of this condition.

We know that an excess of carbon dioxide can cause twitchings which are indistinguishable from the onset of late ether convulsions, and Dr. C. L. G. Pratt's letter (p. 864) leads us into a maze of biochemistry to show how this is brought about; yet these convulsive states are hardly ever reported when ether has not been the principal anaesthetic agent. In my own cases the pupil was always widely dilated when convulsions first started, and in each case I was trying to get the utmost relaxation possible in order to facilitate the surgeon's work. Had I added some chloroform to get this extra relaxation I feel that convulsions would not have occurred. I have had no further cases since adopting this rule.

Convulsions are so often reported in patients who are toxic that sepsis has now come to be regarded as a factor which, combined with ether, will favour the onset of convulsions, but it must not be forgotten that an ill patient requires very much less anaesthetic to produce a given depth of anaesthesia than a non-toxic patient, and I venture to predict that when the signs of anaesthesia are properly taught in our medical schools late ether convulsions will very rarely be reported.—I am, etc.,

London, W.1, Oct. 24.

J. U. HUMAN.

Modern Decline of Breast-feeding

SIR,—At the risk of pursuing the correspondence on Dr. J. C. Spence's article on the decline of breast-feeding, I feel that Dr. J. Simon's observations on child welfare centres must not be allowed to pass unchallenged. I have worked both in country districts and in a large metropolitan borough, and I happen to be vice-president of the Women's Public Health Officers' Association, which brings me in contact not only with my own health visitors but with women from all parts of the country, and it seems unbelievable that any doctor of standing

can hold the views put forward by Dr. Simon. In my experience it is the efforts made at the clinics by teaching and demonstrating breast massage and complete emptying of the breasts which very often re-establish lactation. There are few general practitioners who have the time or the inclination to visit daily the homes of working-class mothers, who are struggling unsuccessfully to feed their infants naturally and from whom fees are seldom forthcoming. Surely child welfare centres working in co-operation with the general practitioners can *only* do good work.—I am, etc.,

Basingstoke, Oct. 8.

HILDA M. PRICE HUNT.

SIR,—Many must have felt like myself that Dr. J. C. Spence's article about breast-feeding was much needed. Of course we all believe in breast-feeding, but how often can we secure it? Most writers reiterate what we already know—that it is desirable, etc. Dr. Spence seeks to tell us why modern women cannot support the offspring she has contrived, often despite herself, to manufacture.

There have been times when I have felt that there is a definite physiological lack in modern women. But it cannot be so. Surely such a far-reaching change could not arise in one generation! No, it must be either (1) the desire *not* to lactate, or (2) the effect of recent factors in environment. I believe both are in operation. How often am I told that bottle-feeding is less trouble (and with the pseudo-educated labouring classes where *any* milk in *any* bottle suffices I believe this may be true—if the child can stand it), or even that breast-feeding is a dirty business! With such women I achieve nothing. But there is also the question, as Dr. Spence says, of wrong atmosphere and wrong advice. And I believe that the nurse must usually be blamed for this. One cannot learn such things from books and lectures. I don't believe a woman can be a good (as opposed to a competent) midwife unless she has had a child of her own.

The modern mother and her baby are not allowed to know each other. They are kept apart, lactation is emotionally discouraged by giving bedpans, etc., before feeding, the baby is expected to have a time clock for a stomach, and must on no account have any human sympathy. Part of this regime is based on a jealous proprietorship. Doesn't every nurse refer to *her* babies? Despite their appalling ignorance of physiology and even of cleanliness, the old "gamps" may possibly have had some abilities the modern nurse does not possess. They at least had had children.—I am, etc.,

October 9.

JUVENIS.

Gold Treatment of Rheumatoid Arthritis

SIR,—It was with great interest that I read a letter from Dr. Maurice Newman (*Journal*, August 13, p. 375) regarding gold therapy. I entirely agree with Dr. Newman's report as to both the benefit derived from chrysotherapy and the disappointing results of vaccine in the case of rheumatoid arthritis.

For the past six years I have studied and used chrysotherapy in a series of some four hundred cases, having obtained the first batch of injections from France. In the majority of cases I alternated the injections with one of anahaemin, and the results have been more than satisfactory; in fact, some cases have benefited to a remarkable extent, bedridden patients having again become active members of the community. In not one instance have complications such as gold abscesses, albuminuria, or altered blood conditions arisen, and in some patients who showed a slight skin reaction the benefit derived proved

greater than in those not showing any reaction. I am now using vitamin C in conjunction with the gold injections, and this has proved very beneficial. In those cases showing a low blood count and haemoglobin, parenteral liver injections, I find, will prevent any risk of an agranulocytic state.

As regards vaccines, I did a good deal of work in this direction, but would not continue their use as the results were very disappointing and in no cases did the patients derive benefit.—I am, etc.,

SIDNEY ROSEBERY,
M.D., F.R.C.P.Ed.

Sydney, Australia, Sept. 21.

The Occipito-posterior Case

SIR,—Dr. B. E. Meek (*Journal*, October 29, p. 919) must be thanked for insisting that the proper use of obstetric forceps should be taught. They are the only means of producing the power necessary to deliver weakly mothers of children the average weight of which is definitely rising. Within the pelvis the axis of an impacted head with its oedematous scalp cannot be accurately determined by digital examination. The whole hand must go into the vagina. In the old days I always did this. But now, with an instrument that can harmlessly rotate the foetal head, I find I can omit the "whole hand" exploration in the majority of cases and extract after finding the position of the occiput; only if I cannot quickly find it does the whole hand go in. With regard to my second cardinal error, no cervix can fully dilate in a reasonable time below an impacted unadvancing head. So long as it easily admits the blades, can anything but good result from imitating by gentle rhythmic tractions (at three-minute intervals) the absent pains, with a finger-tip upon the stretching rim to estimate the power one may use? I believe that the future obstetrician will find this a cardinal procedure.—I am, etc.,

Somerset, Oct. 30.

DAVID PRICE.

"Science in Advertising"

SIR,—The annotation headed "Science in Advertising" in your issue of October 22 (p. 842) ends thus: "Medical men must view with some alarm the possibility of the profession thus being used in an advertising campaign." Possibility? Surely it is much more than that. The whole country must by now be familiar with drawings of medical men wisely diagnosing the patient's complaint from a wife's anxious description and prescribing the advertiser's product. From ordinary weekly and daily newspapers one can give the following list of goods advertised with "medical" catchwords, diagrams, or semi-scientific statements:

- 8 *Beverages*.—"Graph showing course of energy consumption during sleep."
- 6 *Breakfast Foods*.—"Calorie value tested "by a leading dietetic laboratory."
- 2 *Footwear Products*.—"Doctors say walking on [X] rubber heels saves jarring the spine and prevents headaches."
- 1 *Mattress*.—"Gives vitality because it keeps the spine straight during sleep."
- 1 *Linoleum*.—"Whose springiness is "the secret of inexhaustible vitality."
- 2 *Biscuits*.—"To avoid "excess of starch whose assimilation places undue strain on the whole constitution."
- 3 *Soaps*.—"Dirty hands may carry 27 Germ Diseases say Doctors."

Various Foods.—Wine (to restore nerve fibres); raisins (for iron); cheese (calcium, phosphorus, and milk minerals); jams (to balance the meal: "Appetite fact . . . dieticians say so"); salmon (proteins); and others.

2 *Beauty Products*.—"Three years of research by leading biologists" on a skin vitamin. ". . . A doctor told me X was the discovery of a great Vienna University Professor."

There are many others. Perhaps the nicest was the physician shown advising the housewife to use a certain soap at the kitchen sink since it washed away the fats which bred disease germs. The examples, it will be noted, are mainly household articles and not pharmaceutical products. It seems as if medicine has become the grocer's privilege.

The public must apparently be impressed by vague graphs, anatomical sketches, and rapid references to carbohydrates and vitamins. As a student I wonder if the general practitioner already has patients coming to him complaining of "fagged feeling," "night starvation," "starch heaviness," "cosmetic skin," and other recently created conditions. Such advertising tends to falsify the public's idea of medicine and leads to self-diagnosis. It increases the amount of unnecessary fear over ill-health which already exists. Natural foods must in many cases be discarded for the dearer branded goods.

A good example of the fear technique is a recently advertised beverage: "Heavens! What a sight I look! Is it nerves or lack of sleep?" Below this caption and its appropriate picture is an explanation that the product has been "discovered by an eminent doctor" to restore the body's mineral balance. A classified list of six minerals and eighteen diseases stated to be caused by their deficiency is appended. These vary from eczema to heart disorders.

Apart from general public education on the true aspects of nutrition and health, can anything be done against such advertisements?—I am, etc.,

A. S. PLAYFAIR.

St. Bartholomew's Hospital, E.C.1, Oct. 23.

Universities and Colleges

UNIVERSITY OF OXFORD

The examiners have recommended that the Rolleston memorial prize for 1938 be divided equally between N. V. Polunin, D.Phil., New College, and H. M. Sinclair, B.Sc., B.M., Fellow of Magdalen College.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—P. Baker, H. S. A. Corfield, S. K. Das, E. M. E. Decoignies, H. L. Francis, E. K. Gardner, J. M. Hardy, E. S. Nicholson, F. J. C. Smith, M. K. Twist, M. Whitehead.

MEDICINE.—H. S. A. Corfield, D. L. P. De Courcy, P. A. Dixon, J. R. F. E. Jenkins, F. P. S. Malone-Barrett, R. Rowlandson, V. N. Stevenage, M. K. Twist.

FORENSIC MEDICINE.—H. S. A. Corfield, D. L. P. De Courcy, P. A. Dixon, J. R. F. E. Jenkins, F. P. S. Malone-Barrett, R. Rowlandson, V. N. Stevenage, M. K. Twist.

MIDWIFERY.—E. J. S. Barthorpe, W. H. Clarke, P. H. Davies, D. L. P. De Courcy, D. S. G. Genge, K. R. P. Kent, D. B. Roberts, S. A. Schuyler, M. K. Twist.

The diploma of the Society has been granted to P. Baker, H. S. A. Corfield, P. H. Davies, P. A. Dixon, E. K. Gardner, D. S. G. Genge, J. M. Hardy, F. P. S. Malone-Barrett, F. J. C. Smith, and M. K. Twist.

Obituary

SIR R. J. JOHNSTONE, B.A., M.B., F.R.C.S.,
F.C.O.G., M.P. Northern Ireland

It is with sincerest regret that we record the death at his residence in Newcastle, Co. Down, of Sir Robert Johnstone after a short but trying illness. It seems but a few weeks since his attractive personality presided over the Annual Meeting of the British Medical Association in Belfast in 1937. The charm of his presence on that memorable occasion made for him many new and lasting friendships. Last year he retired from practice to his recently built home in Newcastle, and he was looking forward to following interests in other fields which lay open to his genius, his ability, and his experience.

Robert James Johnstone was born in 1872, a native of Greenisland, Co. Antrim, where his ancestors had been established for many generations. He was a student of the Royal Belfast Academical Institution, and from there entered Queen's College, Belfast, electing to pursue a medical course. In the College his career was distinguished, and eventually he adorned one of the most important chairs of the University, was a member of its Senate and many of its committees, and represented it with ability and eminence in Parliament and on the General Medical Council. In July last the Senate of the University decided to confer on him the degree of LL.D. (honoris causa), but owing to his illness this ceremony did not take place.

At Queen's College he had a brilliant career in the Faculty of Arts, his awards and scholarship being outstanding. In the Faculty of Medicine his progress was again marked by scholarships and exhibitions, leading to his qualification M.B., B.Ch. in the Royal University of Ireland in 1896 with honours. His postgraduate study was thorough. He acted as house-surgeon in the Royal Hospital, Belfast, for a year, and during the next six years was in succession demonstrator of anatomy, and of pathology under Professor Lorrain Smith, completing his studies in London and Vienna. Surgery attracted him, especially gynaecology. He had anatomy at his fingertips, pathology was the background of his knowledge, and a sound judgment coupled with skilful hands com-

pleted his equipment for a successful career. In 1900 he obtained his Fellowship of the Royal College of Surgeons of England, and became assistant to the late Sir John Byers, two years later joining the staff of the Royal Victoria Hospital as assistant gynaecologist. At this time, too, he was appointed to the Belfast Maternity Hospital. Robert Johnstone's progress in his chosen field was rapid. The increase in private practice and advancement in hospital appointments were an index of his proficiency and appreciation of his merits. With patients he was the soul of kindness without being sentimental; their welfare was ever his main concern, to the exclusion of his own interests or convenience. All over Ulster to this day there are grateful recollections of his skill, his sym-

pathy, and his humanity. He was a natural surgeon: deft with his hands; sound in his knowledge of surgery, pathology, and anatomy; perfect in his technique, and critical in his judgment. Not many surgeons could perform major operations with so few instruments, so little ritual, and so little shock to the patient. These qualities marked him out for progressive advancement, which increased the value of his services to the hospitals. In the Royal Victoria Hospital he became senior gynaecologist in 1919, and in the Belfast (later the Royal) Maternity Hospital he manifested a special interest, eventually becoming chairman of its committee of management. The development of the Royal Maternity Hospital from its original situation in Townsend Street was very near his heart, and its welfare one of his main interests; to it he devoted his talents and attracted the best of



everything to its service. It is typical of him that one of his last wishes was that anyone intending to send flowers to his funeral should, instead, send a subscription to this hospital. To the Royal Victoria Hospital he gave his professional services as gynaecologist freely and fully, and to its administration he contributed his sound advice and counsel. On the death of Sir John Byers in 1920 Robert Johnstone became professor of gynaecology in the University, and was ever an attractive and interesting lecturer to his students, with all of whom he was singularly popular and respected.

He was a member of the British Medical Association since 1897, being secretary of the Ulster Branch for seven years, president of the Branch in 1921, and eventually attained the highest honour of his career by being President of the Association in 1937. At the 1909 Annual

The October issue of the *Annales de Médecine* is devoted to septicaemia due to various organisms (*B. fuidibuliformes*, *B. fragilis*, *Streptobacillus moniliformes*, *Streptococcus haemolyticus*, *B. coli*, and *C. diphtheriae*).

The King has approved the reappointment of Dr. Adam Rankine, M.C., to be a Nominated Official Member and Dr. Arthur Hutton McShine, O.B.E., to be a Nominated Unofficial Member of the Legislative Council of the Colony of Trinidad and Tobago.

The King has appointed Dr. James White Thomson (Senior Medical Officer) to be a Member of the Executive Council of the Presidency of Saint Christopher and Nevis.

The King has granted authority for Dr. George Herbert Garlick (Principal Medical Officer, Johore) to wear the Order of the Crown of Johore, insignia of the Second Class, conferred upon him by the Sultan of Johore in recognition of valuable services rendered.

Dame Joanna Margaret Cruickshank has recently been appointed Matron-in-Chief of the British Red Cross Society in place of the late Mrs. Rome.

The international Chauvin prize for oto-neurophthalmology has been awarded to Drs. Alfandary of Belgrade, Arslan of Padua, and Chardonnel of Nantes. The subject of the prize was a plan for the study of vestibular disharmony.

EPIDEMIOLOGICAL NOTES*

Acute Poliomyelitis

The progressive rise in the incidence of acute poliomyelitis noted in the last three weeks is continued in the week under review; in the present instance the rise is entirely due to the increase in the cases in London. Of the 81 (77) cases notified in England and Wales 7 (11) occurred in Essex, 6 each in Nottingham (0), Glamorgan (2), Oxfordshire (12); and 4 each in Carmarthen (4), Sussex (6), and the West Riding of Yorkshire (2). More than one case was reported from the following centres: London 11 (4)—Camberwell, Lewisham, and Wandsworth 2 each; Battersea, Hammersmith, Holborn, Islington, and Poplar 1 each—4 each in Harwich (7), Eastwood (0), Oxford (11), Bristol (2); 3 in Penarth (0); 2 each in Tendring (3), Sedgley (0), Horsham (0), Birmingham (1), Sheffield (1), Carmarthen (0), and Swansea (0). The wide distribution and sporadic character of the disease are illustrated by experience in Mid-Sussex, where there were 19 cases with 2 deaths in the last three months, compared with 5 cases for the whole of 1937. The cases occurred largely in isolated dwellings, chiefly farmhouses, in the rural areas. An unusual feature in this outbreak is the age of the incidence of the disease, the majority of the cases being between 10 and 16 years, which is considerably above the age limit.

In Germany during the week ended October 8, 353 (337) cases were reported, chiefly in Bavaria 67 (54), Württemberg 60 (54), Baden 16 (12). In Rhenish Prussia the incidence of the disease decreased. In Denmark during the month of September 92 cases were reported, compared with 61 in the previous month. During the week ended October 15, 33 cases were reported in Holland, including 10 in the province of South Holland and 9 in the province of North Holland.

Enteric Fever

There was a slight increase in the incidence of enteric fever in England and Wales—37 (32)—in which London shared—12 (11). The counties from which more than one case was reported are: Middlesex 3 (Heston and Isleworth, Ruiship-Northwood, Sunbury-on-Thames), Durham 2 (Sunderland and Boldon), Kent 2 (Canterbury and Folkestone), Lancashire 2 (Eccles and Farnworth), Surrey 2 (Barnes and Esher), Sussex 2 (Uckfield and Horsham). The 12 cases in London occurred in Chelsea, Fulham, Kensington, and Wandsworth 2 each, Greenwich, St. Marylebone, St. Pancras, West-

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

minster. At the time of going to press an outbreak of typhoid fever involving 5 children has been reported at Wellow, near Eastleigh, Hampshire. The schools at Wellow (population 1,700) have been closed for a period of three weeks.

Primary and Influenzal Pneumonia

There was a further increase in the notifications of primary and influenzal pneumonia in England and Wales—534 (493)—and in London—45 (38)—during the week under review. The counties with the greatest increases are: Lancashire 105 (92), Leicester 11 (4), Norfolk 12 (5), Stafford 37 (24), Warwickshire 48 (38), Glamorgan 17 (9). The number of deaths in the 126 Great Towns rose from 12 to 26: more than one death occurred in Manchester 3 (1), Leeds 2 (0), and Liverpool 2 (0).

Diphtheria and Scarlet Fever

The rise in the notifications of diphtheria in England and Wales and in London referred to last week was continued during the week under review—1,367 (1,288) and 173 (138) respectively. The centres chiefly affected were: Derby 17 (9), West Ham 13 (3), Bristol 20 (8), Leicester 23 (17), Bethnal Green 19 (5), Camberwell 15 (9), Lambeth 14 (9), Lewisham 13 (7), Hendon 13 (3), Smethwick 16 (0), Croydon 18 (1), Leeds 31 (28). In Scotland, also, an increase was recorded, notably in Aberdeen 18 (13), Glasgow 78 (72), Edinburgh 14 (12), Fife County 12 (6), Stirling County 7 (3). Of the 17 deaths in the 126 Great Towns of England and Wales more than one occurred only at Croydon, 2 (0). There were 4 deaths from diphtheria in the 16 principal towns of Scotland during the week—2 (2) in Glasgow and 1 each in Aberdeen (0) and Paisley (1).

Notifications of scarlet fever in England and Wales and in London dropped during the week under review—1,864 (1,940) and 159 (186) respectively—and were well below the median values for the last nine years. There were 4 deaths in the 126 Great Towns: in Worcester 2, and 1 each in Oxford and Dewsbury. In Scotland the notifications rose from 355 to 395: the centres chiefly affected were: Glasgow 88 (71), Dundee 32 (21), Fife County 38 (32), Greenock 19 (13), Aberdeen 12 (10). There were no deaths from scarlet fever in the 16 principal towns of Scotland during the week.

Measles and Whooping-cough

There were only 2 deaths from measles (both in Merthyr Tydfil) in the 126 Great Towns of England and Wales during the week under review. Of the 26 (26) cases of measles notified in the administrative county of London the chief were in Finsbury 5; Deptford and Poplar 3 each; Lambeth, Shore-ditch, Stepney, and Woolwich 2 each. In Scotland 18 cases of measles were notified during the week, compared with 8 in the previous week; the centres chiefly affected were Glasgow 9 (3) and Orkney County 4 (0). Of the 4 deaths from whooping-cough recorded in the 126 Great Towns of England and Wales during the week 1 each occurred in Birmingham (1), Leicester (0), Kingston-upon-Hull (0), London (0). In London 131 (70) cases of whooping-cough were notified, distributed mainly as follows: Hackney 21, Southwark and Wandsworth 14 each, Lambeth 10, Stepney 9. In Scotland the notifications rose from 91 to 163 during the week, chiefly in: Glasgow 134 (66), Lanark County 12 (1). There were 4 (0) deaths (all in Glasgow).

Cholera: Plague

During the week under review there were 862 (1,455) cases of cholera and 433 (702) deaths in the Central Provinces of India, 330 (381) cases and 141 (161) deaths in Bombay Presidency, 223 (361) cases and 104 (161) deaths in the United Provinces. In China during the same week 87 (82) cases and 30 (24) deaths were reported in Shanghai and 7 (16) cases and 9 (7) deaths in Hong Kong.

In India during the week there were 73 (144) cases of plague and 5 (18) deaths in the Central Provinces, 88 (33) cases and 73 (26) deaths in Burma, 25 (30) cases and 11 (12) deaths in Madras Presidency, and 13 (13) cases and 8 (4) deaths in Bombay Presidency.

INFECTIOUS DISEASES AND VITAL STATISTICS

No. 42

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 22, 1938. Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 19 | 5 | 3 | — | — | 17 | 5 | 5 | 1 | 2 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Diphtheria | 1,367 | 173 | 233 | 60 | 20 | 1,706 | 246 | 280 | 48 | 37 | 1,310 | 246 |
| Deaths | 17 | 2 | 4 | — | — | 33 | 6 | 4 | 2 | — | | |
| Dysentery | 35 | 10 | 16 | — | 1 | 69 | 30 | 25 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Encephalitis lethargica, acute | 3 | — | — | — | — | 5 | — | — | — | — | | |
| Deaths | — | 1 | — | — | — | — | 1 | — | — | — | | |
| Enteric (typhoid and paratyphoid) fever | 37 | 12 | 4 | 3 | 3 | 36 | 9 | 12 | 7 | 4 | 43 | |
| Deaths | 1 | 1 | — | — | — | 2 | 1 | — | — | — | | |
| Erysipelas | — | — | 82 | 3 | 6 | — | — | 84 | 6 | 5 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Infective enteritis or diarrhoea under 2 years | 51 | 8 | 11 | 7 | 1 | 54 | 9 | 16 | 11 | 5 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Measles | 2 | 26 | 18 | — | 3 | 6 | — | 88 | 2 | 9 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Ophthalmia neonatorum | 97 | 9 | 38 | — | — | 92 | 7 | 27 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Pneumonia, influenza† | 534 | 45 | 6 | 5 | 2 | 734 | 71 | 7 | 2 | 7 | 735 | 70 |
| Deaths (from Influenza) | 26 | 1 | 3 | 1 | — | 32 | 9 | 6 | — | 2 | | |
| Pneumonia, primary | — | — | 233 | 6 | — | — | — | 223 | 6 | — | | |
| Deaths | — | 14 | 8 | 6 | — | — | 17 | 7 | 11 | — | | |
| Polio-encephalitis, acute | 7 | — | — | — | — | 3 | 1 | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Polio-myelitis, acute | 81 | 11 | 4 | 2 | 1 | 27 | 3 | 1 | — | 1 | | |
| Deaths | — | 2 | — | — | — | — | — | — | — | — | | |
| Puerperal fever | 2* | 2 | 24 | 1 | — | 5* | 5 | 12 | 2 | 1 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Puerperal pyrexia | 157 | 13 | 16 | — | — | 186 | 13 | 35 | — | 2 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Relapsing fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Scarlet fever | 1,864 | 159 | 395 | 43 | 92 | 2,705 | 221 | 554 | 100 | 94 | 2,709 | 382 |
| Deaths | 4 | — | — | 1 | 2 | — | — | 1 | — | — | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Whooping-cough | — | 131 | 163 | — | 4 | — | 36 | — | — | 4 | | |
| Deaths | 4 | 1 | 4 | — | 1 | 8 | 2 | — | — | — | | |
| Deaths (0-1 year) | 265 | 41 | 64 | 21 | 18 | 334 | 46 | 76 | 30 | 16 | | |
| Infant mortality rate (per 1,000 live births) | 44 | 34 | — | — | — | 56 | 38 | — | — | — | | |
| Deaths (excluding stillbirths) | 4,086 | 764 | 566 | 154 | 124 | 4,319 | 879 | 572 | 155 | 130 | | |
| Annual death rate (per 1,000 persons living) | 10.0 | 9.7 | 11.5 | 10.4 | 11.0 | 10.7 | 11.1 | 11.7 | 10.6 | 11.5 | | |
| Live births | 6,663 | 1,266 | 864 | 305 | 227 | 5,984 | 1,120 | 853 | 270 | 211 | | |
| Annual rate per 1,000 persons living | 16.4 | 16.1 | 17.6 | 20.7 | 20.1 | 14.8 | 14.1 | 17.4 | 18.4 | 18.7 | | |
| Stillbirths | 255 | 40 | — | — | — | 248 | 30 | — | — | — | | |
| Rate per 1,000 total births (including stillborn) | 37 | 31 | — | — | — | 40 | 26 | — | — | — | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Varicose Veins in a Haemophilic

Dr. H. E. CARMALT (Birmingham) writes: A haemophilic patient of mine has varicose veins and is rather anxious lest one of them should rupture. I did not advise injection of a sclerosing fluid as I think the usual clotting within the vein would not take place and there would be a troublesome haemorrhage from the site of puncture. I would be grateful for any authoritative opinion.

Ménière's Disease and Fruit Diet

Dr. V. E. HASTINGS writes from Auckland, New Zealand: Dr. James Adam says in his letter (*Journal*, April 16, p. 870): "The last two cases of Ménière's disease that I saw promptly got well on taking abundant fruit." This is in agreement with my own experience of two cases of Ménière's disease. These two patients were given diets which contained in one case a pound of fruit daily and in the other two pounds daily. Both had one and a half to two pints of milk, four ounces of raw greens, with the rest of the diet made up of potatoes, vegetables, meat, wholemeal bread, and butter. They both made rapid recoveries, in one case all giddiness disappearing in from two to three days, and in neither case has there been a return of symptoms after two and three years respectively. It would be interesting to hear what results others get from this treatment.

LETTERS, NOTES, ETC.

Sterilization of Syringes

Dr. TREVOR H. KNIGHTS (Belgian Congo) writes: I would like to add a word of support for the water-alcohol-ether sequence for the sterilization of syringes advocated by several correspondents. I used this method for three years as an assistant in a bacteriological laboratory. Syringes were sterilized in this way before drawing off blood for culture, the blood being immediately squirted into a flask of 2 per cent glucose broth at the bedside. I have no definite figures, but in over 200 such procedures I can only remember two plates showing contamination after prolonged incubation. In these blood cultures haemolytic streptococci, *Str. viridans*, and often pneumococci, grew strongly and were uncontaminated—a convincing proof. I always felt, of the efficacy of the method. I have, of course, heard the method strongly criticized on theoretical grounds—the short time-interval, the inadequacy of absolute alcohol in any case, etc.—but until more elaborate methods can give as reliable results I shall continue to employ this one. Our technique was simple. Immediately on returning from the ward the person

responsible washed the syringe thoroughly with water; tap water will do and does not need to be boiled, but all the protein matter must be removed. Any stickiness was dealt with by peroxide, or failing that 1 per cent. sodium bicarbonate, although the alkaline solution is to be avoided if possible. Then the syringe was rinsed with absolute alcohol, and finally ether, and left—the plunger separated from the barrel—on the top shelf of a bacteriological incubator or any warm, dry, dustless cupboard. When it was required for use the plunger was fitted into the barrel, and the syringe was rinsed first with absolute alcohol and then with ether. We sterilized the needles by placing them in a test-tube plugged with cotton-wool and containing 2 or 3 c.cm. of alcohol. The spirit was boiled off on a water-bath or more rapidly by heating the tube over the naked flame of a bunsen burner or spirit lamp. This gave a sterile, dry needle; there was no danger if the vapour issuing from the tube was ignited. In practice the alcohol-ether rinsing would do equally well for the needles. Also of value is the method I learnt for "unsticking" syringes by placing them on a block of ice for ten to fifteen minutes. I have never known this to fail, but it need never be necessary if the first careful washing with water is properly performed as soon as possible after the syringe has been used.

Dr. J. WALKER TOMN writes: In his letter to the *Journal* of August 6 (p. 317) Dr. E. W. Hayward asks for suggestions regarding a feasible method of sterilizing hypodermic syringes where repeated boiling is impracticable. If Dr. Hayward will refer to the *Indian Medical Gazette* of January 1, 1925, he will find such a method described by me under the heading "A Useful Hypodermic Outfit." The essential part of the method is that the syringe, having been sterilized originally by boiling, is thereafter maintained in a sterile condition by washing it out after each injection with a mixture of equal parts of rectified spirit and glycerine of carbolic acid. The rectified spirit evaporates quickly, more especially in the Tropics, leaving a very fine film of glycerin of carbolic acid behind, which not only keeps the interior of the barrel perfectly sterile, but effectively prevents the piston from sticking in the barrel. The needle described in the article is a platino-iridium one, and is sterilized in the first instance by boiling, and by flaming before and after subsequent use, but any modern high-grade stainless steel needle can be sterilized by flaming for a considerable number of times before losing its edge. Hundreds of injections have been given over many years with a syringe sterilized in this way without a single untoward reaction. The syringe has also been tested periodically in the laboratory for sterility and always found sterile.

Gas and Air Analgesia

The National Birthday Trust Fund for Extension of Midwifery Services announces an offer to all district nursing associations employing nurses who have qualified to give analgesia by the gas and air method of an approved machine at the greatly-reduced price of £5. This low cost will make it possible for all associations to obtain one. Applications should be addressed to the Secretary, National Birthday Trust Fund, 57, Lower Belgrave Street, S.W.1. Gas cylinders to fit the machine are supplied by a well-known firm, which undertakes to deliver and collect the cylinders at any address for 3s. 2d. per cylinder. Unused ones are credited, and the average cost of gas per case has been found to work out at about 4s. 6d.

Disclaimer

Dr. WILLIAM BROWN (London, W.1) writes: My attention has been drawn to a recent article in a Sunday paper in which a photograph of myself appears, and also the description of a case as being treated by me which was not a case of mine but a case of the late Dr. Georg Groddeck of Baden-Baden which I had briefly described in my last book. The article was written and published without my knowledge or consent, and the writer of the article is personally unknown to me. The photograph was one of myself ten years ago, and I do not know how it was obtained for the newspaper.

Corrigendum

In our report of the discussion on "Marine Therapeutics" (October 29), Dr. S. Watson Smith was misquoted at one point. The first sentence of the third paragraph on page 946 should read: "The southern region was to be recommended all the year round in the neuroses, insomnia, thyrotoxicosis, high blood pressure, granular kidney, and chronic respiratory disease, excluding tuberculosis."

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Deutsche Medizinische Wochenschrift

Berlin vol. 64 August 19, 1938

- Character and Treatment of Neuro-vegetative Disturbances. K. W. Essen.—p. 1205.
 *Pluriglandular Endocrine Disturbances presenting Picture of Addison's Disease. W. Jock.—p. 1209.
 Rhino-revaccination for Children. D. Gyure.—p. 1211.
 Polycarcinoma in Human Beings and Pigeons given Sulphonamide Compounds. H. Hultström and F. Krause.—p. 1213.
 Limitation of Indications for Strophanthin and Digitalis. K. Speckmann.—p. 1217.
 Intractable Vomiting with Acetonuria. Lammert.—p. 1218.
 "Sepsinure" for Disinfection of Field of Operation. Hillebrand.—p. 1220.
 Prospects of Combating Sterility in Woman. W. Benham.—p. 1220.
 Intraventricular Disturbances of Conduction. G. Hübner.—p. 1222.
 Results of Mere Active Therapy in Hospitals and Nursing Homes. H. Simon.—p. 1224.
 Life Values and Significance of Games for Sick. A. Wiest.—p. 1227.

Pluriglandular Disturbances.—Case records from the Pathological Institute in Königsberg (Prussia) are used to drive home the lesson that there may be a considerable interplay of the endocrine glands in the production of what may seem to be a well-defined morbid entity such as Addison's disease.

Edinburgh Medical Journal

London vol. 45 September, 1938

- Experimental Neuroses in Animals and their Treatment with Bromides. B. P. Babkin.—p. 605.
 Right-sided Aortic Arch. J. P. McGibbon.—p. 620.
 William Osler. J. Hay.—p. 631.
 Pernicious Anaemia and its Treatment. A. Goodall.—p. 648.
 Biological Properties of Killed Tubercle Bacilli deprived of Acid-fastness by Method of Brunning and Gultraisen. M. A. Griffin.—p. 654.

Journal of the American Medical Association

Chicago vol. 3 August 20, 1938

- Some Neurological Aspects of Psychiatry. S. Ingham.—p. 665.
 Acute Glomerulonephritis, with Special Reference to Course and Prognosis. F. Murphy and J. Rastetter.—p. 668.
 Uterine Myomectomy. V. Counsellor and R. Bedard.—p. 675.
 Public Health Aspects of Industrial Hygiene. R. Sayers and J. Bloomfield.—p. 679.
 Blood Calcium, Phosphorus, and Phosphatase in Urinary Lithiasis. M. Griffin, A. Osterberg, and W. Braasch.—p. 683.
 Treatment for Superficial Mycotic Infections of Glabrous Skin. D. Prehn.—p. 685.
 Rabies. M. Blatt, S. Hoffman, and M. Schneider.—p. 688.
 Typhoid Pylonephritis: Renal Typhoid Fever. H. Reimann.—p. 691.
 Use of Serum in Treatment of Illiger Types of Pneumonia. N. Plummer.—p. 694.
 Human Requirement of Vitamin D. P. Jeans and G. Stearns.—p. 703.

Klinische Wochenschrift

Berlin vol. 17 August 20, 1938

- Work of Secretory Glands. E. Holzlohner and F. Seelich.—p. 1169.
 Relation between Idiocy and Anatomical Structure of Epidermis. T. H. Schreus.—p. 1171.
 *Treatment of Rickets with Concentrates of Vitamins D₂ and D₃. G. Jacoby.—p. 1173.
 Experimental Investigation into Insulin given by Mouth with Addition of Organic Dyes. F. Lasch and E. Schönbrunner.—p. 1177.
 Absorption of Tetraiodophenolphthalein by Mouth. W. Lutz.—p. 1180.
 Earliest Changes in White Blood Cells in Lead Poisoning. A. H. Müller.—p. 1183.
 Investigation into Possibility of Transmission of Tuberculous Infection by Children. A. Viethen.—p. 1186.
 Plethysmographic Changes in Schizophrenic Patients treated with Cardiazol. O. Vergani.—p. 1188.
 Idiopathic Hypochromic Anaemia: II. W. Thiele and H. Köhl.—p. 1191.
 Carcinoma in Young Adults and Children. J. Korbler.—p. 1194.
 Simple Method of Measuring Organic Acid-soluble Phosphorus in Blood (P-sear). G. de Toni.—p. 1194.
 *New Reaction for Differentiation between B. Avitaminosis and State of Hunger. E. and R. Abderhalden.—p. 1195.

Rickets.—An investigation made on forty-six children showed no difference between the effects of vitamin D₂ and those of D₃. Excellent results were obtained from both in rickets, spasmophilia, and craniotabes.

Lancet

London vol. 2 August 20, 1938

- Rhythm in Epilepsy. G. M. Griffiths and J. T. Fox.—p. 409.
 *Tropical Macrocytic Anaemia: Its Relation to Pernicious Anaemia. L. Wills and B. D. F. Evans.—p. 416.
 Meningo-encephalitis and Orchitis as only Symptoms of Mumps. W. Harris and H. Bethell.—p. 422.
 Some Biological Properties of Diethylstilboestrol. S. J. Felley and H. M. S. Watson.—p. 423.
 Chronic Meningococcal Septicaemia treated with 2-4-aminobenzenesulphonamidyridine. S. B. Denson.—p. 424.
 Stomatitis of Vitamin B₁₂ Deficiency treated with Nicotinic Acid. P. Manson-Bahr and O. N. Ramsford.—p. 426.
 Paralysis of External Pterygoid Muscle arising from Injury to Fifth Cranial Nerve. H. Gardiner.—p. 428.
 Undulant Fever treated with Protosol. A. L. Punch.—p. 429.
 Undulant Fever in Sanatorium. T. J. O'Reilly.—p. 430.

Tropical Macrocytic Anaemia.—The liver principle in highly purified preparations which is curative in pernicious anaemia has been found inactive in tropical macrocytic anaemia and in the closely related experimental nutritional (macrocytic) anaemia of monkeys. The last two conditions respond satisfactorily to crude liver extracts and autolysed yeast extracts, which thus appear to contain an undetermined haemopoietic factor—possibly an unidentified fraction of the vitamin B complex.

Medizinische Klinik

Berlin vol. 34 August 19, 1938

- Splenectomy in Diseases of Blood: Discussion. T. Naegeli, G. Deneke, L. Heilmeyer, and F. Hoff.—p. 1095.
 *Treatment of Pellagra with Nicotinic Acid Amide. W. W. Kühnau.—p. 1098.
 X-Ray Investigation of Stomach in Pellagra. M. Tyndel and N. Tamler.—p. 1091.
 Clinical Manifestations of Affections of Respiratory Tract. R. Schmidt.—p. 1091.
 Infantile Tuberculosis in Cologne. T. J. Lütz.—p. 1094.
 Recent Advances in Climatology. W. Amelung.—p. 1095.
 Recent Advances in Treatment of Gonorrhoea in Women and of Leucorrhoea. M. Hühle.—p. 1109.
 Medical Examination of Domestic Servants: Lack of Vitamin B and Loose Infestation: Changes in Electrocardiogram produced by Smoking. K. Brandenburg.—p. 1101.
 Seventeen Years of Radiotherapy of Cancer. H. Cramer.—p. 1103.

Pellagra.—The author confirms the curative effects in pellagra of nicotinic acid already reported by Spies, Cooper, and Blankenhorn.

Medizinische Welt

Berlin vol. 12 August 20, 1938

- Sex Hormones and Circulatory System. H. Bernhardt.—p. 1197.
 Psychological Influence on Human Organism. I. Schultz.—p. 1202.
 Use of Therapeutic Measures on Apnoeic and Asphyxiated Premature Children. P. Hoffmann.—p. 1203.
 Circulatory Disturbances in Hands of Riveters and their Treatment. W. Thiele and H. Reinhard.—p. 1207.
 Brodie's Abscess. H. Müller.—p. 1209.
 Treatment of Cosmetic Skin Diseases with Hormones. E. v. Jachmann.—p. 1212.

Münchener Medizinische Wochenschrift

Munich vol. 85 August 19, 1938

- Bone Tuberculosis and Trauma. H. Haberland.—p. 1257.
 Causes of Haemorrhages of Lung. E. Walter.—p. 1259.
 Austrian Sanatoria. Lauscher.—p. 1260.
 Treatment of Disease with Artificial Climate. E. Tancred.—p. 1263.
 Sport Bradycardia. W. Schulz.—p. 1266.
 First Aid in Injuries of Face and Jaws. A. Buchlmayr.—p. 1267.
 Epidemics in Great War. J. Kaup.—p. 1275.

Nature

London vol. 142 August 20, 1938

- Polarographic Research on Cancer. J. Heyrovsky.—p. 317.
Excavations at Njoro, Kenya. L. S. B. Leakey.—p. 319.
Quantitative Measurement of Vitamin B₁₂ and its Phosphoric Esters and their Synthesis in Animal Tissues. S. Ochoa and R. A. Peters.—p. 356
Season and Rate of Conception. J. Edwards.—p. 357.
Development of Inert Regions of Salivary Gland Chromosomes of *Drosophila*. S. Frolova.—p. 357.
Chromosome Numbers in *Cimex*. H. D. Slack.—p. 358.
Time Sequence of Crossing Over. F. W. Sansome.—p. 358.

Nordisk Medicinsk Tidskrift

Stockholm vol. 16 August 20, 1938

- Caisson Disease: Survey with Reference to Two Cases. B. Scherstén.—p. 1303.
*Hindhede Period in Denmark and its Consequences. J. Christensen.—p. 1309
Preliminary Communication on Vitamin C Status in Tuberculosis of Bones and Joints compared with that of Healthy Persons and of Subjects of Pulmonary Tuberculosis. H. Dagulf.—p. 1315.

The Hindhede Period.—This is a polemical criticism of the dietetic theories associated with the name of Hindhede.

Presse Médicale

Paris vol. 46 August 17, 1938

- *Is there such a Condition as "Lipoid Nephrosis"? F. Rathery and P. Froment.—p. 1249.

Lipoid Nephrosis.—The authors discuss the question of the existence of "lipoid nephrosis" as described first by F. Müller and later by Epstein. They come to the conclusion that not only does such a disease exist (though it might be preferable to designate it by the name of "Epstein's disease"), but that it is most important that it should be correctly diagnosed, since it is amenable to appropriate treatment—that is, the administration of thyroid extract and a high protein diet.

Paris vol. 46 August 20, 1938

- *Diuretic Disturbances in Course of Jaundice of Various Kinds. M. Brulé and J. Cottet.—p. 1265.
Myth of Auto-intoxication in Constipated Patients. G. and R. Léven.—p. 1268.

Diuresis in Jaundice.—The authors studied the metabolism of water as indicated by the method of "artificial diuresis" in catarrhal and obstructive jaundice and in the jaundice which accompanies cirrhosis. This is not a test of hepatic insufficiency, but it yields most useful information in regard to water metabolism. It is easy to perform and can be repeated, and is thus essentially a clinical test. In most cases it agrees closely with the galactose test, but in some instances it has shown even closer agreement with the clinical condition than the latter.

Proceedings of the Staff Meetings of the Mayo Clinic

Minnesota vol. 13 August 3, 1938

- Intracranial Meningiomas. C. H. Shelden and A. W. Adson.—p. 481.
Operative Surgery of Colon. J. P. Lockhart-Mummery.—p. 485.
Tularaemia: Case Report. J. M. Miller and E. G. Bannick.—p. 494.

Minnesota vol. 13 August 10, 1938

- Low-grade Vesical Neoplasm. Widespread Recurrent Involvement of Anterior Urethra: Case Report. J. L. Emmett. Discussion, A. C. Broders.—p. 497.
Physical Allergy. W. H. Goodson.—p. 500
Comparison of Radium Salt and Radon in Treatment. R. E. Fricke and M. M. D. Williams.—p. 505.
Mechanism of Indirect Vasodilatation induced by Heat and Evidence of Sympathetic Vasodilator Nerve in Man. T. J. Fetherlee.—p. 508.
Anesthetic Procedures used at the Mayo Clinic: III. For Operations on Eye, Ear, Nose, Throat, Thyroid Gland, Larynx, and Trachea and for Plastic Operations on Head and Neck. E. B. Tuohy.—p. 510

Minnesota vol. 13 August 17, 1938

- Intense Myxoedema: Case Report. G. B. Logan and E. H. Ryncarson.—p. 513
Influence of Cortin, Insulin, and Glucose on Metabolism of Potassium. E. C. Kendall.—p. 519.

- Effect of Tobacco on Blood Pressure as measured by Standard Smoking Test. E. A. Hines, jun., and G. M. Roth.—p. 524.
Intraventricular Haemorrhage simulating Brain Tumour: Successful Surgical Treatment. W. McK. Craig and W. R. Lipscomb.—p. 526.

Minnesota vol. 13 August 24, 1938

- Hereditary Pseudo-haemophilia. C. P. Schlicke and B. E. Hall.—p. 529.
Tumour of Spinal Cord with Masked Symptoms: Case Report. R. E. Mulrooney and J. G. Love.—p. 531.
Regional Enteritis: Symptomatology and Review of Cases. R. L. Clark.—p. 535.
Studies on Aetiology of Regional Ileitis. R. E. Pumphrey.—p. 539.
Pathological Manifestations of Regional Enteritis. R. J. Coffey.—p. 541.

Schweizerische Medizinische Wochenschrift

Basle vol. 68 August 20, 1938

- Fundamentals and Guiding Principles in Swiss Military Surgical Service. Dts.—p. 981.
Focal Infection, Rheumatism, and Short-wave Therapy. J. v. Ries.—p. 959
Bandaging Technique for Injuries to Internal Lateral Ligament of Knee. T. Johnner.—p. 990.
Technique of Pneumoradiography of Joints. R. Meyer-Wildesen.—p. 991.
*Phenylhydrazine Treatment of Essential Thrombopenia (Werthof's Disease). E. Jacobson.—p. 991.

Phenylhydrazine.—A total dose of 0.7 to 1.5 grammes was effective—in daily doses of 0.1 gramme in gelatin capsules—in the nineteen (of twenty-eight) cases of essential thrombopenia which could be followed up. There was no "platelet crisis" as a rule.

Science

New York vol. 88 August 19, 1938

- Venomous Effects of Some Arizona Scorpions. H. L. Stahnke.—p. 166
Stimulation of Kidney Cuttings. M. C. Myers, R. A. Bowden, and F. E. Hardisty.—p. 167.
Solutions of Chlorophyll-Protein Compounds (Phyllochlorins) extracted from Spinach. E. L. Smith.—p. 170.
Ovine and Bovine Listerellosis in Illinois. R. Graham, G. L. Dunlap, and C. A. Brandy.—p. 171.
Effect of Nucleophosphatase on "Native" and Depolymerized Thymonucleic Acid. G. Schmidt and P. A. Levene.—p. 172.

Ugeskrift for Læger

Copenhagen vol. 100 August 18, 1938

- *Overlooked Brain Tumours. K. H. Krabbe and M. Ellermann.—p. 925.
*Cardiac and Respiratory Neuroses. H. Heckscher.—p. 930.
*Perinephritic Abscess with Rupture into Bronchus. K. Trautner Petersen.—p. 937.
Acute Juvenile and Thyroid Extract. S. N. Vendel.—p. 939.
Administration, Treatment, and Science in Hospitals for Mental Disease. H. I. Schou.—p. 946.

Brain Tumours.—A survey is here made of the cases which came to necropsy in the period 1926 to 1937 at the communal hospital in Copenhagen and in which brain tumours were found although they had not been diagnosed as such in hospital.

Neuroses.—This paper is a study of 106 patients, seen in the course of only two or three years, whose neurosis of the heart and respiratory system had been incorrectly interpreted by other doctors.

Wiener Klinische Wochenschrift

Vienna vol. 51 August 19, 1938

- Importance of Internal Secretions in Dermatology. A. Matras.—p. 869
Anatoxin and Anti-diphtheritic Inoculation in Haring. G. Ramon.—p. 873.
Hepato-renal Syndrome. H. Fleischhacker.—p. 880.
Swimming-bath Treatment of Paralysis. H. Urban.—p. 882.

Wiener Medizinische Wochenschrift

Vienna vol. 88 August 20, 1938

- Clinical Forms of Idiocy. F. Dubitscher.—p. 887.
Contribution to Normal Delivery at Home. E. W. Winter.—p. 892.
Biochemical Basis for Differentiation of Calcium Treatment in Various Diseases. J. W. Reichel.—p. 894.
Question of Medical Studies. V. Kairiukehtis.—p. 899.

SPECIAL JOURNALS

Acta Medica Scandinavica

Stockholm vol. 96 June 30, 1938

- *Three Synchronized Leads between Fixed Points on Heart: Projection of Chest Wall (Eng.). G. Nylus and L. Sallstrom—p. 1.
So-called Anthrathra Nitulans (Ger.). L. Jensen—p. 28.
Aetiology of Chorea Minor (Ger.). G. Lüsren—p. 43.
Anterior Hypertension and Vasodilator and Gonadotropic Pituitary Hormones (Fr.). A. van Bogaert and F. van Haarle—p. 56.
*Treatment of Emaciation in Late Puberty by Transplantation of Pituitary Gland (Ger.). E. Klyn—p. 75.
Diagnosis of Myocardial Infarction with Aid of Chest Leads (Ger.). R. Langendorf and A. Pick—p. 80.

Three Synchronized Leads.—A method of placing chest leads is described in which the lead sites are chosen at characteristic points on the contour of the projection of the heart by screening. This makes it possible to arrange the leads in planes which practically coincide with the anatomical axes of the heart.

Transplantation of Pituitary Gland.—Observations in thirty-two cases—all females—show that transplantation of the pituitary is the only treatment which promises permanent success. In most of the cases the results were excellent and the restoration to normal was complete. A striking picture of a patient before and after operation illustrates the degree of success obtained.

American Journal of Cancer

Lancaster, Pa. vol. 33 August, 1938

- Studies in Carcinogenesis: V. Methyl Derivatives of 1:2-benzanthracene. M. J. Shear—p. 499.
Granulosa-cell Carcinoma: Malignant Ovarian Tumour associated with Endocrinological Effects. E. H. Norris—p. 538.
Production of Experimental Cancer of Lung in Mice. M. G. Seelig and E. L. Benignus—p. 549.
Hypophyseal Tumours induced by Oestrogenic Hormone. B. Zondek—p. 555.
*Study of Effect of "Anti-cancer Preparations" on Malignant Tissues grown *in vitro* and *in vivo*. A. Goldfeder—p. 560.
Leukaemia-cell Metabolism in Serum of Normal, Immunized, and Leukaemic Mice. J. Victor and J. S. Potter—p. 568.
Low Serum Glucose in Leukaemic Mice. J. Victor and J. S. Potter—p. 578.

Anti-cancer Preparations.—Three preparations recommended as specific "cancer cures" were investigated—namely, the so-called "Schmidt vaccine"; ensol, which was recently described by Connell and which is prepared by inoculating a tube containing cancer tissue immersed in physiological saline solution with *Bacterium histolyticus*; and a hormone extract, the mode of preparation of which remains a secret. The author studied the effect of these specific "cures" upon actively growing cultures of human malignant cells and of chick embryo, as well as upon mouse sarcoma 180 growing *in vivo*. The author concludes that on the basis of the results obtained from these experiments the Schmidt vaccine, ensol, and the hormone extract of Dr. Jacobs cannot be considered as anti-cancer preparations.

American Journal of the Medical Sciences

Philadelphia vol. 196 July, 1938

- Evolution of Parenchymal Lung Lesions in Rheumatic Fever and their Relationship to Mitral Stenosis and Passive Congestion. B. A. Gouley—p. 1.
Role of Mitral Stenosis and of Post-rheumatic Pulmonary Fibrosis in Evolution of Chronic Rheumatic Heart Disease. B. A. Gouley—p. 11.
*Site of Action of Renal Pressor Substance. A. Merrill, J. R. Williams, and T. R. Harrison—p. 18.
Insensible Loss of Water in Diabetes Insipidus. A. H. Bryan and M. A. Metzger—p. 23.
Observations on Continued Use of Protamine-zinc-insulin in Patients with Severe Diabetes Mellitus. E. P. Rall, H. D. Fein, and F. J. Lovelock—p. 28.
Changes in Glucose Tolerance Test occurring during and after Insulin Shock Therapy for Schizophrenia. H. Freed, with assistance of E. Fortunato and E. A. Strecker—p. 36.

- Effect of Benedrine on Ocular Movement. E. M. Boyd—p. 44.
Antidotal Action of Picrotoxin in Acute Intoxication by Barbiturates. E. A. Roventine—p. 46.
Prothrombin Deficiency and Bleeding Tendency in Obstructive Jaundice and in Biliary Fistula: Effect of Feeding Bile and Alfalfa (Vitamin K). K. M. Brinkhaus, H. P. Smith, and E. D. Warner—p. 50.
Combined System Disease without Obvious Evidence of Pernicious (Megalocyte) Anaemia. Eight Cases: One Necropsy. T. H. Suh and H. H. Merritt—p. 57.
Size of Red Blood Corpuscles in Diabetes Mellitus. C. F. Mohr—p. 67.
Differential Diagnosis of Traumatic Aneurysm and Arteriovenous Fistula.—W. B. Potter—p. 75.
False-positive Wassermann Reactions in Infectious Mononucleosis. A. Bernstein—p. 79.
Tuberculosis of Intestines in Tuberculous Anthracosis. R. Charr and A. C. Cohen—p. 83.
*Effect of Sodium Chloride Deficiency on Gastric Acidity. M. H. Seley, M. E. Lagen, and J. C. Lockhart—p. 88.
Origin of Emotional Factors in Normal Pregnant Women. J. C. Hirst and F. Strauss—p. 95.
Pneumococcus Meningitis with Recovery: Report of Three Cases. W. B. Allan, S. Mayer, jun., and R. Williams—p. 99.

Site of Action of Renin.—Observations on the site of action of the renal pressor substance were made on heparinized rats. The pressor substance was prepared by treating ground renal cortex with alcohol and extracting the precipitate with water. Injection of renin in these animals caused a rise in blood pressure after destruction of the spinal cord and also after exclusion from the circulation of the hypophysis, adrenals, pancreas, liver, and kidney. A vasoconstrictor effect was also demonstrated in the isolated leg. The character of the pressor response was not altered by removing the kidneys immediately before injecting the renin, but the height and duration of the rise in blood pressure were increased in animals in which nephrectomy had been effected two or three days previously.

Effect of Sodium Chloride Deficiency on Gastric Acidity.—A state of sodium chloride deficiency was produced in three normal healthy adult male volunteers by decreasing the sodium chloride in the diet and increasing the excretion of sodium chloride by sweating. A state of sodium chloride deficiency was shown to have been established by the fall in urinary and whole-blood chlorides and by the rise in urea nitrogen and non-protein nitrogen in one of the subjects. Gastric analyses were made each morning and showed that the sodium chloride deficiency produced no significant changes in the gastric secretion in the three subjects studied.

American Journal of Surgery

New York vol. 41 August, 1938

- Tourniquet and Local Asphyxia. F. M. Allen—p. 192.
Pathology and Therapy of "Shoulder-joint Complex." E. Bettmann—p. 201.
Syphilis complicating Pregnancy. W. T. Daily—p. 213.
Pelvic Tuberculosis: Review of Thirty-six Cases. M. Glass and J. Cresci—p. 216.
Experiences in Treatment of Certain Urinary Tract Malignancies with Super-voltage Roentgen Therapy. A. D. Nunger—p. 220.
Thrombophlebitis of Penis and Scrotum. M. R. Keen and S. Shinsbaum—p. 228.
Value of Blood Diastase in Diagnosis of Common Duct Stone. C. D. Branch and R. Zollinger—p. 233.
Non-calculous Chronic Gall-bladder Disease. M. J. Brown—p. 238.
Drainage in Treatment of Perforated Appendicitis. F. G. Connell—p. 255.
Gout in Surgical Practice. F. Glenn—p. 259.
Comparative Study of Some Antiseptics and Germicides, with Special Reference to Alkyl-dimethyl-benzyl Ammonium Chlorides. C. G. Dunn—p. 268.
Head Injuries. Treatise from Viewpoint of Diagnosis, Prognosis, and Treatment. J. H. Watt—p. 272.
Neurogenic Sarcoma. H. Charache—p. 275.
Cancer of Right and Left Colon. A. Bowen—p. 281.
Spontaneous Rupture of Hydropneumothorax Secondary to Calculous Obstruction of Ureter. A. A. Salvin—p. 288.
Simultaneous Extra-uterine and Intra-uterine Pregnancy. Case Report and Review of Literature. J. I. Sloat and L. T. Peterson—p. 293.
Twisted Ovarian Cyst in Three-year-old Child. H. E. Isaacs and A. M. Schwartz—p. 298.
Primary Chorion Epithelioma of Tube. I. Tractenberg—p. 301.

- Non-tuberculous Disease of Upper Lobes of Lungs simulating Tuberculosis
B. R. Lovett.—p. 330.
- Goutre and Malignant Growth of Thyroid in Dog D. J. Davis.—p. 339.
- Mixed Tumours of Lip H. E. Eggers.—p. 348.
- Cause and Surgical Relief of Sterility in Women A. H. Curtis.—p. 354.
- Immunological Studies on Fractions of Red Blood Cells E. Delves.—p. 359.
- Acute Endocarditis caused by *Bact. paratyphosum* B. J. Meyer and K. M. Howell.—p. 368.
- Observations on Guinea-pigs given Intracutaneous Injections of Tuberculous Exudates R. D. Herrold and C. I. Woolsey.—p. 374.
- Metastatic Myeloma with Crystalline Protein in Renal Tubes: Case Report I. D. Gunn and A. E. Mahle.—p. 377.
- Use of Fluoroscope in Examination of College Students. R. E. Taylor.—p. 387.
- Lymphoid Hyperplasia associated with Thrombopenic Purpura. L. E. Cooley.—p. 390.
- Sensitiveness to Insulin and Optimal Diets in Diabetes W. H. Nadler.—p. 395.
- Clinical and Statistical Study of Sore Throat in Young Adults. P. S. Rhoads and M. L. Afremow.—p. 403.
- Atherosclerosis of Coronary Arteries D. J. Glomset.—p. 411.
- Epithelial Cyst of Heart I. Davidsohn.—p. 422.
- Sarcomatous Degeneration of Transplantable Mammary Adenolipoma of White Rat L. A. Emge.—p. 429.
- Crystalline Bence-Jones Proteins A. E. Mahle and W. H. Welker.—p. 441.

Mixed Tumours of the Lung.—A tumour with the following features is described: eleven cases are cited in detail. It occurs with about equal frequency in the two sexes, is situated near a primary bronchus, usually in the lower lobe, and causes bronchial obstruction early. Microscopically it consists of a fibrous stroma, which may be the only abnormal tissue present in small biopsy specimens, and epithelial cells arranged in alveoli; typical specimens strongly resemble foetal lung. In its early stages the tumour is benign, but it often becomes malignant and should always be regarded as potentially so; in advanced cases where this change has occurred the histological appearance varies and it may be mistaken for several other types of tumour. It is radio-resistant. The authors regard it as of mixed origin, and propose naming it "mixed tumour" of the lung.

Archives of Surgery

Chicago vol. 37 August, 1938

- Spondylolisthesis: Treatment by Anterior Bone Graft. R. Speed.—p. 175.
- Carcinoma of Breast: Review of Four Hundred and Thirty-nine Cases. W. F. Shephard.—p. 190.
- Problems in Surgical Treatment of Renal Calculi T. E. Gibson.—p. 211.
- Complete Excision of Cervical Glands for Regional Metastases. L. C. Cohn.—p. 240.
- Pseudo-ulcers of Duodenum of Normal Dog, including Study of Incidence of Intestinal Ulcers in Normal Dog I. F. Volini, H. L. Widenhorn, and H. de Fco.—p. 259.
- Perianal Cysts of Vestigial Origin. J. A. Gius and A. P. Stout.—p. 268.
- Motion of Lung after Surgically Induced Paralysis of Phrenic Nerve. A. L. Banyai.—p. 288.
- Experimental Pyloric and Jejunal Obstructions: Absorption of Sodium Chloride from Stomach and Upper Part of Small Intestine. T. G. Orr and M. J. Rumold.—p. 295.
- Leukocyte Exhaustion following Surgical Procedures. J. Van Duyn.—p. 302.
- Experimental Administration of Duodenal Contents to Dogs with Acute High Intestinal Obstruction. F. C. Hill and H. V. O'Connell.—p. 311.
- Unusual Thyroid B. S. Ray.—p. 316.
- Right Para-duodenal Hernia: Case favouring Theory of Treitz. C. Baumeister and McM. Hanchett.—p. 327.
- Sixty-sixth Report of Progress in Orthopaedic Surgery. J. G. Rhoads, S. M. Roberts, R. J. Joplin, W. A. Elliston, F. W. Ilfield, J. A. Freiberg, I. E. Milgram and R. Stirling.—p. 333.

Australian and New Zealand Journal of Surgery

Sydney vol. 8 July, 1938

- George Adington Syme Oration: Surgical Teaching in Germany. W. A. Osborne.—p. 5.
- President's Address: Sir Louis Barnett, Kt., C.M.G.—p. 13.
- First Book on Surgery to be Published in Victoria K. F. Russell.—p. 17.
- Intestinal Obstruction J. Smith, jun.—p. 19.
- Uraemic Intoxication complicating Pyloric Stenosis with Vomiting M. A. Falconer and A. L. Lyle.—p. 37.
- Primary and Secondary Cases of Cancer of Stomach. F. G. Bell.—p. 57.
- Review of Leukemia Hyperaesthetism, with Case Report J. M. Clarke.—p. 64.
- General Anesthesia: Critical Studies of Gas Anesthetic Technique D. G. Renton.—p. 74.
- Art of Phthisical Ophthalmia J. Barrett.—p. 80.

- Method of Extracting Secondary Capsular Cataractous Membrane. R. G. Waddy.—p. 81.
- Suggested Aid in Treatment of Cleft Palate in Older Children or Adults R. Flynn.—p. 82.
- Extreme Disfigurement resulting from Operation on Frontal Sinus, corrected with Graft of Rib Cartilage. B. Foster.—p. 85.
- Primary Carcinoma of Jejunum: Two Cases. A. E. Lee.—p. 88.

Uraemic Intoxication in Pyloric Stenosis.—Eight cases are described in which impaired renal function resulted from alkalosis consequent upon repeated vomiting. The importance of correction of this factor before operation by means of the withholding of alkalis and the administration of salines is emphasized.

British Journal of Ophthalmology

London vol. 22 September, 1938

- *World-wide Distribution of Trachoma. A. F. MacCallan.—p. 513.
- Withdrawal of Inter-retinal Fluid in Detachment Operation by Simple Suction Apparatus. C. J. Blumenthal.—p. 542.
- Hydrostatic Approach to Posterior Chamber for Diagnostic and Therapeutic Purposes. A. Motegi.—p. 543.

Trachoma.—The widespread distribution of trachoma throughout the world is made evident by a review of each country. There is a warning that an increase of the disease in England may be expected in the next year or so owing to the admission of 4,000 refugee children from parts of Spain where trachoma is prevalent.

Bulletin de l'Association Française pour l'Étude du Cancer

Paris vol. 27 June, 1938

- Interest and Value of Transillumination in Diagnosis of Lesions of Breast R. Huguenin.—p. 496.
- Improvement in Results of Surgical Treatment of Cancers of Breast by Systematic Practice of Immediate Histological Examination of all Breast Tumours. G. Lardinois.—p. 507.
- Results of Surgical Treatment of Cancer of Breast. J. Ducuing.—p. 513.
- Results of Surgical Treatment of Cancer of Breast. A. Tailhefer.—p. 523.
- Breast Cancers. H. Hartman.—p. 538.
- Results of Surgical Intervention in Cancer of Breast. Desmaret.—p. 545.
- Treatment of Breast Cancer. M. H. Rubens-Duväl.—p. 552.
- Hypophyseal Metastasis of Cancer of Breast shown Clinically by Polyarthralgic Syndrome: Parallel Evolution of Primary Alveolar Cancer of Lung L. Rimbaud and H. L. Guibert.—p. 555.
- Hepatic and Renal Lesions produced by Certain Carcinogenic Hydrocarbons L. Cornil, J. E. Pillas, and E. R. Castuelli.—p. 579.
- Sarcomatous Evolution of Major Tumour of Shoulder in Case of Reckitt-hausen's Disease. V. Poursines and G. Mustardier.—p. 587.
- Histological Resemblance between Certain Orbital Tumours of Laryngeal Origin and So-called Mixed Tumours of Salivary Glands. H. Tille and J. Leroux-Robert.—p. 596.
- Cavernous Angioblastoma of Subcutaneous Tissue with Embryonic Haemopoiesis. B. Mordurgo.—p. 617.
- Parathyroid Glands during Development of Experimental Cancer. L. B. Larionow.—p. 628.

Gynécologie

Paris vol. 37 July, 1938

- *Fallacy of Systematic Operation for Fibroids. J. Vanviers.—p. 383.
- Sudden Death during Labour. Hartemann.—p. 400.

Fallacy of Systematic Operation for Fibroids.—Attention is drawn to the undoubted clinical facts that fibroids are often completely symptomless, and that neither operation nor x-ray treatment is without a certain degree of risk. It is consequently suggested that before radical treatment is undertaken the patient should be subjected to a long period of medical supervision and treatment, and only when this fails should more advanced measures be adopted. This opinion may be influenced by the prevalent radiation therapy of fibroids, common in France and rare in this country, and productive of so many unfortunate sequelae.

Journal of Experimental Medicine

Baltimore vol. 68 July 1, 1938

- Hormone Studies with Ultracentrifuge: I, Improved Air-driven Vacuum Ultracentrifuge Suitable for Concentration Work in Biological Experiments J. A. Chiles, jun., and A. E. Severinghaus.—p. 1.
- Effect of Repeated Subinjection upon Potency of Immune Serum of Mice harbouring Chronic Infections of *Plasmodium knowlesi* L. I. Corgeshall and H. W. Kumm.—p. 17.

- Quantitative Relationship between Immune Serum and Infective Dose of Parasites as demonstrated by Protection Test in Monkey Malaria. L. F. Coombs and M. D. Eaton.—p. 29.
- Rate of Nasally Instilled Poliovirus in Normal and Convalescent Monkeys, with Special Reference to Problem of Host-to-Host Transmission. A. H. Sabin and P. K. Olitsky.—p. 39.
- Vital Staining of Connective Tissues. Plate I. L. S. King.—p. 43.
- Quantitative Studies of Brucella Precipitin Systems: I. Precipitation of Homologous Antisera by Brucella Endo-antigens. II. Precipitation of Heterologous Antisera by Brucella Endo-antigens. R. B. Pennell and I. F. Huddleston.—p. 73.
- Immunization of Guinea-pigs against Lymphocytic Chorio-meningitis with Formalized Tissue Vaccines. E. Traub.—p. 95.
- Immunity of Mice following Subcutaneous Vaccination with St. Louis Encephalitis Virus. L. T. Webster.—p. 111.
- Cutaneous Infectivity in Experimental Poliovirus: Increased Susceptibility after Neurosurgical Procedures. W. J. German.—p. 125.

Journal of Hygiene

Cambridge vol. 33 July, 1938

- Classification of Conform Bacteria. J. F. Malcolm.—p. 395.
- Effect of Diet on Epidemics of Mouse Typhoid. M. Watson, J. Wilson, and W. W. C. Tooley.—p. 424.
- Investigation of Effects of Certain Substitutes for Morphine and Heroin upon Passage of Food along Alimentary Tract of Human Subject. G. N. Myers and S. W. Davidson.—p. 432.
- Distribution of Coliform Organisms in Milk and Accuracy of Presumptive Coliform Test. H. Barkworth and J. O. Irwin.—p. 446.
- Pneumococcus-like Organisms of Diverse Provenance: Some Results of Inquiry into Methods of Differentiation. E. Kleneberger.—p. 458.
- *Antigenic Structure of Mannitol-fermenting Group of Dysentery Bacilli. J. S. K. Boyd.—p. 477.
- Is General Paresis dependent upon Previous Treatment with Mercury? P. Hebert.—p. 500.
- Isolation of *Bact. typhosum* by Means of Bismuth Sulphite Medium in Water- and Milk-borne Epidemics. W. J. Wilson.—p. 507.

Flexner Dysentery Bacilli.—A serological study embracing many strains of mannitol-fermenting dysentery bacilli leads the author to deny some of the conclusions reached by Andrews and Inman, on whose work is based the serological classification of *Bact. dysenteriae* Flexner which has been accepted since 1919. Types V, W, X, and Z do not possess four antigens in varying proportions, but each has a specific type antigen and a group antigen common to all. The so-called "Y" is not a distinct type, and its frequent recognition is due to the presence of group agglutinin in sera used for identification. Three further distinct types have been identified which possess the same group antigen as V, W, X, and Z, and six others which do not; the latter need further study.

Journal of Immunology

Baltimore vol. 35 July, 1938

- Second Attacks of Experimental Poliovirus in *Macacus rhesus* Monkeys. J. A. Toomey.—p. 1.
- Experiments with Staphylococcal Enterotoxin. C. E. Dolman and R. J. Wilson.—p. 13.
- *Immunization of Respiratory Tract: Comparative Study of Antibody Content of Respiratory and Other Tissues following Active, Passive, and Regional Immunization. T. E. Walsh and P. R. Cannon.—p. 33.
- Response in Horse to Mexican Typhus Infection. M. R. Castaneda and J. Vargas-Curiel.—p. 47.
- Phospholipids and Cholesterol in Plasma of Immunized Horses. A. Wadsworth and L. W. Hyman.—p. 55.
- Analysis of Alcohol-ether Extract of Horse Serum. L. W. Hyman.—p. 71.

Local Immunization.—The agglutinin content of various tissues was determined after immunization by different methods, the material used for these tests being an extract of the tissue made after thorough perfusion in order to rid it of blood. After "general" immunization—that is, parenteral injection—whether active or passive, the ratio of tissue antibody to serum antibody was on an average 1:10. On the other hand, when vaccine was given by nasal instillation and the agglutinin content of the nasal mucosa subsequently estimated the ratio of this to serum agglutinin was on an average 1:5 and occasionally 1:1 or even 2:1. These and other experiments are held to indicate that antibody is formed locally at the site of introduction of a bacterial antigen: Local immunization at the portal of entry of infection should therefore be more effective than the usual method of subcutaneous injection.

Journal of Laboratory and Clinical Medicine

St. Louis vol. 23 July, 1938

Clinical and Experimental

- Effect of Temperature on Digitalis Action. R. A. McGowan.—p. 999.
- Excretion of Ingested Ethyl Alcohol in Saliva. T. E. Friedemann, W. G. Motel, and H. Necheles.—p. 1007.
- *Comparison of Methods for Detecting and Grading Subclinical Scurvy. R. A. Sloan.—p. 1015.
- Staining Reactions of Tars after Use of Various Dyes and Fume Acens. C. E. Black.—p. 1027.
- Effects of Ligation of the Common Bile Duct on Blood Iodine and Blood Counts of Male Rabbits. J. L. DeCoursey, C. D. Stevens, R. Weskum, and N. Broer.—p. 1037.
- Cytological Comparison of Malignant and Non-malignant Nuclei and Nucleoli. M. E. Haemmer.—p. 1045.
- Superimposed Infection in Rheumatic Heart Disease. G. Friedman and J. R. Lisa.—p. 1052.
- Pressor Episodes, Diets, and Toxicity of Morphine Sulphate. A. J. Nedzel.—p. 1053.

Laboratory Methods

- Colloidal Carbon Flocculation Test in Spinal Fluid for Diagnosis of Neurosyphilis. S. Seidenick.—p. 1068.
- Perfusion Stage for Observations on Daphnia. W. Tinley.—p. 1076.
- Modification of Titan Yellow Method for Determination of Small Amounts of Magnesium in Biological Fluids. V. G. Haury.—p. 1079.
- Retraining Device for Unanesthetized Monkeys. J. O. Pinkston.—p. 1085.
- Limit of Usefulness of Direct and Indirect Methods of determining Venous Pressure in Man. H. K. Beecher.—p. 1088.
- Method for Collecting Blood for Gas Analysis. J. Adriani.—p. 1094.
- Improved Method for Preparation of Urease Paper. B. Kian.—p. 1097.
- Filter Adapter for Small Quantities of Solutions. B. Swamy.—p. 1098.
- Apparatus for Aseptic Collection, Disinfection, and Distribution of Blood. L. H. Mardiss and T. T. Sokolik.—p. 1099.
- Determination of Sulphanilamide in Blood. J. Kamlet.—p. 1101.

Subclinical Scurvy.—The most accurate method of determining the degree of vitamin C deficiency is by estimating the rate of absorption of an injected dose from the blood stream; the rate of excretion of a test dose, though less precise, is still a dependable method. Among simpler methods estimation of vitamin C in the blood is the most dependable. The capillary resistance test is the simplest; it may give false negative results in the presence of severe anaemia.

Journal de Radiologie et d'Électrologie

Paris vol. 22 September, 1938

- Bio-electric Phenomena of Nervous System and their Possible Utilization in Medicine. A. Baudouin and H. Fischel.—p. 401.
- Results of Tomographic Radiological Methods. J. Didec.—p. 429.
- Pure Cardiac and Aortic Inversion through Faulty Embryological Development. Conte and Solari.—p. 453.
- Commemoration at Medical Academy of Election Jubilee of its Dean—Professor d'Arsonval. L. Chauvin.—p. 47.
- First Therapeutic Application of Electricity by Gabriel Laverne, Surgeon Major of Italian Army (1773-1860). M. Kahn.—p. 463.

Journal of Tropical Medicine and Hygiene

London vol. 41 August 1, 1938

- Failure to Transmit an Infection of *Plasmodium cynomeli* to Man by Blood Inoculation and Mosquito Bites. J. A. Simen, E. L. Hutton, and P. G. Shute.—p. 245.
- Cultivation and Pathogenicity of *Dientamoeba fragilis*, with Case Report. M. Molari and J. V. Anzulovic.—p. 245.
- Trypanosomiasis Gambiense: Some Observations in Uganda and their Bearing on Prophylaxis. A. A. Forbes Brown.—p. 247.

London vol. 41 August 15, 1938

- Protective Inoculation against Typhus. M. A. Gubar.—p. 201.
- Fourth Note on Infectivity to Man of Strain of *Trypanosoma rhodesense*. J. F. Corson.—p. 262.
- Trypanosomiasis Gambiense: Some Observations in Uganda and their Bearing on Prophylaxis. A. A. Forbes Brown.—p. 265.

London vol. 41 September 1, 1938

- Smooth and Rough Forms of *Monilia tropicalis* Cast in Sputum of Same Patient. A. Castellani.—p. 277.
- Hereditary Transmission of Lymphocystic Leishmaniasis. W. E. Courts and O. Monetta.—p. 274.
- Trypanosomiasis Gambiense: Some Observations in Uganda and their Bearing on Prophylaxis. A. A. Forbes Brown.—p. 281.

London vol 41 September 15, 1938

- Favourite Sites of Schistosomes and Consideration of their Destruction in Stock. F. G. Castown.—p. 293.
Pellagra-like Beriberi (Dermo-beriberi). A. Castellani.—p. 294.
Trypanosomiasis Gambiense: Some Observations in Uganda and their Bearing on Prophylaxis. A. A. Forbes Brown.—p. 296.

Journal d'Urologie

Paris vol. 46 August, 1938

- *Chorion Epithelioma of Right Testis, with Metastases in Lungs, Kidneys, Liver, Brain (Right-sided Hemiplegia), and Cerebellum. Barge, Querangal des Essarts, and Larraud.—p. 97.
Primary Tuberculosis of Bladder. A. Puigvert-Gorro.—p. 113.
Case of Neoplasm in Large Polycystic Kidney. J. H. J. van der Voort de Vries.—p. 130.
Necessity for Complete Exploration of Bladder before Prostatectomy. Marion.—p. 139.

Chorion Epithelioma of Right Testis.—A case of chorion epithelioma is described. The authors have traced published reports of sixty-four previous cases in the literature, a full bibliography of which is appended to the article. The rapid and extensive metastasis by the blood stream which is so common with these neoplasms is emphasized in the history of the case here reported. A description of the findings at necropsy is given, together with a detailed account of the microscopical appearances of the tumour. The authors also express briefly their opinion upon the prognosis in cases of chorion epithelioma of the testis.

Monatsschrift für Geburtshilfe und Gynäkologie

Leipzig vol. 108 August 1938

- Anatomical, Physiological, and Pathological Significance of Great Omentum. L. Kührer.—p. 181.
Manual Removal of Placenta. R. Knebel.—p. 207.
Abdominal Tubal Insufflation and Intra-uterine Ovarian Implantation. W. Schmidt.—p. 209.
Three Deliveries by Hysteroscopy with Insertion of Autogenous Graft. W. Schmidt.—p. 211.

Surgery

St. Louis vol 4 August, 1938

- *Delayed Operation in Treatment of Perforated Appendix. C. Gardner, Jun.—p. 161.
End-results following Removal of "Inactive" Appendix. C. Rea and Le Roy Kleinsasser.—p. 179.
Tuberculous Peritonitis. M. Brown.—p. 185.
Chronic Subdural Haematoma. R. Coblenz.—p. 194.
Subdural Haematoma, Acute and Chronic, with Some Remarks about Treatment. A. Kaplan.—p. 211.
Effect on Blood Flow of Decreasing Lumen of Blood Vessel. F. Mann.—p. 249.
Report of Five Hundred Blood Transfusions. E. H. Fell.—p. 253.
Blood Transfusion and Storage of Blood for Emergency Procedures. E. Tuohy.—p. 261.

Delayed Appendicectomy.—The controversial question of immediate or delayed operation in cases of perforation of the appendix is fully discussed. Although it is admitted that delayed operation has never been adopted by the majority of surgeons, the author argues that it is based on sound physiological and surgical principles. Details are given of seventy-seven patients with peritonitis of appendicular origin who were treated conservatively; the results show a reduced mortality.

Surgical Clinics of North America

Philadelphia vol 18 August, 1938

- Diagnosis and Treatment of Vascular Disorders of Extremities. W. McK. Cull and B. T. Horton.—p. 899.
Diagnosis of Vascular Disorders. F. Z. Havens and A. R. Mackay.—p. 904.
*Diagnosis of Neck Injuries. G. B. New and J. B. Erlich.—p. 991.
*Diagnosis of Head Injuries. J. G. Love.—p. 1005.
*Diagnosis and Sequence of Head Injuries. J. G. Love.—p. 1021.
Recent Trends in Gastrointestinal Surgery. H. Cabot and J. L. Emmett.—p. 1027.
Treatment of Tumors of Bladder. H. Cabot and G. J. Thompson.—p. 1076.

- Factors determining Choice of Operation in Diseases of Stomach and Duodenum. W. Walters.—p. 1055.
Cystic Tumours of Stomach. H. K. Gray and G. A. Wood.—p. 1069.
Difficult Problems encountered in Surgery of Biliary Tract. W. Walters and M. W. Comfort.—p. 1083.
Treatment of Bursitis. H. W. Meyerding.—p. 1103.
Open Treatment of Congenital Dislocation of Hip. R. K. G. Hornley.—p. 1119.
Acute Osteomyelitis. H. B. Macey.—p. 1131.
Surgical Treatment of Uterine Prolapse. V. S. Counseller.—p. 1143.
Repair of Vesico-vaginal Fistula. V. S. Counseller.—p. 1153.
Ante-partum Haemorrhage. L. M. Randall.—p. 1159.

Deep Infections of the Neck.—This is a review of 267 patients with deep infections of the neck treated at the Mayo Clinic since 1922. The youngest patient was aged 3 days and the oldest 76 years. The treatment generally employed is described in detail, and the authors advocate strongly early tracheotomy in cases in which there is marked obstruction of respiration due to cellulitis of the neck. Incision and drainage should not be performed until the abscess is well localized. There was no case of mediastinitis in this series, and the mortality from all causes was 3 per cent.

Zeitschrift für Immunitätsforschung

Jena vol 93 July, 1938

- Action of Tri- and Penta-valent Antimony Compounds on White Blood Picture in Healthy and in Kala-azar-inoculated Hamsters. E. Johannes.—p. 29.
Observations on Duration of Passive Immunity after Previous Sensitization. L. Schmid.—p. 229.
Serological Subdivision of *Cl. chauvuai* and *Cl. septique*. S. Uenaka.—p. 235.
Toxin Formation by *Cl. chauvuai*. S. Uenaka.—p. 241.
Specific Receptors of Meningococci. S. Endo.—p. 244.
Researches on Anti-*B. coli* Immunity (Fr.). O. S. Gwan.—p. 248.
Employment of Clearing Reaction to demonstrate Forssman Antigens and Antibodies. W. A. Collier.—p. 300.
Serological Specificity of Animal Tumour and Pus Antigens. L. Dmochowski.—p. 311.
Basis of Serologically Demonstrable Changes in Organs in Cancer and Tuberculosis. L. Dmochowski and A. Pruszyński.—p. 331.
Detection of Specific Antitoxin in Blood after Recovery from Shiga Dysentery. A. Weleker.—p. 346.
Comparative Serological Investigation of Different Strains of *Spiraea heterogenes* and *Spirochaeta caudicola*. O. Kaufmann.—p. 354.
Anaphylactic Shock and Thyroid Activity. W. Eickhoff, P. Sinder-Plassmann, and W. Stecher.—p. 368.
Serological Classification of Pneumococci. K. Shigeno.—p. 375.

Zeitschrift für Krebsforschung

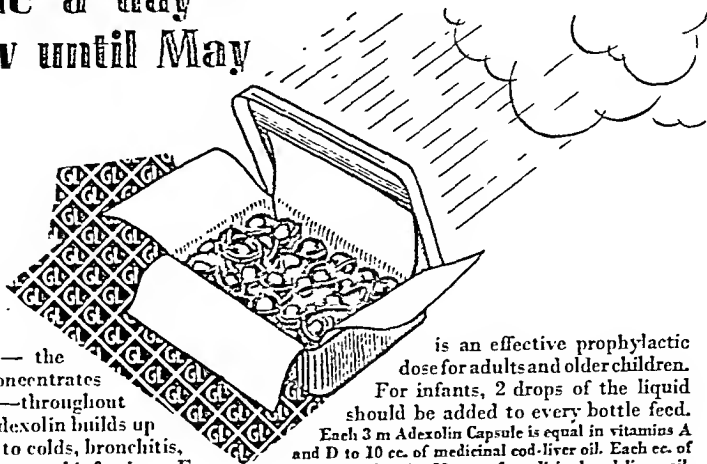
Berlin vol. 47 August, 1938

- *Formation of Ulcers and Malignant Tumours in Digestive Apparatus in Feeding with Irradiated Cholesterol. A. H. Roffo.—p. 473.
Primary Bilateral Colloid Cancer of Breast with Secondary Calcification (Carcinoma Psammomum). W. J. Eicke.—p. 498.
*Diagnostic Value of Biochemical Cancer Reactions. K. Hinsberg.—p. 501.
I: Experiences with Fuchs's Reactions. D. Albers, R. Merten, and K. Mücke.—p. 512.
II: Experiences in Cancer Diagnosis with Minibeck Modification of Fuchs's Reaction. R. Merten and K. Mücke.—p. 525.
III: Experiences with Reactions of Bendien and Botelho. R. Merten.—p. 533.
IV: Results with Rodewald's Inactivation of Melanophore Hormone. W. Rodewald.—p. 540.
V: Examination of Roffo's Reaction. D. Albers.—p. 543.

Alimentary Tract Tumours produced by Irradiated Cholesterol.—Irradiated cholesterol added to the food of rats produced lesions of the stomach ranging from erosions to adenocarcinoma and highly malignant spindle-celled sarcoma of the liver. Roffo believes that cholesterol is converted by irradiation into a carcinogenic hydrocarbon and that the production of skin tumours by sunlight or ultra-violet light is due to this chemical change.

Diagnostic Value of Biochemical Tests for Cancer.—In the introductory paper Hinsberg discusses the conditions which proposed tests for early cancer should fulfil. His colleagues then report on the examination of several methods for which a high degree of accuracy has been claimed. The reactions of Fuchs, Bendien, Botelho, and Roffo gave too many false reactions to be of value in practice. Under favourable conditions Miribeck's modification of Fuchs's test was more satisfactory than the original, and Rodewald obtained 27 correct results in 323 tests with his own method.

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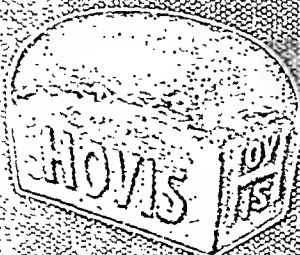
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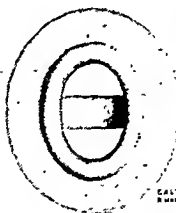
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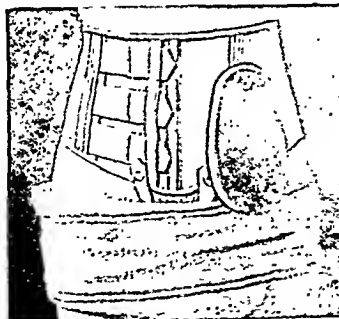
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to body and
rubber flange
to prevent belt
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Showing
bag
attached
to
receiver.

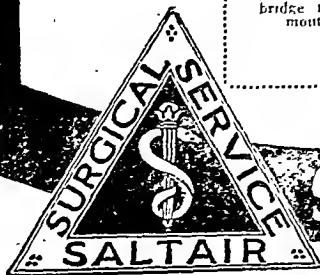
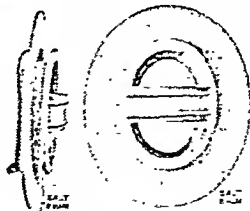


Showing
attachment
of receiver
and bag to
belt.



Showing other views
of receiver.

See groove over which
aperture in bag is
stretched and curved
bridge to hold open
mouth of bag.



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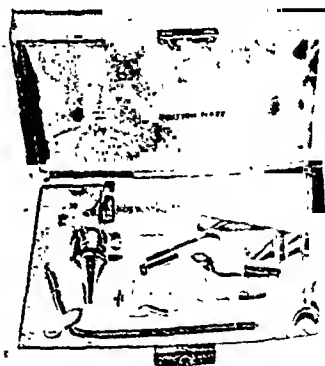
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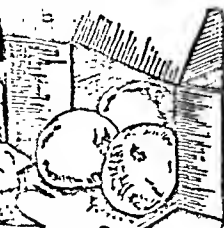
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Residential treatment of
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Including Alcoholism and other Addictions.
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This beautiful mansion situated in the heart of the country (less than two hours from London by L.M.S.R.) and surrounded by charming pleasure grounds, in which games and outdoor occupational therapy are available, is devoted to the treatment of Functional Nervous Disorders by psychotherapeutic and ancillary methods.

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CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOTIA, LONDON"

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The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

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Telephone: Rodney 2641-2642.

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The Hospital has its own Cinema, Library, and Hairdressing Saloon. Terms include regular motor drives. Private rooms, suites or villas are available and special nurses can be provided.

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At the Hospital is well endowed terms are exceptionally moderate, e.g., First Department, 3, to 30 guineas per week. Second Department, 2 and 2½ guineas per week. Voluntary and certified patients are received. Medical Certificates given anywhere in the British Isles are valid for admission of patients. For particulars, apply to the Medical Superintendent.

Medical Superintendent: P. K. McCOWAN, J.P., M.D., F.R.C.P., D.P.M., Barrister-at-Law.
Tel.: Dumfries 1119.

THE MAUDSLEY HOSPITAL

DENMARK HILL, S.E.5.
Telephone: RODNEY 3841.

A CLINIC instituted by the London County Council for treatment of Nervous and Mental Disorders. Voluntary patients only free of charge. New Out-patients.—MEN: Mondays and Fridays, 2 p.m. WOMEN: Tuesdays and Fridays, 2 p.m. CHILDREN: Mondays and Fridays, 10 a.m. In-patients: (a) 235 beds (both sexes) in wards of separate rooms, including 35 beds in a ward of King's College Hospital, which is in use as a temporary annexe of the Maudsley Hospital; (b) special ward (including some private rooms) for those patients of each sex who are paying the full cost and are otherwise suitable. TERMS: 15s. per week, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.

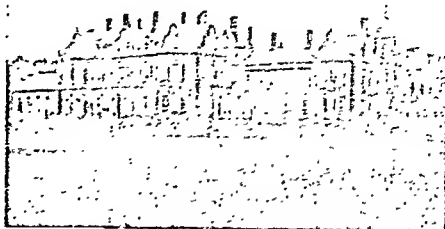
Terms include (with rare exceptions) all forms of treatment, for which there are extensive facilities, as there is a staff of Consultant Specialists, and the Central Laboratory of London County Mental Hospitals is attached to the hospital. Inquiries of EDWARD MAROTIER, M.D., F.R.C.P., F.R.C.S., Medical Superintendent.

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Rendlesham Hall, which is open to receive patients, is essentially a Sanatorium. Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.



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Illustrated booklet giving particulars as to terms, etc., can be had on application to the
RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: WICKHAM MARKET 216 (Tell Call from London).

Proprietors: The Norwood Sanatorium, Limited.

BETHLEM ROYAL HOSPITAL, for Nervous and Mental Disorders, Monks Orchard, Monks Orchard Road, Eden Park, Beckenham, Kent.

Reg. Tel. Address: Bethlem, Beckenham.

Station: Eden Park (Southern Railway).

Telephone: Spynspark 119(-1)

President: VISCOUNT WAKEFIELD OF HYTHE, G.C.V.O.

Treasurer: SIR LIONEL FAUDEL-PHILLIPS, BART.

Physician-Superintendent: I. G. PORTER PHILLIPS, M.D., F.R.C.P.

This REGISTERED HOSPITAL is situated at Monks Orchard, in some 250 acres of park, pleasure and farm grounds.

Application can be considered on behalf of patients of the educated classes in a presumably curable condition.

With a view to early treatment voluntary or uncertified patients are admitted.

Patients who can contribute 5 guineas weekly towards the cost of treatment and maintenance may be received as vacancies arise. The Committee will also consider applications for admission at lower rates, and in certain cases will be prepared to admit patients free of charge.

The comfort of sensitive patients is greatly enhanced by the fact that the majority are given single bedrooms.

TREATMENT ON MODERN PRINCIPLES—Every facility for specialised investigation and treatment is provided in the Lord Wakefield of Hythe Science and

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The Medical Staff have access to a panel of Consultants in cases which present unusual symptoms requiring specialised investigation and treatment.

Under the direction of qualified officers HELIO-THERAPY, HYDRO-THERAPY and ELECTRO-THERAPY are administered in the Physio-Therapy Department.

INSULIN TREATMENT.—For special cases of mental disorder Insulin Treatment is being carried out with good results and suitable cases are accepted.

OCCUPATIONAL THERAPY, in the form of various Arts and Crafts, is actively encouraged from the medical aspect, and under the guidance of a competent

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The promotion of physical fitness is a prominent item of treatment, and this is enhanced by arrangements for patients to take part in Outdoor and Indoor

sports and Entertainments, and special attention is drawn to the physical drill and dancing classes which form part of the regular hospital routine.

Application should be made to the PHYSICIAN-SUPERINTENDENT.

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A Private Hospital or Clinic for the diagnosis and treatment of Internal Diseases (except Mental or Infectious Diseases). The Clinic is provided with a full staff of doctors, bacteriologists, chemists, radiologists, dietists, nurses, masseurs, and masseuses.

The surroundings are beautiful. The climate is mild. There is central heating throughout. The annual rainfall is 30.5 inches, that is, less than the average for England.

The inclusive weekly fees are from 15 guineas a week, according to the room occupied; rooms with bathroom are from 21 guineas. The charges include all chemical, bacteriological, X-ray or other examination advised by the doctors, and all the usual forms of treatment, in addition to board and lodging. There are no extra charges except for alcohol (when ordered) and laundry. An examination and consultation fee of 15 guineas is charged on the first visit.

Address: THE SECRETARY, Ruthin Castle, North Wales.

Telegrams: Castle, Ruthin. Telephone: Ruthin 66.

ST. ANDREW'S HOSPITAL^{*} FOR MENTAL DISORDERS NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: THOMAS TENNENT, M.D., M.R.C.P., D.P.H., D.P.M.

This Registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or wish to prevent recurrent attacks of mental trouble, temporary patients and certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms, with special nurses, male or female in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, Plombieres treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray room, an Ultra-Violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm gardens and orchards of Moulton Park. Occupation Therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit growing.

BRYN-Y-NEUADD HALL

Seaside house of St. Andrew's Hospital is beautifully situated in a park of 330 acres, Llanfairfechan, on the finest scenery in North Wales. On the North-West side of the Estate, a mile of sea coast on the boundary. Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent Telephone No. 2356 and 2357 Northampton who can be seen in London by appointment.

THE COPPICE, NOTTINGHAM HOSPITAL FOR MENTAL DISEASES

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Occupational Therapy. Voluntary and Temporary Patients received.

Tel. 64117. For terms, etc., apply to the Medical Superintendent.

HAYDOCK LODGE

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Loc. 1, Street, Ashton-in-Makerfield

Phone: Ashton-in-Makerfield 7311.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from mental and nervous diseases, either voluntarily, temporarily, or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N4

A PRIVATE HOSPITAL for the treatment of mental and nervous illnesses. Conveniently situated and easy of access from all parts. Six acres of ground, highly situated, facing Finsbury Park. Voluntary and Temporary Patients received without certification. Occupational Therapy, Psychotherapy, and other modern forms of treatment.

Telephone: STAMFORD HILL 2648

Telegrams: "SUBSIDIARY, LONDON."

Convalescent Home: KEARSLEY COURT, DOVER

For further particulars apply to the Medical Sup.

COURT HALL, KENTON, near EXETER,

for the treatment of eight Ladies, voluntary, temporary, or certified patients. Large gardens and own dairy

CHILDEN, TEIGNMOUTH, for early and convalescent cases. A well-appointed house, with spacious balconies, and extensive views of the South Devon coast. Sub-tropical gardens, own dairy in 25 acres. Private road to beach.

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Telephones: Starcross 59
Teignmouth 289

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Telephone: PINNER 234.

A Private Hospital for the Treatment and Care of Mental and Nervous Illnesses in both sexes.

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees from 10 guineas per week, inclusive. Cases under Certificate. Voluntary and Temporary patients received for treatment.

Douglas Macaulay, M.D., D.P.M.

STRETTON HOUSE,

Church Stretton, Shropshire.

A PRIVATE HOME for the treatment of Gentlemen suffering from Mental and Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental and Nervous cases are received without certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930. Bracing hill country. (See Medical Directory, p. 2328.) Apply to the Medical Superintendent. Phone: 10 P.O. Church Stretton.

FENSTANTON,

CHRISTCHURCH ROAD,
Streatham Hill, S.W.2

A Private Home for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders. Certified, Voluntary, and Temporary Patients received. Large Mansion with 12 acres of grounds. (See Medical Directory, p. 2312.) Apply, Resident Physician. Telephone: Tulse Hill 7181.

BAILBROOK HOUSE, BATH.

For sufferers from Nervous and Mental Disorders with or without certificates.

The house is gloriously situated in wooded grounds of 20 acres with magnificent views of the City and the Avon Valley. (See Medical Directory, page 2322.)

For terms apply, A. GUERDAN, M.A., D.M., B.Ch., D.P.M., Resident Physician. Telephone: Bathaston 8189.

HEIGHAM HALL, NORWICH

A PRIVATE MENTAL HOME, situated in 11 acres of well-wooded grounds. For Ladies and Gentlemen suffering from Nervous or Mental Illness. Voluntary Patients, Temporary Patients, and Patients under Certificate are admitted for treatment. Fees: from 4 guineas a week upwards, according to requirements. A few vacancies exist for Ladies and Gentlemen at reduced fees on the recommendation of the Patient's own Physician. Apply to Dr. J. A. SMALL, Telephone: 80 Norwich. Telegrams: Small 80 Norwich.

TYKEFORD ABBEY, NEWPORT PAGNELL, BUCKS.

FUNCTIONAL NERVOUS DISORDERS, MEDICAL AND CONVALESCENT CASES.

The Home is a Mansion of Historical interest, standing in 15 acres of garden and grounds, and is situated 14 miles from Northampton, and 12 miles from Bedford on the main London to Northampton Road, fifty miles from London. Both sexes are accommodated. Psycho-therapeutic Treatment is used extensively in suitable cases. Radiant Heat, X-ray and Ultra-Violet Light, Diathermy and Foam Baths, Billiards, Tennis, etc.

Apply, Dr. D. E. M. DOUGLAS-MORRIS.

Telephone: Newport Pagnell 121.

HILL END HOSPITAL AND CLINIC FOR THE PREVENTION AND TREATMENT OF MENTAL AND NERVOUS DISORDERS.

(20 miles from London)

Ladies suffering from all forms of MENTAL ILLNESS are received for treatment, on certified lines, as Voluntary, Temporary, or Certified Private Patients at the Hill End Hospital. Convalescent or mild cases can be treated in a delightful country mansion with extensive grounds known as

HIGHFIELD HALL,

situate about a mile away from the Hospital. FEES: TWO TO FOUR GUINEAS PER WEEK.

For further particulars, apply to the Medical Director, W. J. T. KIMBER, L.R.C.P., D.P.M. ST. ALBANS, HERTS.

HOLLOWAY SANATORIUM VIRGINIA WATER

A Registered Hospital for the Treatment of MENTAL DISORDERS of the EDUCATED CLASSES. Founded by THOMAS HOLLOWAY in 1885.

This Institution is situated in a beautiful and healthy locality within easy reach of London: It is fitted with every comfort. Patients can have Private Bedrooms and Special Nurses, as well as the use of General Sitting Rooms, at moderate rates of payment. Voluntary Patients can be admitted.

There is a Branch Establishment at CANFORD CLIFFS, BOURNEMOUTH, where Patients can be sent for a change and be provided with all the comforts of a well-appointed home.

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The Resident Medical Superintendent, St. Ann's Heath, Virginia Water, Surrey.

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E. C. WYNNE-EDWARDS,
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GEORGE H. DAY,
M.D.(Cantab.).

For all information apply:
The Secretary,

THE SANATORIUM, MUNDESLEY,
NORFOLK.

Telephone: Mundesley 94 and 95
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The buildings face S.S.W. and are sheltered from the sea by a pine-clad ridge. The sunshine record and dry air complete a perfect site. The medical equipment is of the latest kind, and there is a day and night nursing staff.

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UNIVERSITY OF LONDON

A Course of Three Lectures on "THE PATHOGENIC TRYPANOSOMES OF AFRICA AND THE TSETSE FLIES (GLOSSINA) THAT CONVEY THEM" will be given by Dr. H. LYNDHURST DUKE, O.B.E. (formerly Director of the Human Trypanosomiasis Research Institute, Uganda Protectorate), at the LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE (Keppel Street, Gower Street, W.C.1), on NOVEMBER 15th, 16th and 17th, at 5.30 p.m. At the First Lecture the Chair will be taken by Mr. C. M. Wenyon, C.M.G., C.B.E., F.R.S. (Director-in-Chief of the Wellcome Bureau of Scientific Research). Illustrations.

ADMISSION FREE, WITHOUT TICKET.

S. J. WORSLEY,
Academic Registrar.

LONDON HOSPITAL MEDICAL COLLEGE

THE LIDDLE TRIENNIAL PRIZE.

Under the will of the late Dr. John Liddle, the College Board of the London Hospital offer a prize to the value of £120 for the best essay on "PURPURA—ITS AETIOLOGY AND TREATMENT."

A statement of the rules under which the prize is awarded may be obtained from the undersigned, to whom Essays should be sent not later than May 31st, 1939.

Dr. A. E. CLARK-KENNEDY, M.D.,
F.R.C.P., Dean.

London Hospital Medical College, Turner Street,
London, E.1

The KIRK DUNCANSON FELLOWSHIP FOR MEDICAL RESEARCH

The Council of the Royal College of Physicians of Edinburgh are prepared to award the above Fellowship to the applicant who, in the opinion of the Council, furnishes satisfactory evidence of his ability for medical research.

Applicants must state the nature of the proposed research, the amount of time it is proposed to devote to it, and the place where it is intended to carry it out. If desired, the successful applicant would be granted facilities for conducting his investigations in the Research Laboratory of the College. The value of the Fellowship for the first year will be £350, and a grant for expenses may be allowed. The successful candidate will be eligible for re-election, and at the discretion of the Council the amount of the Fellowship may be substantially increased. Applications must be sent to the Secretary, Royal College of Physicians, Edinburgh, 2, not later than Thursday, December 1st, 1938.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

58, Queen Anne Street, London, W.1.

EXAMINATION for the MEMBERSHIP
—January 3rd and 17th, 1939.

Application for this Examination on the prescribed form should be made not later than November 5th. Candidates whose applications are accepted must submit case records, etc., as required by the Regulations not later than Wednesday, December 14th.

G. F. GIBBERD,
Honorary Secretary.

THE LISTER INSTITUTE OF PREVENTIVE MEDICINE

JENNER MEMORIAL STUDENTSHIP IN VIRUS RESEARCH.
LISTER INSTITUTE RESEARCH STUDENTSHIP IN BIOCHEMISTRY.

Applications are invited for the above two studentships, value £250 per annum, tenable for one year from January, 1939, but renewable, on satisfactory progress, for a second year.

The selected students will be required to work under the supervision of the Staff on problems of virus chemistry and bacterial chemistry respectively. A sound knowledge of organic chemistry is essential and it is desirable that candidates should have had experience in biochemical and bacteriological technique and some training in research methods generally.

Applications, giving full details of scientific training and the names of two referees familiar with the candidate's career, should be sent to the Secretary, Lister Institute, Chelsea Bridge Road, London, S.W.1, before November 30th.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Dr. Harold Scott, C.M.G., will deliver the FitzPatrick Lectures on Tuesday, November 8th, and Thursday, November 10th, at 5 o'clock, at the College, Pall Mall East, S.W.1.

Subject: "Conquest of Disease in the Tropics." Any Member of the Medical Profession admitted on presentation of card.

By Order of the President,
H. M. BARLOW,
Secretary.

Preliminary Examinations

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

F.R.C.S. (Edin.)

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Apply: **FELLOWSHIP OF MEDICINE**, 1, Wimpole Street, W.1. (Langham 4266.)

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL MEDICAL SCHOOL

Recognized by the University of London, the Conjoint Board, and other Bodies granting degrees and diplomas in OPHTHALMOLOGY

The Practice of the Hospital is open to qualified Medical Practitioners and registered Students of Medicine.

Classes are held periodically and include the following subjects: OPERATIVE SURGERY, THE PATHOLOGY AND BACTERIOLOGY OF THE EYE, THE REFRACTION OF THE EYE, THE FUNDUS OCULI, METHODS OF EXAMINATION, MEDICAL OPHTHALMOLOGY, CLINICAL LECTURES, ORTHOPTIC DEPARTMENT: For Medical Practitioners desirous of taking a practical course in Ocular Muscle Training. Students are also accepted for a year's training in Orthoptics.

The Medical School Prospectus, which contains full information, together with particulars of the CRUISE CLINICAL RESEARCH SCHOLARSHIP and GUTHRIE PRIZE, can be obtained from the DEAN or SECRETARY of the Hospital, High Holborn, W.C.1.

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| M.R.C.P. (London), | 1919-37 | 286 |
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CONTENTS: The method and the cost of entering the Medical Profession. Particulars of all Medical Examinations, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Examinations. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, 17, Red Lion Sq., London, W.C.1. (Telephone: Holborn 6313.)

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Any of the above will be sent post free on application

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The Secretary, MEDICAL CORRESPONDENCE COLLEGE,

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Sir,—Please send me the following booklets by return.

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POST-GRADUATION SCHOOL

CENTRAL LONDON THROAT, NOSE & EAR HOSPITAL

GRAY'S INN ROAD, W.C. 1

GENERAL PRACTITIONERS' WEEK

NOVEMBER 21st to 26th, 1938

During this week the teaching work of the Hospital, both in the Out-patient Dept. and in the Operating Theatres, will be restricted to that most helpful to those engaged in general practice and every endeavour made to meet the problems met with by general practitioners in so far as they relate to the throat, nose and ear. There is no fee.

Detailed programme obtainable from C. GILL-CAREY, F.R.C.S.Ed., Dean.

BRITISH POSTGRADUATE MEDICAL SCHOOL

(UNIVERSITY OF LONDON)

DEPARTMENT OF MEDICINE

A Course of Six Lectures on
MEDICAL PSYCHOLOGY

will be given by

Professor E. MAPOTHER, M.D., F.R.C.P.,
F.R.C.S.

on

NOVEMBER 15th, 22nd, 29th, DECEMBER 6th,
13th, 20th, 1938, at 4.30 p.m.

DEPARTMENT OF PATHOLOGY

A Course of Three Lectures on
**THE MUCOUS SECRETION OF THE
GASTRO-INTESTINAL CANAL**

will be given by

Professor H. W. FLOREY, M.A., Ph.D.

on

NOVEMBER 16th, 23rd, 30th, 1938, at 4.30 p.m.

DEPARTMENT OF SURGERY

A Course of Two Lectures on

DISEASES OF THE BLADDER

will be given by MR. R. OGIER WARD, D.S.O., M.C., F.R.C.S.

on

NOVEMBER 18th and 25th, 1938, at 2.30 p.m.

These lectures are for regular students of the School, but a limited number of tickets are available, without fee, for medical practitioners. Applications for tickets should be addressed to the Dean, British Postgraduate Medical School, Ducane Road, Shepherd's Bush, London, W.12.

CITY OF LONDON MATERNITY HOSPITAL

(Incorporated by Royal Charter)

CITY ROAD, E.C.1.

The Hospital offers facilities to POSTGRADUATES for observing the work of its Antenatal, Postnatal and Dental Clinics, and to male MEDICAL STUDENTS (and Practitioners desiring a Refresher Course) a two or four weeks' Midwifery Course (Residential). Nearly 2,600 patients annually.

RALPH B. CANNINGS, Secretary.

**QUEEN CHARLOTTE'S MATERNITY
HOSPITAL**

MARLBORNE ROAD, N.W.1.

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one-half of the total admission being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Antenatal department there are over 20,000 attendances per annum. Clinical demonstrations are given by the Staff daily.

For rules, fees, etc., apply H. B. STOKES, Secretary-Superintendent.

UNIVERSITY OF LONDON

A Course of two Lectures on "THE FORMATION OF THE PRONEPHROS AND ITS CAUSES" will be given by PROF. A. DALCO (Professor of Anatomy in the Université libre de Bruxelles) at KING'S COLLEGE, LONDON (Strand, W.C.2), on NOVEMBER 8th and 10th, at 5.30 p.m. At the First Lecture the Chair will be taken by Prof. T. Nicol, M.D., D.Sc. (Professor of Anatomy in the University). Lantern illustrations.

ADMISSION FREE, WITHOUT TICKET.

S. J. WORSLEY,
Academic Registrar.**UNIVERSITY OF OXFORD**

DIPLOMA IN OPHTHALMOLOGY.

The next Examination begins on June 19th, 1939. The two months' Course of Instruction starts on April 24th, 1939. For further information apply to—The Dean of the Medical School, University Museum, Oxford.

P. H. ADAMS, Margaret Ogilvie
Reader in Ophthalmology.



Appointments for Medical Officers in the ROYAL AIR FORCE

Medical men are invited to apply for Short Service Commissions in the Royal Air Force. Candidates must be registered under the Medical Acts and be not more than 31 years of age on entry.

The period of service is 3 years—extendible to 5 years. A gratuity of £400 or £1,000 is payable at the termination of 3 or 5 years respectively. Permanent commissions are awarded in a number of cases. These offer a pensionable career with the opportunity of extra leave on full pay for specialised study. Applicants who hold—or are likely to hold—post-graduate appointments in civil hospitals may, on joining the Royal Air Force, be seconded until the termination of their appointments (for a period not exceeding one year). An antedate of commission up to twelve months is allowed for appointments held at approved hospitals.

Fuller information can be obtained from The Director of Medical Services, Air Ministry, Kingsway, London.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE INCORPORATING THE ROSS INSTITUTE.

POSTS OVERSEAS FOR MEDICAL MEN

A register is kept in the School of medical men who are prepared to be considered for posts overseas, and the School is frequently asked to advise plantation and mining companies when such posts fall vacant.

The salaries offered are attractive; conditions of service are governed by standardised forms of contract; and many of the posts offer to medical men a most interesting field in which to practise their profession.

It is desirable that candidates for posts overseas should hold a diploma in tropical medicine and hygiene. The course provided by the London School for the Conjoint Board's Diploma lasts six months and the tuition fee is £40. The course may be taken from October to March or from January to June. There are generally more vacancies in the course commencing in January.

The Director of the Ross Institute is always glad to interview medical men who would like information regarding the possibilities of a career overseas if they will be good enough to make an appointment to call on him. Enquiries may be addressed to

The Director,
Ross Institute of Tropical Hygiene.
London School of Hygiene & Tropical
Medicine,
KEPPEL STREET, GOWER STREET, W.C.1.

COUNTY BOROUGH OF HUDDERSFIELD APPOINTMENT OF ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from registered Medical Practitioners (ladies) who have had special experience in ante-natal work and in the care of infants. Salary £500-£25-£700, initial salary according to experience. The doctor appointed will be required to reside in the Municipal Maternity Home when the extensions in progress at present have been completed. A deduction will then be made from the salary for board, etc.

The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination before being appointed to the position.

Applications, stating age, full particulars regarding training, qualifications, and appointments held since qualification, should be forwarded to the Medical Officer of Health, Public Health Department, Huddersfield, along with copies of two recent testimonials, so as to reach him not later than Thursday, November 17th, 1938.

Application forms are not provided.
SAMUEL PROCTER, Town Clerk.
Town Hall, Huddersfield.
November, 1938.

COUNTY BOROUGH OF SMETHWICK. ST CHAD'S HOSPITAL, BIRMINGHAM, 16 HOUSE SURGEON.

Applications are invited from registered Medical Practitioners for the appointment of House Surgeon at the Council's Municipal Hospital. The appointment will be for a period of six months, with salary at the rate of £150 per annum, with the usual emoluments. If the successful candidate is re-appointed for a further period of six months the salary will be at the rate of £200 per annum. St. Chad's Hospital contains 147 beds, and the cases treated include general medical, acute surgical, and maternity patients. It is staffed by the Honorary Consultants of the Birmingham teaching hospitals.

Forms of application may be obtained from the Medical Superintendent, St. Chad's Hospital, Hagley Road, Birmingham, 16, to whom applications, endorsed "House Surgeon" and accompanied by copies of three recent testimonials, must be delivered not later than November 9th, 1938. Canvassing, directly or indirectly, will disqualify. Council House, FRANK CHAPMAN, Town Clerk.
Smethwick.
October 25th, 1938.

COUNTY BOROUGH OF BRIGHTON. BRIGHTON MUNICIPAL HOSPITAL.

Applications are invited from duly qualified men for the post of SECOND RESIDENT ASSISTANT MEDICAL OFFICER at the Brighton Municipal Hospital.

Candidates must be single men, and preference will be given to those holding an F.R.C.S. or who produce evidence of having had practical surgical experience in a recognized hospital, as the appointment is primarily for surgical work, although not entirely so.

The appointment is for one year, but the person appointed will be eligible for appointment for a further year.

Salary £375 per annum, together with residential allowances valued for the purposes of superannuation at £150 per annum.

Forms of application, conditions of appointment, and list of duties may be obtained from the undersigned, which forms, duly completed and accompanied by copies of testimonials, must be returned to the Medical Superintendent not later than Wednesday, November 16th, 1938.

Canvassing the Committee, either personally or by letter, will be considered a disqualification for appointment.

S. J. FIRTH,
Medical Superintendent
Brighton Municipal Hospital,
Elm Grove, Brighton, 7.
October, 1938.

CHESHIRE COUNTY MENTAL HOSPITAL, Parkside, Macclesfield.

Applications are invited for the post of THIRD SENIOR ASSISTANT MEDICAL OFFICER. Candidates must have had previous mental hospital experience and must hold a diploma in psychological medicine. Preference will be given to those who have had experience as a house surgeon or physician in a general hospital.

Salary £550 per annum, rising by 100 annual increments of £25 each to £690, with house (rent and rate free), coal, electric light, laundry, and garden produce, which are valued for superannuation purposes at £100 per annum.

The appointment will be subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

The hospital has a fully equipped laboratory, clinical and research purposes.

Experience in treatment of out-patients, occupational therapy will be an advantage. Applications, with copies of three testimonials, must be sent to the Medical Superintendent not later than November 9th.

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in January, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list, and periods of unemployed or half pay are very rare. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than November 21st, 1938.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE.

During 1938, the Secretary of State for the Colonies proposes to select a number of Medical Officers to fill vacancies, the majority of which will occur in Tropical Africa and Malaya.

QUALIFICATIONS.—Candidates must be British subjects of European parentage, under 35 years of age, and must possess a medical qualification registrable in the United Kingdom. Preference will be given to candidates who have held Hospital or Public Health appointments, or who have special knowledge of anaesthetics, radiology, surgery, medicine, ophthalmology, gynaecology and midwifery, diseases of the ear, nose and throat, venereal diseases, etc.

SALARY.—Initial salaries vary from £600 to £700, and rise by increments to a maximum of between £1,000 and £1,200.

PRIVATE PRACTICE.—Private practice is not allowed as of right, but in the case of some appointments it is permitted on certain conditions.

QUARTERS.—In Tropical Africa, free quarters, or an allowance in lieu, are provided. In Malaya, quarters are provided at an annual rental not exceeding 6% of the officer's salary.

PASSAGES.—Free first-class passages are provided on first appointment and when proceeding on and returning from leave. Assistance is also given towards family passages.

TERMS OF APPOINTMENT.—The appointments are pensionable, subject to a probationary period which varies from two to three years.

COURSES OF INSTRUCTION IN TROPICAL MEDICINE AND HYGIENE.—Selected candidates will normally be required to attend a course of instruction leading to the Diploma in Tropical Medicine and Hygiene before proceeding overseas.

DUTIES.—Although Medical Officers are appointed in the first instance for general service, there are opportunities for work in special branches of medicine and surgery, in public health, and in medical research.

Further particulars and forms of application may be obtained from the Director of Recruitment (Colonial Service), 8, Buckingham Gate, London, S.W. 1.

BOROUGH OF BLYTH.

RIVER BLYTH PORT HEALTH AUTHORITY.

MEDICAL OFFICER OF HEALTH

Applications are invited for the appointment of a full-time Medical Officer of Health School Medical Officer for the above-mentioned Borough and Medical Officer of Health for the above-mentioned Authority with the necessary qualifications as prescribed by the Sanitary Officers' (Outside London) Regulations, 1935, the Local Government Act, 1933, the Public Health Act, 1936, and any other Acts and Regulations made thereunder, at a salary of £800 per annum, rising by four annual increments of £25 to £900 per annum.

The person appointed will be required to carry out the duties prescribed by the said Regulations and Acts and such other duties as may, from time to time, be prescribed by the Minister of Health or assigned by the Council or authority to the offices.

The successful candidate will be required to reside in the Borough, and the appointment is also subject to the other usual terms and conditions adopted by the Council.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to pass a medical examination.

Forms of application may be obtained on application to the undersigned, and completed applications should be endorsed "Medical Officer of Health," accompanied by copies of not more than two recent testimonials, which must be sent to the undersigned not later than November 15th, 1938. Canvassing, either directly or indirectly, will be deemed a disqualification.

Municipal Buildings, J. LEIGH TURNER,
Blyth Town Clerk.

SURREY COUNTY COUNCIL.

ASSISTANT MEDICAL OFFICERS.

Applications are invited for the appointment of Assistant Medical Officers. Applicants must possess a qualification in Public Health. The main duties will be in connexion with the School Medical and Maternity and Child Welfare Services, but the officers appointed will be required to undertake such other Public Health duties as may be allocated to them. They will be on the staff of the County Medical Officer of Health, must reside in the County of Surrey, and devote their whole time to the work.

Salary £600 per annum, rising by annual increments of £20 to £700 per annum. Travelling expenses in accordance with the Council's scale will be allowed.

The appointments will be subject to the approval of the Ministry of Health and the Board of Education, to the successful candidates passing a medical examination, to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the Staffing Regulations of the Council, which provide, *inter alia*, that appointment may be determined at any time by three months' notice.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be made on the prescribed form and sent to the County Medical Officer of Health, County Hall, Kingston-upon-Thames, from whom copies of the application form may be obtained and to whom any inquiries relating to the appointment should be addressed.

Last day for receipt of application. Wednesday, November 16th, 1938.

Canvassing, directly or indirectly, will disqualify.
DUDLEY AUKLAND,
Clerk of the County Council
County Hall, Kingston-upon-Thames
November 1st, 1938.

BOROUGH OF WIMBLEDON

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER (Male).

Applications are invited for the above appointment from qualified and registered medical practitioners under 35 years of age having at least three years' experience since qualification. Applicants should possess the D.P.H., and experience of School Medical work and general public health work is necessary.

The Officer appointed will be required to reside in the Borough, to devote his whole time to his official duties, and to work under the direction of the Council's Medical Officer of Health.

The commencing salary is £600, rising by annual increments of £25 to a maximum of £700 per annum. The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the passing of a medical examination.

Application forms can be obtained from the Medical Officer of Health, Town Hall, Wimbledon, to whom they must be returned, with copies of three recent testimonials, not later than first post on Monday, November 21st.

HERBERT EMERSON SMITH, LL.B.,
Town Hall, Wimbledon, S.W.19. Town Clerk.
November 1st, 1938.

BURY AND DISTRICT JOINT HOSPITAL BOARD.

RESIDENT ASSISTANT TO THE MEDICAL SUPERINTENDENT.

Wanted, an Assistant to the Medical Superintendent of the Institutions of the Joint Board. These consist of a Fever Hospital (100 beds), a Sanatorium (70 beds), and a Small-pox Hospital. Candidates must be registered medical practitioners. The appointment is a whole-time one, and the person appointed will assist the Medical Superintendent generally and as he requires. Preference will be given to male unmarried candidates with hospital experience and special experience in pulmonary tuberculosis.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Commencing salary £400 per annum, with £25 increase at the end of the first year and a further £25 increase at the end of the second year, with board, washing and lodging.

Applications, stating age, qualifications and experience, together with testimonials, to be sent to me on or before November 15th, 1938.

Hornby Buildings, F. A. BRADLEY,
The Rock, Clerk to the Board.
Bury, Lancashire.

ST. MARYLEBONE BOROUGH COUNCIL.

APPOINTMENT OF TUBERCULOSIS OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified and registered Medical Practitioners for the whole-time appointment of Tuberculosis Officer and Assistant Medical Officer of Health, at a salary of £800 per annum, rising, on approved service, by annual increments of £25 to £1,000 per annum.

Candidates should not exceed 40 years of age. Form of application and further particulars and conditions of appointment can be obtained from the Medical Officer of Health, Town Hall, St. Marylebone, W.1. Applications on the official form must be addressed to "The Town Clerk, Town Hall, St. Marylebone, W.1," and delivered in sealed envelopes marked "Tuberculosis Officer" not later than December 10th, 1938.

The appointment will be subject to satisfactory medical examination and production of birth certificate.

The Council's By-laws provide that canvassing shall disqualify an applicant.

CORPORATION OF DUNDEE.

PUBLIC HEALTH DEPARTMENT.

OBSTETRICIAN AND GYNAECOLOGIST.

Applications are invited from registered Medical Practitioners for the appointment of Obstetrician and Gynaecologist (part-time) to the Public Health Department (Maryfield Hospital, etc.). Salary £450 per annum.

A statement outlining the conditions of appointment and the nature of the duties may be had on application to the Medical Officer of Health, Central Public Health Office, 9, West Bell Street, Dundee. A copy of this statement should be obtained by intending applicants.

Applications, giving full particulars regarding qualifications and experience, must reach the undersigned on or before Tuesday, November 22nd, 1938.

City Chambers, DAVID LATTO,
Dundee Town Clerk.

MIDDLESEX COUNTY COUNCIL.

WEST MIDDLESEX COUNTY HOSPITAL.

Twickenham Road, Isleworth.

Additional VISITING OPHTHALMIC SURGEON required—must be F.R.C.S. (Eng.) or recognized university Ophthalmology Diploma and registered Medical Practitioner practising ophthalmology.

Fee three guineas per session. One session per week. Non-pensionable post, subject to three months' notice.

Written application, giving details of age, qualifications, and experience, should be sent to the undersigned in envelope endorsed "Ophth. Surgeon" by November 19th, 1938.

C. W. RADCLIFFE,
Clerk of the County Council,
Guildhall, Westminster, S.W.1.
October 29th, 1938.

ROYAL HAMPSHIRE COUNTY HOSPITAL.

Winchester.

Applications are invited for a SECOND ASSISTANT HONORARY ANAESTHETIST to the Hospital. Candidates must be Fellows or Members of one of the Royal Colleges of Physicians of Great Britain or Ireland, or a Graduate in Medicine of one of the universities of Great Britain or Ireland, and must be duly registered.

Applications, with not more than three testimonials, to be sent in the Secretary not later than November 21st.

Canvassing, direct or indirect, is prohibited.
HERBERT MASLEN,
November 1st, 1938. Secretary.

DISTRICT INFIRMARY, ASHTON-UNDER-LYNE. (200 Beds, mainly Surgical.)

Applications for the following vacancies are invited—namely:

RESIDENT SURGICAL OFFICER (male), to take up duties about January 12th, 1939.

Salary at the rate of £200, with the usual residential emoluments.

CASUALTY HOUSE SURGEON (male), to take up duties on January 2nd, 1939.

Salary at the rate of £180, with emoluments.

Two **HOUSE SURGEONS**, to take up duties on January 2nd, 1939.

Salary at the rate of £150 each, with emoluments.

All appointments are for six months, with possibility of renewal. Candidates must be fully qualified and duly registered.

Applications, with copies of testimonials, should be sent to the undersigned.

FRANK OLIVER,
General Superintendent and Secretary
October 31st, 1938.

OXFORD COUNTY AND CITY MENTAL HOSPITAL.

Littlemore, near Oxford.

Applications are invited for the post of JUNIOR ASSISTANT MEDICAL OFFICER. Applicants must be male, single, under 35 years of age, and duly qualified in Medicine and Surgery. Experience as Resident in a General Hospital essential, but previous Mental Hospital service unnecessary. Commencing salary £350 per annum, rising by annual increments of £25 to a maximum of £450, together with furnished apartments, board, laundry, and attendance, valued at £100 per annum. An additional £50 per annum will be paid when D.P.M. is obtained. The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Applications, stating age and full particulars of qualifications and experience, accompanied by copies of three recent testimonials, to be forwarded to the Medical Superintendent, not later than November 25th, 1938.

DURHAM COUNTY MENTAL HOSPITAL.

ASSISTANT MEDICAL OFFICER.

The Visiting Committee invite applications from duly registered Medical Practitioners for the appointment of Assistant Medical Officer at the Mental Hospital. Salary £350 per annum, rising by annual increments of £25 to £450 per annum, together with board, lodging, laundry and attendance, valued at £135 per annum for superannuation purposes, plus £50 per annum for the diploma in Psychological medicine. The appointment will be subject to the conditions of the Asylums Officers' Superannuation Act 1909, and the successful candidate will be required to pass a medical examination.

Applications, with copies of three recent testimonials, to be forwarded to the Medical Superintendent, Winterton, Stockton-on-Tees, by November 12th, 1938.

THE CORBETT HOSPITAL.

Stourbridge.
(100 Beds. Special Departments and Visiting Specialists Staff.)

Applications are invited for the post of RESIDENT SURGICAL OFFICER (male), which will become vacant within the next few weeks.

The appointment is for a period of one year, but may be renewed annually for a period not exceeding three years. Candidates must possess the F.R.C.S. and be unmarried. Salary at the rate of £200 per annum, with board and laundry.

Applications, together with copies of recent testimonials, stating age, qualifications, and experience, to be sent to the undersigned forthwith.

W. G. H. WESTON,
Secretary

SHENLEY HOSPITAL FOR NERVOUS AND MENTAL ILLNESS.

(MIDDLESEX COUNTY COUNCIL).
Shenley, near St. Albans, Herts.

ASSISTANT MEDICAL OFFICER (Fifth Assistant) required. Total value of salary and emoluments £485, rising to £575 per annum. An additional £50 per annum will be paid if the officer appointed obtains a diploma in Psychological Medicine. Candidates should have held a position of House Physician or House Surgeon at a General Hospital.

Applications should be sent to the Medical Superintendent.

ROYAL INFIRMARY, PRESTON.

CASUALTY OFFICER required (male, unmarried). 15,000 casualties per annum. Six months' appointment. Salary at the rate of £150 per annum, with board-residence.

Applications, stating age and qualifications, with copy testimonials, to be forwarded to Mr. JAMES GIBSON, Superintendent and Secretary.

ABERDEEN CITY DISTRICT MENTAL HOSPITAL.

JUNIOR ASSISTANT MEDICAL OFFICER required. Salary £300 per annum, together with board, lodging, etc. Apply Medical Superintendent, Kingsseat, Newmachar.

RICHARD MURRAY HOSPITAL, Blackhill, Co. Durham **HOUSE SURGEON.**

Applications are invited for the post of HOUSE SURGEON at the above Hospital, which has accommodation for sixteen surgical cases and sixteen maternity cases. The salary offered is £200 per annum, with board, apartments, and laundry in addition.

Applicants will require to have had previous experience as a House Surgeon in a General Hospital, and preference will be given to those with similar experience in a Maternity Hospital.

The appointment is for the period commencing January 1st, 1939, and terminating on December 31st, 1939, and is not renewable.

The Hospital is served by a Visiting and Consultant Surgeon and a Visiting and Consultant Obstetrician.

So far as the Maternity Unit is concerned, the person appointed will be subject to the administrative control of the County Medical Officer of Health.

The duties will include the medical supervision of an adjacent small Convalescent Home for mothers and young children.

Applications, stating age, qualifications, and experience, and accompanied by copies of not more than three recent testimonials, must be received by the undersigned not later than Monday, November 21st, 1938.

T. W. ADDISON,

Shire Hall, Secretary to the Richard Murray
Durham, Hospital Joint Board,
October 31st, 1938.

THE GENERAL HOSPITAL, BIRMINGHAM (The Birmingham United Hospital).

Applications are invited for the post of MEDICAL REGISTRAR AND RESIDENT MEDICAL OFFICER. Candidates must be graduates in medicine of a University of the United Kingdom. Salary £155 per annum, with residence, board, and laundry.

The appointment will be made for one year in the first instance and will date from January 1st next.

Applications, with certificates of registration and copies of testimonials, should be sent by November 21st to the undersigned, from whom a list of duties should be obtained.

A. H. LEANEY,

House Governor

THE ROYAL PORTSMOUTH HOSPITAL, PORTSMOUTH. (Six Resident Medical Officers)

Applications are invited for the post of CASUALTY OFFICER (male), qualified, Salary at the rate of £130 per annum, with board, etc. To commence December 1st, 1938.

Six months' appointment. Eligible on completion of term for extension or other resident post.

Applications, stating age, nationality, etc., and copies of three recent testimonials, to be sent to the undersigned not later than November 16th, 1938, from whom all particulars can be obtained.

B. WAGSTAFF,

Secretary.

ROYAL VICTORIA AND WEST HANTS HOSPITAL, BOURNEMOUTH.

The Board of Management will, after the expiration of one month, proceed to appoint an HONORARY PHYSICIAN.

Applicants must be Fellows or Members of a Royal College of Physicians.

Applications, stating age, qualifications, and experience, should be sent to the undersigned by November 26th, 1938.

Convassing, personally or otherwise, will disqualify.

By Order of the Board of Management.

GORDON M. SAUL, Secretary.

NORTH RIDING INFIRMARY, MIDDLESBROUGH. (General Hospital—143 Beds)

The General Board invite applications for the position of ASSISTANT HONORARY SURGEON. Applications, stating age, qualifications, and experience, together with copies of three testimonials, should be sent to the undersigned not later than Saturday, November 12th, 1938.

By Order of the General Board.

GERALD A. KENYON,
November 1st, 1938, Secretary-Superintendent.

WEST SUFFOLK GENERAL HOSPITAL (112 Beds)

Applications are invited for the post of HOUSE SURGEON. Duties include charge of the surgical beds. Salary £150 per annum, with board, residence and laundry. Applicants must be registered practitioners.

Applications, stating age, experience and nationality, with copies of three testimonials, to be sent to the Secretary. Six months' appointment. The post will be vacant almost immediately, as the present House Surgeon wishes to be released as soon as possible to go abroad. One other Resident

VICTORIA HOSPITAL FOR CHILDREN, The Strand, Chelsea, S.W.3 (135 Beds)

The Committee of Management invite applications for the post of SENIOR RESIDENT MEDICAL OFFICER (male), vacant January 1st, 1939.

The appointment is for one year. Salary £200 p.a., with board, lodgings and washing, and certain fees from the private wards.

Candidates must have previously held a Hospital appointment. They must attend the Hospital for the purpose of an interview.

Applications, with copies of three recent testimonials, should be sent to the Secretary not later than first post on Thursday, November 17th.

D. ST. JOHN RAMFORD, Secretary.

VICTORIA HOSPITAL FOR CHILDREN, The Strand, Chelsea, S.W.3 (135 Beds)

The Committee of Management invite applications for the post of CASUALTY OFFICER (male) for a period of three months commencing December 1st next. Hours 9 a.m. to 1.30 p.m. daily (including Saturdays). Salary at the rate of £200 p.a., with lunch.

Candidates are expected to attend a subcommittee for an interview and to send their applications and copies of three testimonials to the Secretary not later than first post on Thursday, November 17th. The post offers excellent facilities for postgraduate study.

D. ST. JOHN RAMFORD,

Secretary.

UNIVERSITY COLLEGE HOSPITAL, Gower Street, W.C.1.

Applications are invited for the post of Whole-time REGISTRAR in the X-Ray Diagnostic Department for a period of one year from January 1st, 1939, with salary at the rate of £250 per annum.

Applications, accompanied by evidence of fitness for the post, should reach the Secretary not later than noon on Monday, November 25th, 1938.

R. SLOLEY, Secretary.

LONDON SKIN HOSPITAL (INCORPORATED).

Required in the London Skin Hospital, 40, Fitzroy Square, W.1, an HONORARY PHYSICIAN. Apply to the Secretary.

SAINT MARY'S HOSPITAL

SAINT MARY'S MUNICIPAL HOSPITAL
(1,050 Beds)

Applications are invited for the appointment of a JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER. Applicants must be single gentlemen, duly qualified and registered, not exceeding 30 years, and must have had at least one year's experience of hospital work. Experience in anaesthetics will be an additional qualification. The appointment is limited to a term of one year, and the salary will be £250 per annum, with residential emoluments valued at £125 per annum. The appointment includes service at any institution belonging to the City Council, and will be subject to termination by one month's notice on either side. A Resident Medical Superintendent is in attendance.

Application forms may be obtained from and must be returned to the Medical Officer of Health, The Guildhall, Portsmouth, not later than Monday, November 21st, 1938.

Convassing will be a disqualification.

F. I. SPARKS, Town Clerk.

The Guildhall, Portsmouth.

October 29th, 1938.

STAFFS COUNTY MENTAL HOSPITAL, Burnwood, near Lichfield

Wanted, (male) Salary £400 per annum, increasing to £450 after a year's service with board, lodging, washing, and attendance valued at £130 per annum; £50 extra per year will be paid if in possession of the D.P.M. The appointment is subject to the provisions of the Asylum Officers' Superannuation Act, 1909.

Candidates must be registered medical practitioners; hospital experience and bacteriology essential.

Convassing any member of the Committee may render candidate liable to disqualification.

Applications, together with copies of not more than three testimonials, to be sent to the Medical Superintendent not later than Saturday, November 12th, 1938.

SWINDON AND NORTH WILTS VICTORIA HOSPITAL, SWINDON, WILTS.

Wanted immediately, HOUSE PHYSICIAN, male, British or Irish, unmarried. Salary £125 per annum, appointment for six months renewable. There are two residents. The hospital is fully equipped for general work and the suitable private beds are not over 10. The post is suitable for a recently qualified man and there is time for reading.

Apply, stating age and experience, with copies of recent testimonials to K. N. Knapp, Secretary.

THE LONDON CHEST HOSPITAL, Victoria Park, E.2. (Bus, Tram and Rail, Camden Heath L. and N.E. Railway.)

Applications (with copies of three testimonials) are invited to be sent to the Secretary, on or before Wednesday, November 30th, 1938, for the following posts, subject to the rules and by-laws of the Hospital.

RESIDENT MEDICAL OFFICER (male) for one year (from January 1st, 1939) Salary £350 per annum.

HOUSE PHYSICIAN (male) for six months from January 1st, 1939. Salary at the rate of £100 per annum.

HOUSE SURGEON (male) for six months from January 1st, 1939. Salary at the rate of £160 per annum.

Board, residence and laundry provided.

THE ROYAL CANCER HOSPITAL (FREE) (Incorporated under Royal Charter) Fulham Road, London, S.W.3

Applications are invited for the post of RADIOLOGIST (part-time) at this Hospital. Applicants must be registered Medical Practitioners who hold a Fellowship in Radiology.

The duties of the post will be entirely in connection with the diagnostic section of the Department.

Salary at the rate of £500 per annum.

Applications to be made on a form which will be supplied by the Secretary, together with three (not more than three) recent testimonials, should be sent to the Secretary on or before Monday, November 14th, 1938.

CLEMENT COBBOLD,

Secretary.

THE ROYAL CANCER HOSPITAL (FREE) (Incorporated under Royal Charter) Fulham Road, London, S.W.3.

The Committee are prepared to receive applications for the post of ASSISTANT PATHOLOGIST to the Hospital. Experience in Clinical Pathology is essential.

Salary £250 per annum. The appointment is subject to rules, a copy of which can be obtained from the Secretary.

Applications to be made on a form which will be supplied by the Secretary, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary not later than Monday, November 14th, 1938.

CLEMENT COBBOLD,

Secretary.

THE ROYAL CANCER HOSPITAL (FREE) (Incorporated under Royal Charter) Fulham Road, London, S.W.3

Applications are invited for the office of ST. REGENT to the Hospital.

Candidates must be Fellows of the Royal College of Surgeons, England, or Masters of Surgery of a recognized British university.

Applications, together with copies of three recent testimonials, must be sent to the undersigned not later than noon on Monday, November 14th, 1938.

The Senior Assistant Surgeon is a candidate for the office.

CLEMENT COBBOLD,

Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the following appointment:

HOUSE SURGEON, vacant December 15th. The appointment is for nine months (six months as House Surgeon and three months as Casualty Officer). Salary at the rate of £70 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent by November 11th to the undersigned, from whom the necessary forms of application and rules can be obtained.

GILBERT G. PANTER,

Secretary.

KING EDWARD MEMORIAL HOSPITAL, Ealing (145 Beds)

Applications are invited for the posts of HOUSE PHYSICIAN (male) and CASUALTY HOUSE SURGEON (male).

Both appointments are for six months with possibility of re-election for a further period, and the salary in each case is £150 p.a. with board, residential emoluments.

Applications, stating age, experience, and qualifications, and accompanied by copies of three recent testimonials, should be sent to the undersigned immediately.

R. A. MICKELWRIGHT

Home Governor

TAUNTON AND SOMERSET HOSPITAL

A HOUSE SURGEON required at once for a period of three months. Another H.S. and a H.P. also in residence. Salary at the rate of £125 p.a., with board, residence, and laundry, and the retention of certain fees.

Applications, with copies of not more than three recent testimonials, to F. J. J. STACEY, Secretary.

CLASSIFIED RATES

Minimum Charge 9/- (30 words).
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TOBACCO GOOD SMOKES at a low price,
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THESE luxurious deliciously satisfying smokes. 50's
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Surgeons of England respectively. The regulations
of the Society PROHIBIT. Members from
advertising, but names and addresses of Chiro-
podists in the district who are members of the
Society, and also information regarding training
for Membership, may be obtained from the
Secretary, Incorporated Society of Chiropractors,
21, Cavendish Square, London, W.1. (Tele-
phone: Langham 3228.)

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OFFERS ASSISTANCE in the legal adoption of
illegitimate and orphan babies into suitable
family life. Chairman, THE LADY GWENTH
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educational facilities with own children, healthy
twin girls. Motherly care; finest food. Telephone
794 "Downland."—Address, No. 9722, B.M.A.
House, Tavistock Square, W.C.1.

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FOR GENTLEMEN, Hampden Street, N.W.1.
Close King's Cross and Euston. 300 bedrooms.
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Mod. tariff. Large club rms., reading rm., study
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ASSISTANCES

WANTED (NOVEMBER), MALE ASSISTANT.
British, with or without view to partnership;
country town, mid-Wales. Commencing £350, all
found.—Address, No. 9652, B.M.A. House,
Tavistock Square, W.C.1.

**WANTED IMMEDIATELY, INDOOR AND
OUTDOOR ASSISTANTS** for Town and
Country Practices, with and without view to
Partnership. Good salaries offered. State full
particulars.—BRITISH MEDICAL BUREAU, 33, Cross
Street, Manchester, 2.

WANTED NOW, OUTDOOR ASSISTANT.
Scottish or English, Protestant, graduate,
under 30. Surgical hospital experience, scope
E.N.T., own car necessary. Salary £450 inclusive.
Send full particulars.—Address, No. 9438, B.M.A.
House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT, YOUNG.
British, Protestant, for middle-class and
surgical practice. Pleasant North Wales coastal
resort. Apply immediately with full particulars.
Salary, indoor, £300, plus car allowance, further
allowance if outdoor.—Address, No. 9711, B.M.A.
House, Tavistock Square, W.C.1.

WANTED, ASSISTANTSHIP (PART-TIME) BY
woman doctor, L.R.C.P., L.R.C.S.,
L.M.D.P.H. (London area), accustomed sole charge
and dispensing, experienced, reliable, free now.
Phone Streatham 6332 before 11 a.m.—Address,
No. 9838, B.M.A. House, Tavistock Square,
W.C.1.

WANTED, MALE ASSISTANT, YOUNG.
British, Protestant. Industrial practice,
Northumberland coast. Salary £400 and £25 car
allowance, house or rooms, etc. References
essential.—Address, No. 9605, B.M.A. House,
Tavistock Square, W.C.1.

WANTED, MALE BRITISH ASSISTANT FOR
Glamorgan colliery practice. Salary £400,
with rooms and attendance; £50 car allowance.
Cottage hospital. Dispenser and other assistants
kept.—Address, No. 9728, B.M.A. House, Tavistock
Square, W.C.1.

WANTED, OUTDOOR MALE ASSISTANT.
English or Scottish, unmarried, with previous
experience, age under 30, for private and panel
practice, Yorkshire, £300 and all found, with car
allowance.—Address, No. 9725, B.M.A. House,
Tavistock Square, W.C.1.

WANTED OUTDOOR ASSISTANT, MAN-
chester suburb. Two surgeries. Secretary
and caretaker kept. Salary £450 p.a., plus £50 car
allowance. State age, religion, nationality, and
experience. Partnership later to suitable man.
—Address, No. 9734, B.M.A. House, Tavistock
Square, W.C.1.

WANTED, OUTDOOR ASSISTANT (WOMAN),
Scottish or Irish. Panel practice experience
helpful but not essential. £360 p.a. State age,
nationality, religion, qualifications, etc.—Address,
No. 9848, B.M.A. House, Tavistock Square, W.C.1.

WANTED, OUTDOOR MALE ASSISTANT,
preferably married, for mixed practice in
West Riding. Salary £400 and £50 car allowance.
References essential.—Address, No. 9731, B.M.A.
House, Tavistock Square, W.C.1.

WANTED.—PART-TIME ASSISTANTSHIP
or SURGERY WORK wanted by woman
doctor, Edinburgh graduate, now or in January.
Experienced panel and G.P. Area, East London
or Essex. Car available.—Address, No. 9841,
B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT (SINGLE) TO LIVE
in. Mixed practice in N. London. Salary
£300 p.a.—Address, No. 9737, B.M.A. House,
Tavistock Square, W.C.1.

WANTED, INDOOR ASSISTANT, MALE,
young, unmarried. Middle-class practice,
South Coast resort. Car an asset. Salary £300 per
annum, plus car allowance.—Address, No. 9730,
B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT REQUIRED IN A PARTNERSHIP
of two in East Cornwall. Commencing salary
£350, with furnished flat, lighting, heating; generous
car allowance. Excellent housekeeping if required
by caretaker. Further particulars.—Address, No.
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Salary at the rate of £120 per annum, together with board, residence and laundry.

Applications, stating age, qualifications and experience, accompanied by testimonials, should be sent to the undersigned not later than November 16th.

A. E. CHURCHER, Secretary.

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City Road, E.C.1

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Applications to reach the Secretary (from whom further particulars may be obtained) at the Hospital by Saturday, November 12th, 1938.

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Great Ormond Street, London, W.C.1.

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These appointments are tenable for six months.
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This appointment is tenable in the first instance for six months, but may be extended for a further period of six months.

A RESIDENT MEDICAL OFFICER at the Country Branch Hospital, Tadworth Court, Tadworth, Surrey. Duties to commence on January 1st, 1939. Salary at the rate of £250 per annum.

This appointment is tenable for six months, but is renewable.

Candidates for the above appointments must be unmarried, possess a legal qualification to practice, and have held a responsible resident appointment at a General Hospital.

Applications must be received by noon on Monday, November 28th, 1938, and candidates must be prepared to attend for interview by the Joint Committee at 4.45 p.m. on Wednesday, December 7th, 1938.

Full particulars and forms of application are obtainable from the undersigned.

HERBERT F. RUTHERFORD,
November, 1938. Secretary.

MILNER GENERAL HOSPITAL.

Greenwich Road, S.E.10

Applications are invited for the following posts:
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Application forms can be obtained from the Secretary, and must be returned not later than November 21st, 1938.
November 1st, 1938.

MILNER GENERAL HOSPITAL.

Greenwich Road, S.E.10.

Applications are invited for the post of **RESIDENT SURGICAL OFFICER and REGISTRAR** (the senior of six resident posts). Salary £250 per annum. Candidates (male) must be unmarried. Board, residence and laundry provided. Duties to commence on January 1st, 1939.

Application forms can be obtained from the Secretary, and must be returned not later than November 21st, 1938.
November 1st, 1938.

THE CHILDREN'S HOSPITAL—KING EDWARD VII MEMORIAL.

Birmingham, 16.

RESIDENT MEDICAL OFFICER.

Applications are invited for the above post. Candidates must have held a responsible Resident appointment at a teaching Hospital. The salary is at the rate of £175 per annum, with board, residence and laundry. The appointment is tenable for one year, and the Officer is eligible for re-election for a second year.

The present holder has been appointed R.M.O. to the Hospitals Centre. The duties, therefore, are to be taken up on December 1st, 1938, or as soon after that date as can be arranged.

Candidates, who must be fully qualified and registered, should send in their applications to the undersigned within the next week.

HAROLD F. SHIRIMPTON,
October 31st, 1938. House Governor.

THE ROYAL CANCER HOSPITAL (FREE)

(Incorporated under Royal Charter).

Fulham Road, London, S.W.3.

Applications are invited for the two posts of **HOUSE SURGEON**, to commence duties on January 1st, 1939.

Salary at the rate of £100 per annum each.

The appointments are for six months and subject to rules, a copy of which may be obtained from the Secretary.

Applications, to be made on a form which will be supplied by the Secretary, together with three (copies only) testimonials, to be sent to the undersigned not later than the first post on Monday, November 14th, 1938.

CLEMENT COBBOLD,
Secretary.

THE ROYAL CANCER HOSPITAL (FREE)

(Incorporated under Royal Charter).

Fulham Road, London, S.W.3.

Applications are invited for the post of **HOUSE SURGEON** (Resident), to be attached to the Radium Department. Candidates must be registered Medical Practitioners. Salary £100 per annum. Facilities afforded for Postgraduate study. The appointment is for six months, commencing December 1st, 1938.

Applications, to be made on a form which will be supplied by the Secretary, with copies only of not more than three recent testimonials, to be sent to the Secretary not later than the first post on Monday, November 14th, 1938.

CLEMENT COBBOLD, Secretary.

THE SALVATION ARMY, THE MOTHERS' HOSPITAL.

Lower Clapton Road, Clapton, E.5.

Applications are invited from Medical Women for the post of **SENIOR RESIDENT MEDICAL OFFICER**, vacant January 1st, 1939. Salary £150 per annum, with board, residence, and laundry. The appointment is for twelve months, but in special circumstances an appointment of six months might be considered.

Applicants, with testimonials, must be sent to the Secretary on or before Wednesday, November 30th, 1938.

FRED. HAMMOND,

Secretary.

THE SALVATION ARMY, THE MOTHERS' HOSPITAL.

Lower Clapton Road, Clapton, E.5.

Applications are invited from Medical Women for the post of **JUNIOR RESIDENT MEDICAL OFFICER**, vacant January 1st, 1939. Salary £50 per annum, with board, residence, and laundry. The appointment is for six months.

Applications, with testimonials, must be sent to the Secretary on or before Wednesday, November 30th, 1938.

FRED HAMMOND,

Secretary.

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Non-panel. Fees 21/-, Premium £1,750 or near.
Good house, 6/7 bed., to rent—14.

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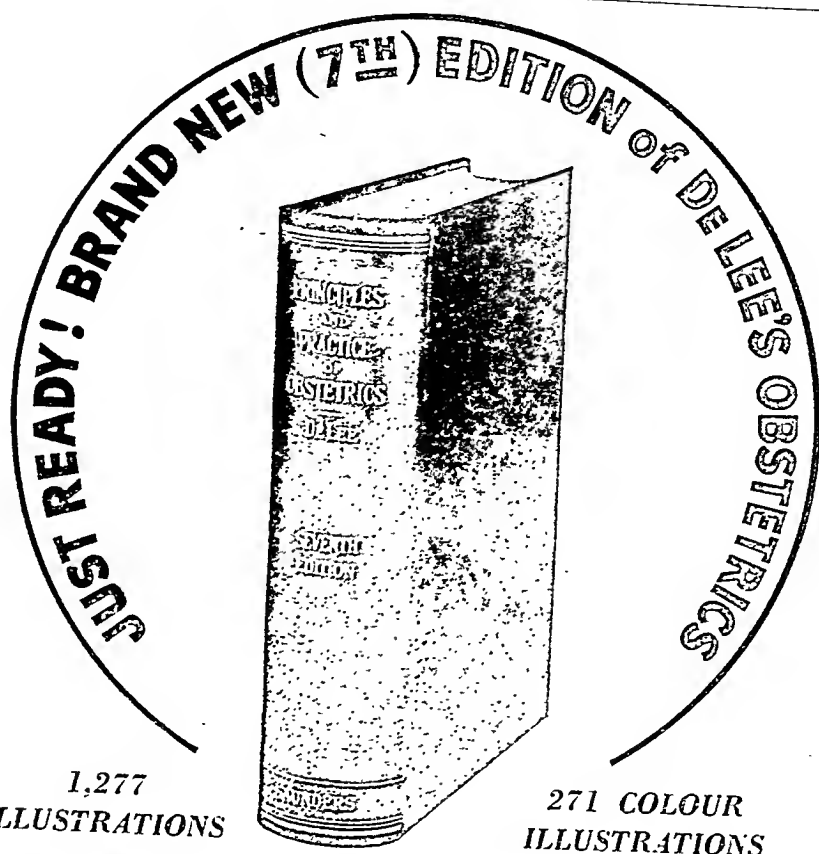
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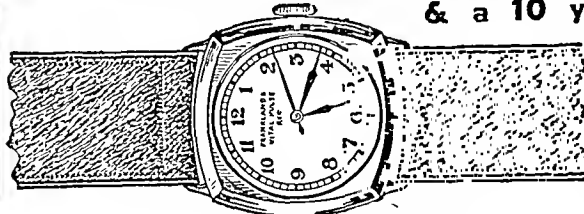
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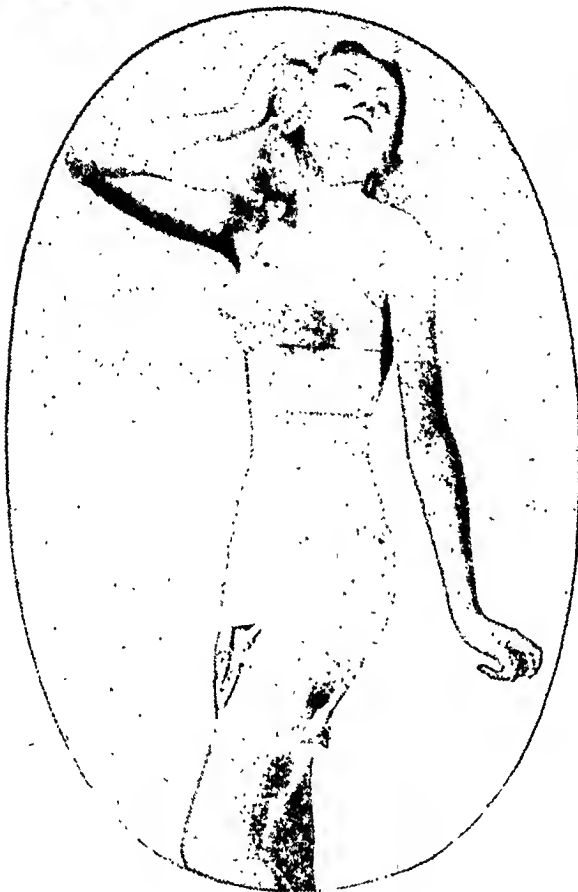
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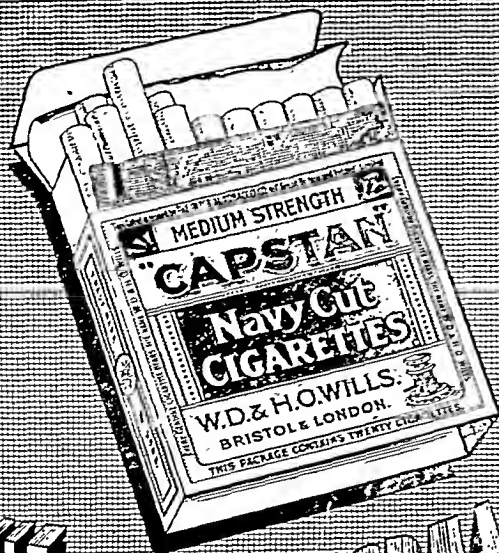
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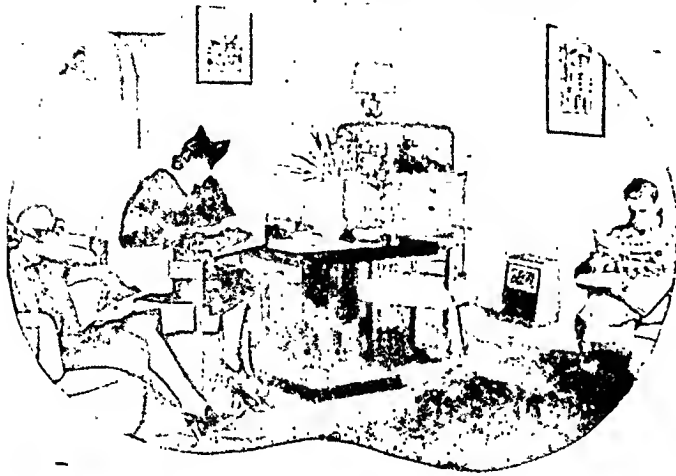
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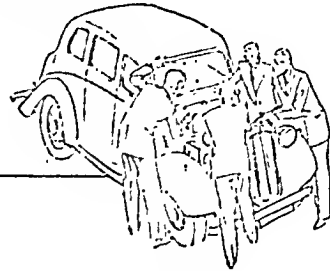
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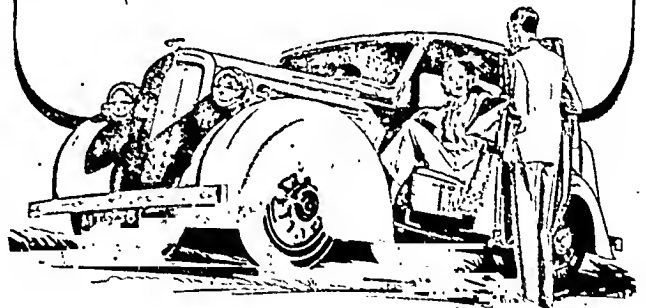
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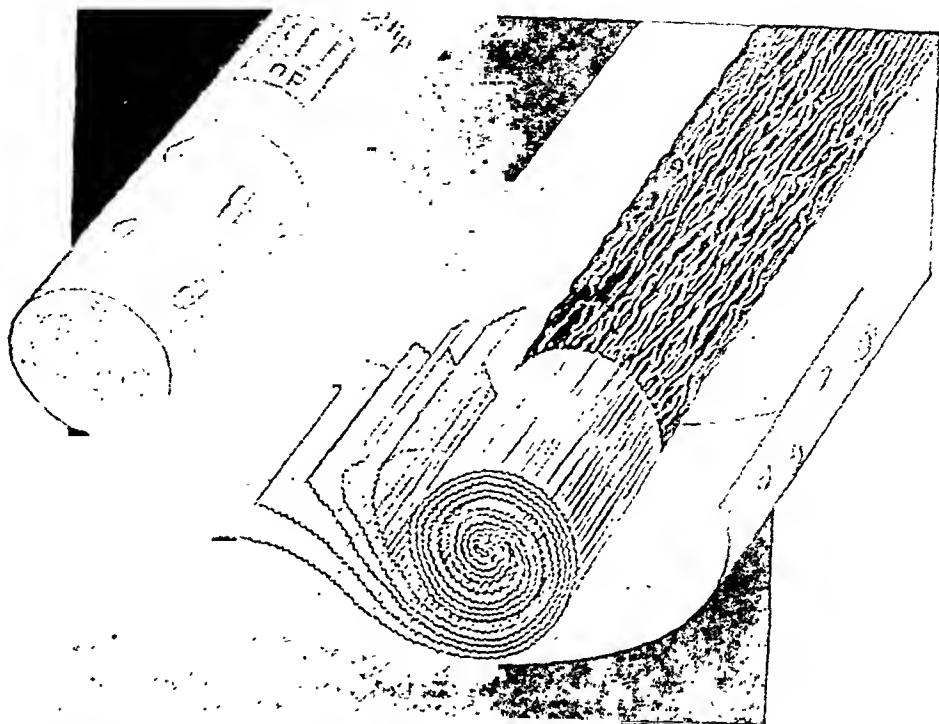
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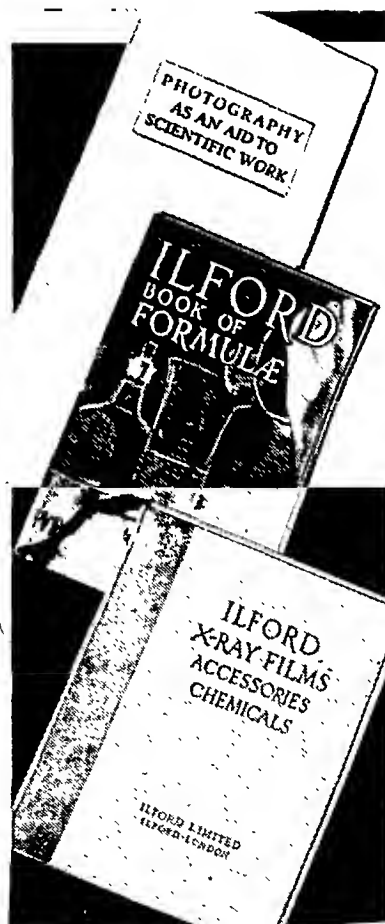
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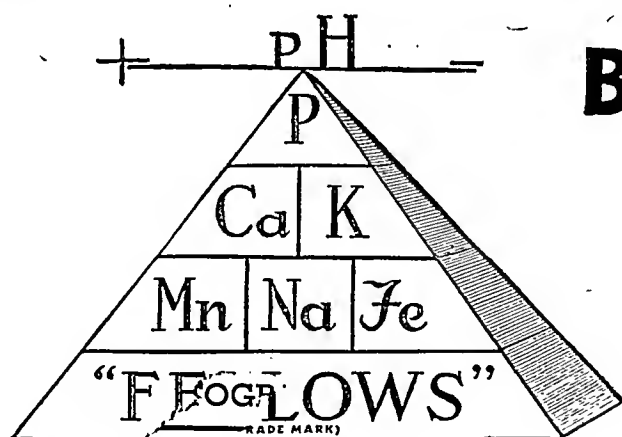
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COMPOUND SYRUP OF HYPOPHOSPHITES "FELLOWS"

Scientifically compounded to correct mineral deficiency;
and as an unequalled tonic.

Samples on request

FELLOWS MEDICAL MANUFACTURING CO., Ltd.

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A Compound Ovarial Sedative FOR *Menopausal Symptoms*

MENOPAX tablets not only compensate for ovarian hormone deficiency, but owing to the inclusion of symptomatic medicines, they also have a very rapid effect in all cases of Vasomotor Disorders, Hypertonia, Irritability of the Vegetative Nervous System, Insomnia, Pruritus, Congestion, Palpitation, Depressed Conditions and certain Intestinal Disorders. The reasonable cost permits them to be freely prescribed.

MENOPAX TABLETS

An effective causal and symptomatic remedy for the treatment of climacteric disorders.

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Clinical samples and literature will be gladly sent—post free—to any member of the medical profession on request.

PROPRIETORS: CLINICAL PRODUCTS LIMITED, 70, CLOUGESTER HOUSE, 19, CHARING CROSS ROAD, W.C.2.

Each Tablet Contains:

Oestrin 100 I.U.
Ovarian Ex. 115 gr.
Theobromine
Calc. Sal. 1 gr.
Caffeine Cit. 1 gr.
Nephrotonin
Calcylethylamide 1 gr.
Calc. Lactate ... 12 gr.

42 tablets.....3/6
150 tablets...10/6
300 tablets...20/-
THROUGH ALL GOOD
CHEMISTS AND DIRECT.

As an analgesic and sedative

'EUKODAL' (Merck)

(dihydro-oxycodine hydrochloride)



offers the potency of morphine with greater freedom from side-effects and not so marked a tendency to produce habituation. Combined with scopolamine and 'Ephetonin,' 'Eukodal' is issued for use in pre-medication in the 'Weak' dosage in ampoules for intravenous injection, and it has been favourably reported on in this field.

INDICATIONS: Pain generally, such as colic, appendicitis, ileus, migraine, tabes, etc. Also in irritative and inflammatory conditions of the upper respiratory tract.

Eukodal:—

Tablets of 0.005 gramme
Ampoules of 0.01 "

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Powder in bottles of 1, 5, 10, 25 and 50 grammes

'Eukodal'-Scopolamine-'Ephetonin'

Ampoules 'Weak':—
Scopolamine hydrobromide .. 0.005 gramme
'Eukodal' 0.01 "
'Ephetonin' 0.025 "

Subject to D.D.A.

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FOR PROPHYLACTIC IMMUNISATION TO RESPIRATORY INFECTIONS, AND
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ISSUED IN PACKAGES OF 20 and 60 'PULVULES' brand filled capsules.

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IN THE TREATMENT OF PERNICIOUS ANAEMIA AND OTHER MACROCYTIC
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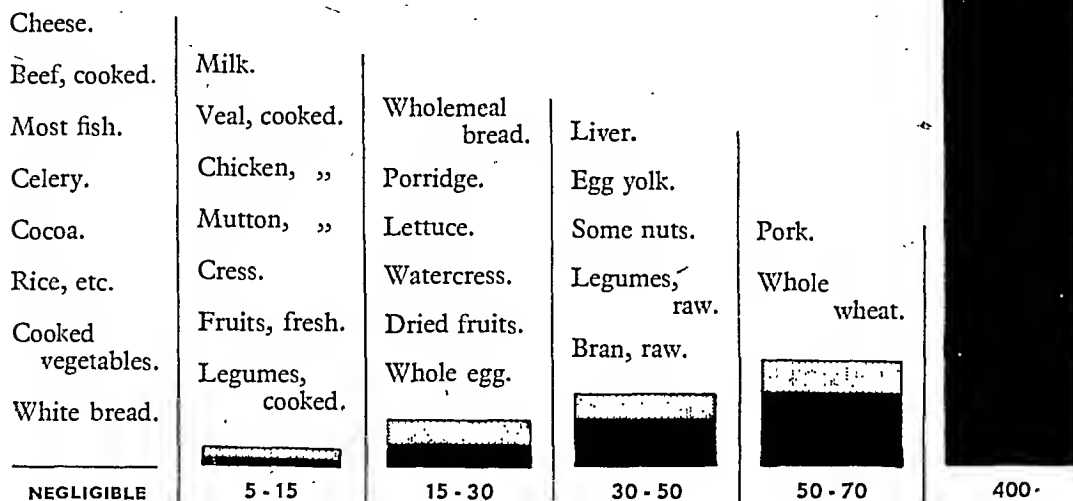
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VITAMIN B₁ IN FOODS

Biochemical J., 1935, and other sources

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B.M.J., 16 Oct., 1937, p. 753

The reduction in Vitamin B₁ intake, due to changes in dietary habits during the last hundred years, normally amounts to at least 50 per cent., and may be as much as 70 per cent. It has been demonstrated, both experimentally and clinically, that a shortage of Vitamin B acts as a limiting factor in the maintenance of health and nutrition, and often results in gastro-intestinal disorders, loss of appetite, indigestion, constipation and, if long continued, to neuritis and arthritis.

The logical way to rectify such shortage is to restore to the diet the Vitamin B-containing substance whose removal is responsible for the deficiency.

This substance is available in the form of Bemax.

For years it has been the policy of the proprietors of Bemax to ensure its Vitamin B₁ activity by biological assay of *every day's output*. So far as is known, Bemax is the only food product for which such a claim is or can be made.

The quantity of Vitamin B₁ supplied by the normal daily dose of Bemax—one tablespoonful—is 200 International Units, an amount sufficient to raise a deficient diet to an optimal level.

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Bemax is an entirely natural product consisting only of stabilised wheat germs selected for their Vitamin B₁ activity with no addition whatsoever. Clinical sample and literature on request. Vitamins Ltd., The Bemax Laboratories (Dept. B.71), 23, Upper Mall, Hammersmith, W.6.

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FERTITOL

Wheat Germ Oil Capsules

A highly active source of Vitamin E.

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(Compound Calcium Mandelate B.D.H.)

IN THE TREATMENT OF PYELITIS

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Mandel/5/14

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For rapid relief of Menopausal Symptoms

'For the nervous and vasomotor symptoms of the menopause, flushings, irritability, nervous depression, indigestion, and sleeplessness, the oestrogenic hormone is virtually specific if employed in adequate and properly spaced dosage. It is effective in both the natural and the artificial menopause . . . '—(Practitioner, October, 1938, p. 377).

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Ordinary cases of menopausal disturbance require an injection of Oestroform 20,000 international benzoate units (in advanced cases 50,000 international

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THE NATURAL MINERAL WATERS OF

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These waters act :

- (1) By immediate contact with the mucous membrane of the stomach and alimentary canal, allaying pains and spasms in these organs, and stimulating the digestive organs into activity.
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Largely prescribed in cases of

Chronic Gastric Catarrh, Hyperaemia of the Liver, Diabetes, Gout, Gall-stones, Renal Calculi, Diseases of the Spleen, and of the Kidney and Urinary Organs.



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Volpar Gels are soluble, vaginal suppositories primarily intended for use alone, or (for maximum safety) with a cap or sheath. They are issued in screw-capped glass tubes containing 1 dozen gels: price, 2s. 0d. per tube.

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THE BRITISH DRUG HOUSES LTD. LONDON N.1

Vol 53



The Original Standard Solution
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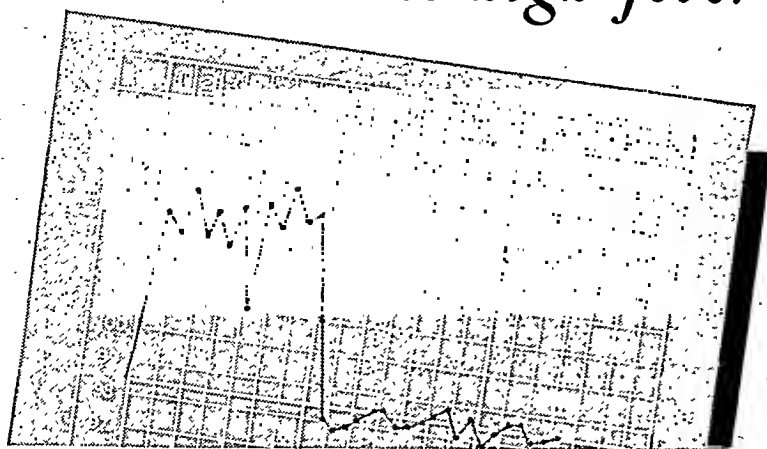
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**ASTHMA
BRONCHITIS**

**HAY FEVER
EMPHYSEMA**

SAMPLES AND LITERATURE FROM **WILCOX JOZEAU & CO. LTD.**

Your patient . . .
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FOOD must obviously be restricted; yet some stimulating effect on digestion is desirable to maintain strength. Thirst is a problem. . .

Brand's Essence does not cause thirst. And you will appreciate other reasons why this unique stimulant is of value to your patient. Brand's will not strain the most enfeebled system because it precipitates no solids and contains no irritants. A lively flow of gastric ferments is aroused, but excess acid is effectively dealt with through protein-adsorption. Easy assimilation gives quick effect to Brand's potent protein-sparing properties.

BRAND'S CHICKEN OR BEEF ESSENCE

is never contra-indicated

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YEAST EXTRACT
 for vitamin B complex
 in POLYNEURITIS

The close connection between polyneuritis and vitamin B₁ deficiency is well known. Not only is the polyneuritis of beri-beri considered to be due to deficiency of this factor, but so also is the polyneuritis associated with gastro-intestinal lesions, pregnancy, alcoholism and other toxic conditions.

Clinical tests have proved beyond doubt that Marmite therapy is effective in these cases of polyneuritis of nutritional origin. In a recent paper on peripheral neuritis, associated with pyloric stenosis and deficiency of vitamin B₁, it is recorded that the patient

"was advised to take Marmite, 2 drachms daily . . . made a gradual improvement and returned to work . . . still takes Marmite. . ."

(Lancet, May 7th, 1938, p. 1045.)

Sample and
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THE MARMITE FOOD EXTRACT CO. LTD. - 35, Seething Lane - London, E.C.3

Jars: 1-oz. 6d., 2-oz. 10d., 4-oz. 1s. 6d., 8-oz. 2s. 6d., 16-oz. 4s. 6d. Special terms for packs for hospitals and welfare centres

'SPECTACULAR RESULTS IN- PERNICIOUS ANÆMIA'
---M.D. F.R.C.S

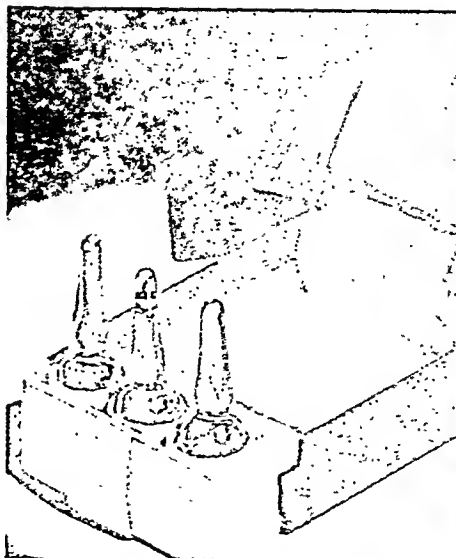
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Art. N. 5

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Each fluid ounce contains :

R. 15,000 International Units VITAMIN A
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combined with Mineral Hypophosphite in a palatable glucose base flavoured with Pineapple Fruit Essence.

ISSUED: In 4 oz. Bottles for prescribing, 1/6.

In 80 oz. Dispensing Packing at 13/4 subject.

PARIVITAN WILL FORTIFY THE RESISTANT POWERS IN INFANTS, CHILDREN & ADULTS.

PARIVITAN combines the tonic properties of Parrish's Food with the therapeutic equivalent of Finest Cod Liver Oil in terms of Vitamins A and D.

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For Oral Administration

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STREPTOCIDE HAS PROVED SUCCESSFUL ALSO IN ERYSIPELAS, STREPTOCOCCAL & PNEUMOCOCCAL MENINGITIS, & TONSILLITIS.

Streptocide is issued in tablets.

Bottles of 25 0.25 grm. $\frac{1}{3}$ each 0.5 grm. $\frac{1}{6}$ each

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Also as folded powders, boxes of 12 2/6 3/3

Also as Streptocide Ointment and Streptocide Cream for topical application.

Made at The Evans Biological Institute by

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Better Salicylate Therapy

WHATEVER be the season of the year, there is a wide sphere of utility for "Alasil," the improved form of salicylate medication.

"Alasil" is a very definite advance on ordinary compounds of salicylic or acetyl-salicylic acid both in therapeutic efficiency and in freedom from the risk of unpleasant gastro-intestinal sequelae. This high tolerability is due to the fact that "Alasil" is composed of calcium acetyl-salicylate—the least irritating of the salicylate compounds—and "Alocol" (Colloidal Hydroxide of Aluminium), a powerful gastric sedative and antacid.

A careful series of experimental tests has shown that "Alasil" is more completely absorbed than ordinary salicylate compounds and that it is practically free from the risk of liberating free salicylic acid in the stomach.

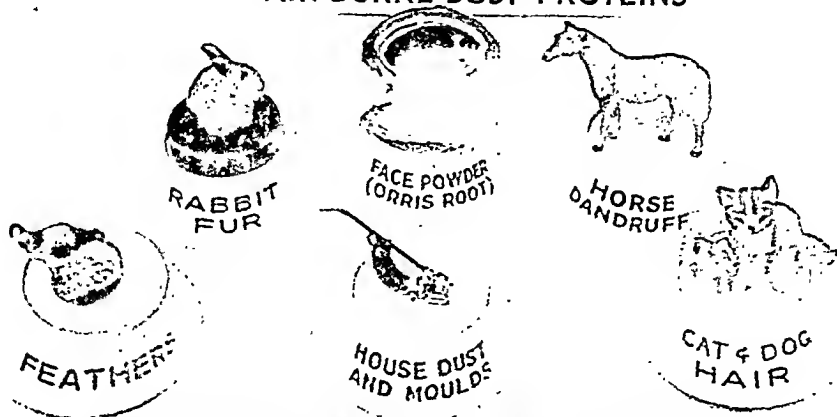
Wide clinical experience anticipated these findings by demonstrating that "Alasil" can be pushed or prolonged to a much greater extent than ordinary salicylate compounds and that it can be given with safety to children, adults, the aged, and patients with finely-balanced digestive capacities. An analgesic, antipyretic, and sedative of established value.

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ALL THE ABOVE PROTEINS ARE INCLUDED (MIXED) IN

A SINGLE TEST AND TREATMENT covering
50% of all ASTHMATICS.

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Treatments: weak 18/-; strong 27 - } Net.

ANTIBODY PRODUCTS LTD., WATFORD, HERTS.

MIST. PEPSINÆ CO. c. BISMUTHO (HEWLETT'S)

Over 60 years' reputation as a remedy in
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DISEASES of the STOMACH.

"Undoubtedly a valuable and convenient preparation"—*THE LANCET*

"Obviously likely to be of much advantage in the frequent cases of
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Peptonised Chicken Jelly (BENGER)

Peptonised Beef Jelly (BENGER)

IN ALL-GLASS CONTAINERS

The new all-glass container in which these jellies are packed, ensures that they reach the invalid in perfect condition.

Served in their jelly state with a few biscuits, or dissolved in hot water in "beef tea" form, these preparations make a valuable and easily assimilated restorative for weak digestions.

NOTE:—Peptonised Chicken Jelly and Peptonised Beef Jelly (Benger) are entirely free from preservatives.

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Active Liver Principles
with active Iron
Standardized
Palatable
Economical

A British made "NORGINE" Product

They say:

"Wheat is a most economical foodstuff because of its richness in carbo-hydrate and protein (second class), because of the facility with which it can be transported and stored, and because of the ease with which it can be prepared for eating."

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Extremely effective in Disorders of the Sebaceous Glands and in Eczematous and other skin Troubles.

In boxes of $\frac{1}{2}$ -doz. and 1-do. BATH CHARGES, 2-do. TOILET CHARGES and $\frac{1}{2}$ -do. SOAP TABLETS.



For upwards of thirty-five years largely prescribed for the local treatment of

GOUT RHEUMATISM ECZEMA SCABIES and all SKIN DISEASES

Relieve Pain and Intense Itching, Soothing and Sedative in Effect. Instantly prepared. No objectionable Odour.

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STOCKED BY ALL THE LEADING WHOLESALE HOUSES IN AFRICA, CANADA, AUSTRALIA, NEW ZEALAND, INDIA.

Alphidine and Pancreatin

In the
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Pancreatin, gr. 5.

Equals Iodine, gr. $\frac{1}{2}$.

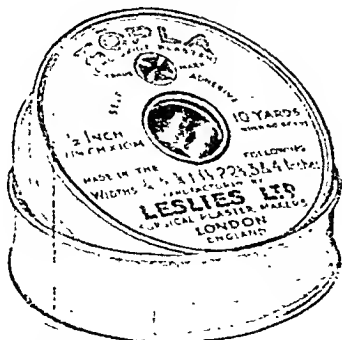
One thrice daily, before meals.

One twice daily, between meals, on two or three days each week.

For full particulars see B.M.J., Oct. 2nd, 1937, p. 660.

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A SURGEON'S PLASTER—ALWAYS GOOD

ZŌPLA-BAND (Elastic Plaster Bandage).

Ideal for varicose ulcers, etc.

ZŌPLA ON WHITE FELT.

Becoming very popular among surgeons for padding and protection. Makes long-lasting pads.

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Euphyllin increases the rate of flow of the blood through the heart, and even if very much diluted the average increase, compared with similar drugs, is as follows—

THEOPHYLLINE, 31%

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EUPHYLLIN, 82%

On account of its vasodilatory action on the peripheral circulation, which greatly exceeds that of all other purine compounds, *Euphyllin* is particularly suited to the treatment of Coronary Sclerosis, Angina Pectoris, and Degeneration of the Cardiac Muscle.

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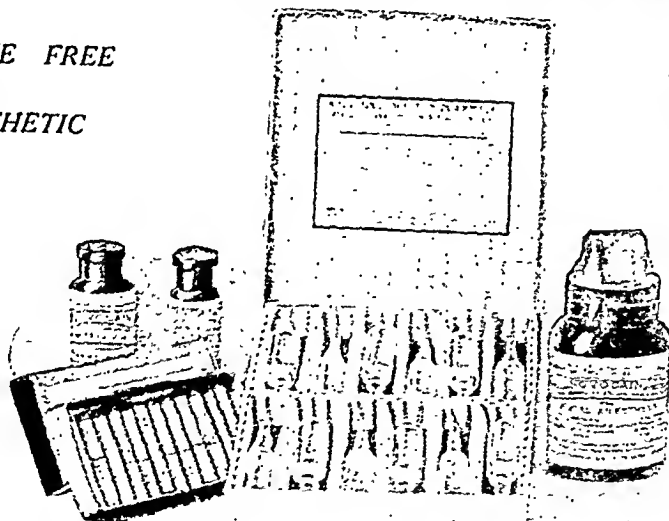
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The Original Preparation
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The Safest and most Reliable Local
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COCAINE FREE
LOCAL
ANAESTHETIC

THE OLDEST
AND STILL
THE BEST



For use in all cases of Local and Spinal Anaesthesia.

Powder.

Tablets of various Sizes.

Supplied in

Ampoules of Solution.

Ampoules of Sterilized Powder.

Does not come under the Restrictions of the Dangerous Drugs Act.

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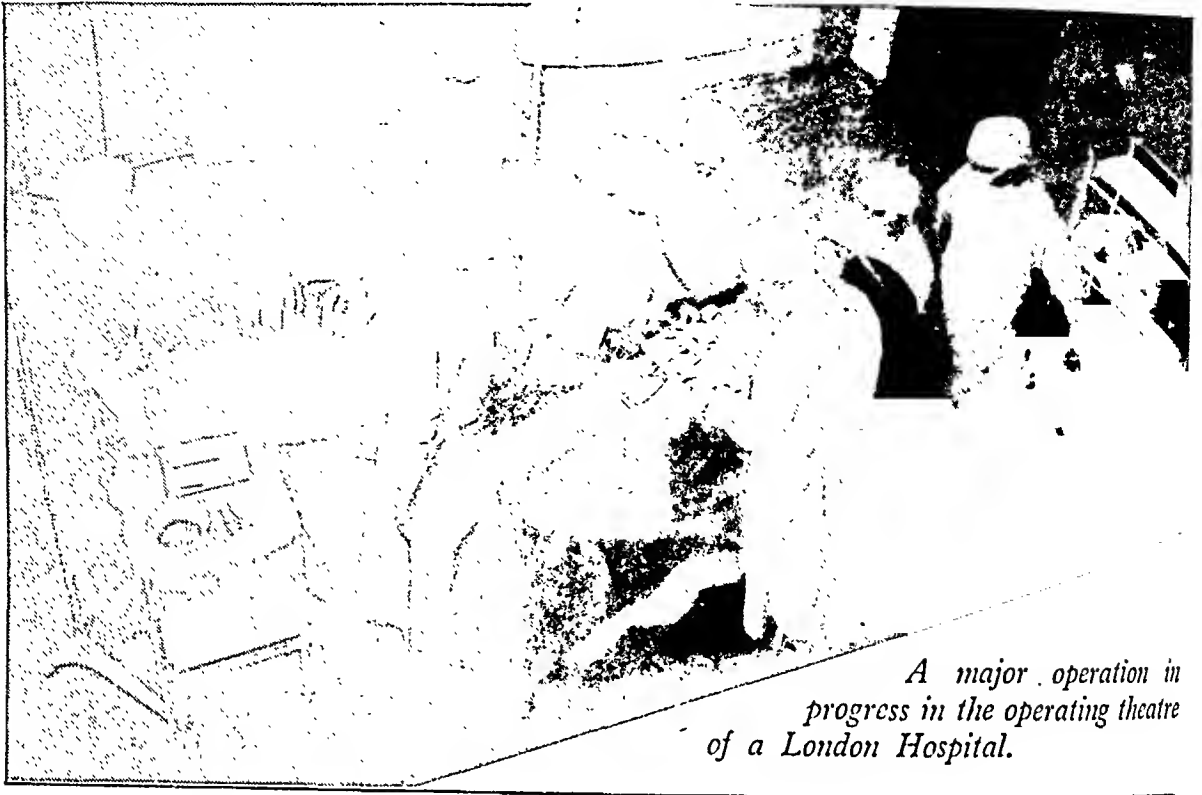
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Telegrams: SACARINO, RATH, LONDON

Telephone: MUSEUM 8196.

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A major operation in progress in the operating theatre of a London Hospital.

DEGREES OF PROTECTION....

THE most elaborate precautions against every possible chance of germ infection are of course essential in the operating theatre. It would be ridiculous, however, to expect anything approaching this meticulous attention to antiseptic cleanliness in everyday hygiene and in the home treatment of superficial wounds.

The general public is nevertheless beginning to realise the importance of germ-free cleanliness. Hygienic standards to-day are higher than they have ever been. It is generally agreed by medical men that although regular use of antiseptics is not desirable or really necessary for ordinary toilet purposes, the use of a reliable antiseptic soap can play a very valuable part in the prevention of infectious disease. Face and hands are continually exposed to infectious germs, and require washing with Wright's Coal Tar Soap.

Wright's has substantial antiseptic and antipruritic qualities. For over 70 years it has enjoyed the confidence of the medical

profession, and to-day more doctors use Wright's than any other brand of toilet soap. Wright's Coal Tar Soap is prepared from materials selected after stringent tests. It is the only soap in the world to contain 'liquor carbonis detergens' (Wright's), the valuable dermatological therapeutic recommended by skin specialists the world over. In surgeries, hospitals, nursing homes and private households Wright's meets all the requirements of modern everyday hygiene. You can use it and recommend it to your patients with complete confidence.

**WRIGHT'S
COAL TAR SOAP**

The Safe Soap

Wright, Layman & Umney Ltd., 44-50 Southwark Street, S.E.1



COD LIVER OIL

DOSAGE AND VITAMIN CONTENT

—THE OFFICIAL RULING

Many practitioners have found that their patients still believe it necessary to take large doses of cod liver oil, and in consequence resort to other liver oils of uncertain origin and widely varying vitamin content. Reference, however, to the latest Addendum (1936) of the British Pharmacopoeia shows that the standard dosage for cod liver oil is very much smaller than conventionally supposed, and, moreover, that a definite vitamin content and origin are specified.

The ruling on vitamin content is that each gramme of cod liver oil shall contain not less than 600 International Units of Vitamin A and not less than 85 International Units of Vitamin B. Given this content, the minimum dose of cod liver oil is fixed at 15 minims (a quarter teaspoonful) three times a day.

The advantages of being able to prescribe a cod liver oil which is guaranteed to conform to this ruling of the British Pharmacopoeia are obvious. The smaller dose is readily acceptable by the patient, which fact makes it unnecessary to resort to other liver oils whose vitamin contents are uncertain both as to origin and efficiency and which have none of the proved food values of cod liver oil.

'SevenSeas' Cod Liver Oil is guaranteed to conform to the British Pharmacopoeia requirements, and it has the additional advantage of being made from absolutely *fresh* livers. The small dose of cod liver now needed and the pleasant taste of 'SevenSeas' Cod Liver Oil arise from the fact that 'SevenSeas' trawlers

are equipped to render the oil on board, immediately the fish are caught. This is possible only with cods' livers, owing to their high percentage of oil. It cannot be done with the livers of other fish.

In the case of 'SevenSeas' High Potency Oil, the dosage is reduced to a matter of drops only, for this oil has a guaranteed vitamin content of four times British Pharmacopoeia standard. It is not concentrated or fortified in any way, but is obtained simply by selection from fresh cod livers with a naturally high vitamin content. This High Potency Oil should be of particular interest to practitioners wishing to prescribe for patients who cannot assimilate fat or have a tendency towards acidosis.

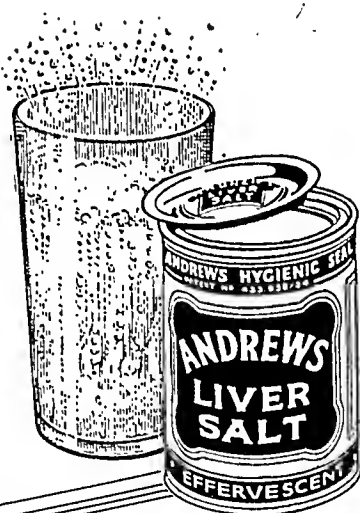
All 'SevenSeas' oil is thoroughly tested before being issued to the public. It is prepared and packed in strict conformity with British Pharmacopoeia requirements. Samples of the High Potency Oil, the Standard Oil, and the High Potency Oil in capsules will be sent on request.

Intestinal Disorders consequent upon Bronchial Infection

Partly owing to the considerable amount of sputum inevitably swallowed by the patient in bronchial affections (especially in children), disorders of the digestive organs may be produced.

A suitable diet and a free daily evacuation tend to prevent these disorders.

Andrews Liver Salt by its effervescence freshens the mouth (often so dry in bronchitis) and by its antacid reaction counteracts gastric catarrh. By producing an easy evacuation, safe even in the presence of myocardial degeneration, it removes the organisms introduced by the swallowed sputum.



★ N.B.—A large size tin will be sent free on request to any member of the medical profession.

ANDREWS LIVER SALT

SCOTT & TURNER LTD.,
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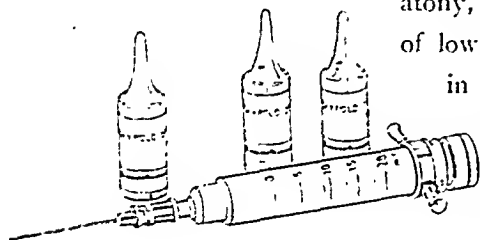
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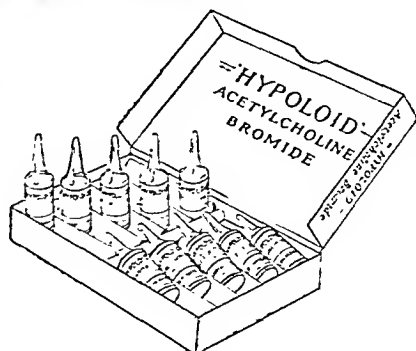
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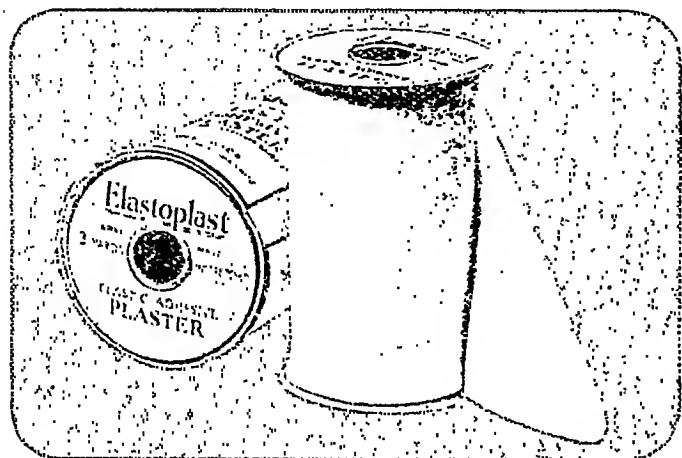
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HEPARIN AND THROMBOSIS*

BY

CHARLES H. BEST, M.A., M.D., D.Sc., F.R.S.

Professor of Physiology, University of Toronto

(WITH SPECIAL PLATE)

While a search of the earlier literature reveals the fact that several investigators realized that certain mammalian tissues contain one or more anticoagulants, an active fraction was first isolated in Howell's laboratory in 1916 (McLean, 1916; Howell and Holt, 1918). Howell named the substance "heparin" (*hepar*—the liver), and he and his collaborators have studied its distribution, chemical properties, and physiological significance. For some time heparin was prepared exclusively from the liver tissue of the dog, and it was very difficult to secure sufficient amounts of a product satisfactory for physiological experiments.

In 1928 Dr. McHenry and I, desiring to use heparin in our histaminase work, found it possible to prepare active fractions from ox liver, and subsequently Charles and Scott (1933a) showed that this substance was present in varying amounts in a great many tissues of this species—lung, liver, and skeletal muscle—giving, in this order, the best yield.

Action of Heparin

Under certain conditions, as Howell originally showed, heparin acts as an antithrombolytic, but in other more physiological circumstances it is apparently an antithrombolytic. The finding of Professor John Mellanby (1934) that the action of a very potent thrombolytic added to plasma can be inhibited by heparin has been confirmed in my laboratory by Mustard and Jaques (1937). In these circumstances heparin is apparently an antithrombolytic. Heparin can, of course, be titrated against thrombokinase with considerable accuracy under appropriate conditions, so that thrombokinase may be termed an antiheparin or, conversely, heparin an antikinase. The product described by Charles, Fisher, and Scott (1934) and tentatively termed "antiheparin" turned out to be a typical thrombokinase (Ridout and Best; see Charles, Fisher, and Scott, 1934).

Recent Work on Heparin

The work on heparin in Toronto was started in the department of physiology in 1929. At that time only crude material was easily available, and any advance along physiological or therapeutic lines appeared impossible until a much more highly purified preparation was at hand. Furthermore, although it was known that heparin was an anticoagulant, its action on thrombus formation had been explored only to a slight extent. In one paper Shionoya (1927a), working at the Mayo Clinic, stated that an adequate dose of heparin did not prevent the formation of white thrombi, and this is certainly true when crude heparin is used in rabbits. He subsequently reported

(1927b) that magnesium sulphate markedly retards thrombus formation in the heparinized rabbit.

PURIFICATION OF HEPARIN

Studies in purification were begun at my suggestion by Dr. Arthur Charles, a young organic chemist, in the department of physiology. Charles was presently transferred to the physiological and biochemical section of the Connaught Laboratories, where he had the privilege of working with Dr. D. A. Scott, whose studies on the crystallization of insulin and the preparation of protamine-zinc-insulin are well known to many. Charles and Scott (1933b, 1934, 1936) soon attained success in the purification of heparin, and before very long they evolved a process for the preparation of adequate amounts of satisfactory material from ox lung. Finally, a crystalline barium salt of uniform potency was obtained. An amorphous benzidine compound was also secured which gave the same empirical formula (C, H, O, N, S). I shall refer to this compound later.

The crystalline product contains nitrogen, a part of it at least in the form of NH_2 groupings, upon the inactivation of which the potency of heparin is lost. (Howell thought that his purified product was free of nitrogen.) Jorpes (1935), using purified heparin made by the Toronto procedure, noted the presence of sulphuric acid groups in the molecules, and there is some evidence that the loss of this grouping also may interfere with the activity. Tests for carbohydrate are positive but do not indicate the presence of glycuronic acid, which some previous observers had thought was present. An adequate discussion of the chemistry of heparin should, of course, include detailed references to the interesting and very important contributions made by Schmitz and Fischer, Jorpes, Chargaff, and others, but I must proceed with more physiological matters.

Charles has shown that when the crystalline barium salt is treated with excess of ammonium carbonate solution at $65^\circ C$. the barium may be completely removed. The heparin is then precipitated by acetic acid, centrifuged out, washed with ether, and dried. It can be stored as a dry powder. When required a solution can be made from this; triresol may be used, and the solution sterilized by passing through a Berkefeld or Zeitz filter.

STANDARDIZATION OF HEPARIN

This brings me to a necessary digression—a consideration of the standard of heparin. We have suggested quite recently (Charles; see Murray and Best, 1938) that the material from the crystalline barium salt may be used as a standard. In a very informal discussion with Sir Henry Dale we agreed that it might be wise to make the standard available, if need should arise, as a solution.

* A lecture delivered at University College, London, on June 14, 1938.

I will not discuss here the various physiological methods for the standardization of heparin. They depend on the inhibition of the clotting of blood under certain conditions. A unit has never been defined exactly. It is usually stated to be the amount of anticoagulant which inhibits for twenty-four hours the clotting of 1 c.cm. of blood under certain conditions of temperature and so forth. We have suggested as a provisional unit the activity contained in 0.01 mg. (10 γ) of the barium-free material—that is, 100 units per mg. This would make a convenient unit from both the physiological and the clinical aspect.

A standard of heparin would not only be advantageous from the point of view of those interested in its action, either experimentally or clinically, but would also be of great service to anyone working on any aspect of blood

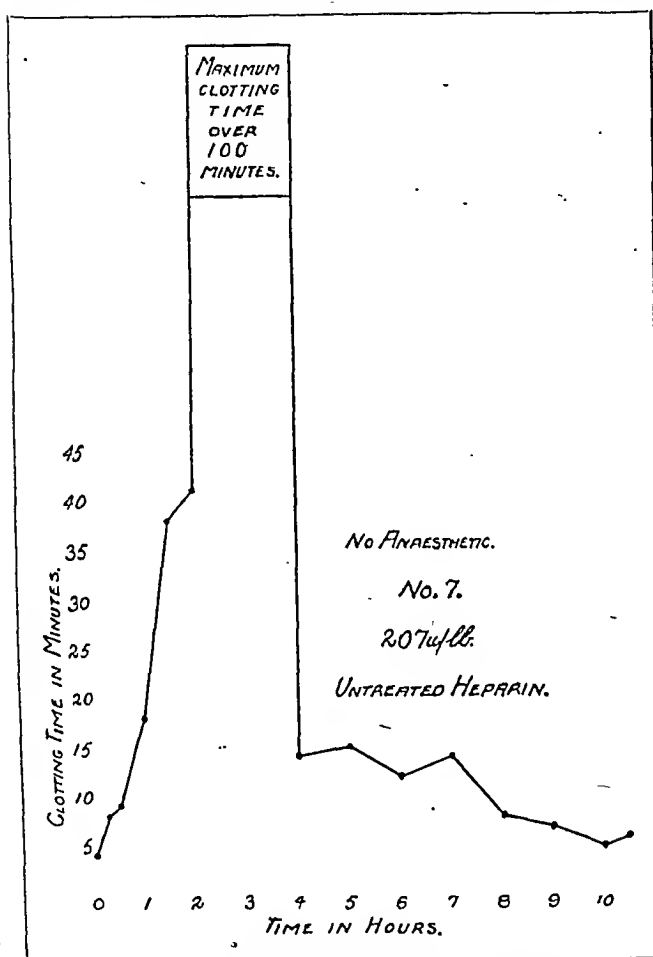


FIG. 1.—Intravenous injection of heparin. (From Jaques, Charles, and Best.)

clotting. We can standardize thrombase or thrombokinase against the standard heparin, and thus help to bring order out of a very confused field. More standards—for thrombase and thrombokinase—are urgently needed.

ADMINISTRATION OF HEPARIN

If a single dose of heparin be given intravenously the clotting time becomes prolonged. The increase in the clotting time depends on the size of the dose (Fig. 1). There is no negative phase—that is, the clotting time does not go below normal after a massive dose of heparin: it comes back fairly accurately to the initial value. Heparin can be given subcutaneously as well as intravenously. The crude material first used was not well absorbed, but purified heparin is absorbed quite rapidly from the tissue spaces, and a good effect can be obtained

as a result of subcutaneous administration. In the rat the effect of one subcutaneous dose may be to send up the clotting time to over twenty-four hours; the return to normal occupying from twelve to twenty-four hours or longer (Fig. 2). However, two out of sixty experimental animals died as a result of haemorrhage into their subcutaneous tissues after the administration of heparin. There was not a great deal of haemorrhage, but 2 or 3 c.cm. is a large amount of blood for a rat. It is possible that the damage produced locally would not be sufficient to cause a dangerous or even a serious amount of bleeding in large animals.

When heparin is precipitated with protamine a very insoluble compound is formed which cannot readily be suspended (Best, Charles, and Cowan, 1937). With benzidine, however, a compound can be prepared which is absorbed quite slowly and gives a clotting time of ten

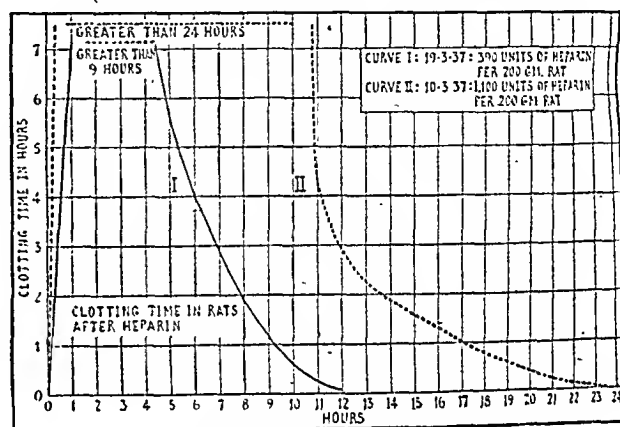


FIG. 2.—Subcutaneous injection of heparin. (From Jaques, Charles, and Best.)

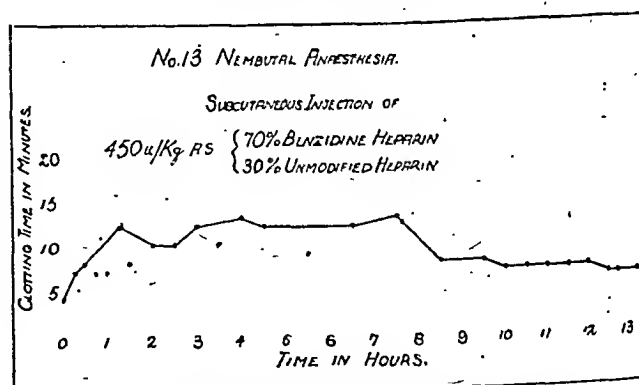


FIG. 3.—Subcutaneous administration of benzidine-heparin. (From Jaques, Charles, and Best.)

to fifteen minutes for quite long periods (Jaques, Charles, and Best, 1938) (Fig. 3). It was found advisable to have a little unmodified heparin in the mixture, as certain doses of benzidine-heparin given alone will have no effect at all, but if given with the unmodified heparin the immediate and the prolonged action are both forthcoming.

The best procedure in the administration of heparin is to give a small dose intravenously and to follow this with a constant intravenous injection. The clotting time can be set at any chosen level and maintained for long periods. In experimental animals we commonly give 40 units per kg. as the initial dose, and follow this with a continuous injection of 30 units per kg. an hour. With this dosage the clotting time is usually maintained at from twenty to thirty minutes. Somewhat smaller doses are used by Dr. Murray and his colleagues in the department of surgery.

Studies in Relation to Thrombi

We have carried out a number of studies on heparin in relation to the formation of thrombi. In the first series Murray, Jaques, Perrett, and I (1937) wished to determine the effect upon the mixed thrombus produced when the internal surface of veins is injured. This injury was produced in the first series of experiments by mechanical means, such as clamping the vessel repeatedly with strong forceps. In the second series chemical means were used. A section of the vein was isolated and sodium ricinoleate was injected into the lumen. It was allowed to remain for a few minutes and the blood was then permitted to flow again. After both these procedures a thrombus forms in a large percentage of the cases. Heparin was administered continuously to unanaesthetized dogs for seventy-two hours after the injury had been produced, and healing of the surface of the veins was found to take place in this time with no tendency for thrombi to occur subsequently. The fact that in the best series of experiments (see Table)

| No. | Control | | Heparin | | Heparin u./lb. hr. | Heparin given | |
|-------|----------|--------|----------|--------|-----------------------|------------------|---|
| | Occluded | Patent | Occluded | Patent | | | |
| 65 | 1 | 1 | | | | | 0.15 c.c.m. Sodium injected in all veins Control 17% patent Heparin 100% patent |
| 66 | 2 | - | | | | | |
| 70 | 4 | - | | | | | |
| 72 | 2 | - | - | 2 | 10.3 | 63 | |
| 73 | - | - | - | 4 | 10.9 | 73 | |
| 74 | 1 | 1 | - | 2 | 10.5 | 72 | |
| 75 | - | - | - | 4 | 10.0 | 72 | |
| Total | 10 | 2 | 83% | 12 | - | - | |

(From Murray, Jaques, Perrett, and Best.)

all the heparinized veins were open means that they were found in this state a week, usually, after the injury. Heparin, however, had been given for only three days.

STUDIES ON THE FORMATION OF WHITE THROMBI

These results were encouraging, but we wished to determine the effect of heparin on the formation of white thrombi. It is well known, of course, that the white thrombus is the nucleus from which the mixed thrombus grows. In certain conditions a thrombus is obtained which consists entirely of platelets, and it was interesting to determine the effect of heparin on this process. To do this the procedure evolved by Rowntree and Shionoya (1927) of the Mayo Clinic was followed. A cellophane shunt between the femoral artery and the femoral vein was made and the blood was allowed to flow for a certain time. Then the cellophane tube can be sectioned to determine whether any thrombi have formed (Fig. A on Plate). This was carried out on quite a large series of animals—monkeys, dogs, cats, and rabbits (Best, Cowan, and MacLean, 1938). In the rabbit it was difficult to observe the effect; although the tube never became occluded, small specks of thrombi could be seen in spite of the presence of heparin. There was no doubt, however, that in the case of the monkeys, dogs, and cats the action of heparin was to prevent the formation of the white thrombi. These, of course, are admittedly artificial conditions; the blood flowing over the glass and cellophane tubing favours the formation of thrombi, and one

cannot conclude from the dose of heparin required in these cases how much would be needed to prevent a similar phenomenon inside the blood vessel.

HEPARIN AND CORONARY THROMBOSIS

Another line of approach to this problem is the study, in which Dr. D. Y. Solandt and I (1938) have spent a large part of our time this year, of the formation of thrombi which may be produced in the coronary artery of dogs. It is possible by dissecting out the left coronary artery in the dog to obtain a length of half an inch or so, to clip off all the branches, and put two clamps on the main stem a quarter of an inch apart. Then, by introducing sodium ricinoleate into the lumen of the vessel and leaving it for five minutes enough irritation is produced to cause thrombi to form. In a comparable series of animals in which this procedure was carried out and the animals were heparinized just before the sodium ricinoleate was injected a thrombus occurred in only one case. In other words, with this isolated exception, heparin prevented the formation of thrombosis of the coronary artery in the same way as it did in the peripheral veins. We were led to study the coronary artery because of the relatively high frequency of thrombosis of this vessel in the human species and also because it is apparently much easier to get a thrombus in the coronary artery in dogs than in some of the other arteries.

My collaborators and I have thus carried out four investigations which may be listed as follows: mechanical injury to veins, chemical injury to veins, formation of white thrombi, and the studies on the coronary artery. In each case an effect of heparin in preventing thrombosis could be demonstrated.

[Professor Best then projected a coloured film, the first part of which showed the flow of blood through a glass cell introduced between the carotid artery and the jugular vein of the monkey. The rapid formation of white thrombi was well illustrated, and the breaking off of large masses to form emboli. The growth of the thrombus downstream could be clearly seen. The thrombi tended to form in the periphery of the cell, where the flow is slowest, but also on a scratch in the axial stream where the flow was very rapid. The action of heparin in preventing the formation of white thrombi was demonstrated. In the second part of the film the passage of a plasma containing platelets but very few other cells through a small glass perfusion chamber was shown. The clumpings of the platelets could be clearly seen, together with the formation of the digitations. (Figs. B and C on Plate.)]

Use of Heparin in Physiological Experiments

I should like now to speak on the use of heparin in physiological experiments. It is obvious that there are a great number of things which one can do if adequate amounts of the purified material are available. For example, my colleague Dr. D. W. G. Murray has studied, among other problems, end-to-end anastomoses of blood vessels. This can, of course, be done without heparin, but the percentage of successful results is much greater when heparin is used.

Another illustration of the use of heparin is in so-called "exchange" transfusion in experimental animals. This subject has recently been studied by Thalheimer, Solandt, and myself (1938). In one experiment, for example, a nephrectomized dog in which the blood urea had become very high was joined by means of a pump, which enabled exchange to be made in each direction of the same amount

of blood, to a normal donor. The result was a precipitate fall of blood urea in the nephrectomized animal and a rise in the normal donor (Fig. 4). (One can bring the blood urea of the nephrectomized animal very quickly back to the normal limits if several donors are used, because the kidneys of the normal dogs do double duty and excrete urine for both.) Both animals were, of course, heparinized. I do not suppose that these findings have any obvious application to clinical medicine, but those of us who are medically trained have visualized very exceptional circumstances in which a completely anuric child might be joined for a few hours to a parent, both being

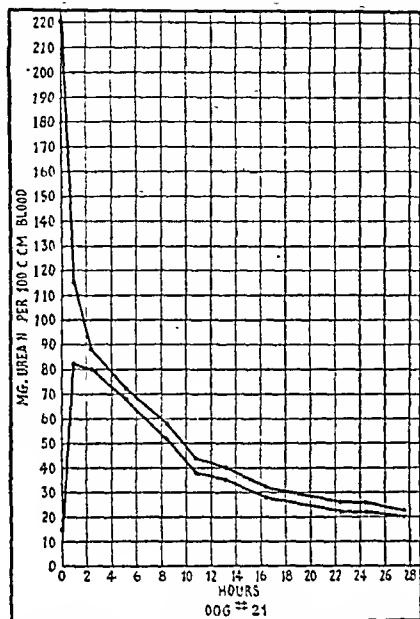


FIG. 4.—The fall in urea of a nephrectomized animal during "exchange" transfusion. (From Thalheimer, Solandt, and Best.)

heparinized. The clinician, however, who would have to take the responsibility in a situation of this kind might have different ideas on the subject.

Neutralization of Heparin by Protamine

Some years ago it was shown that protamine is an antithrombase (Waldschmidt-Leitz, Stadler, and Steigerwaldt, 1929). If protamine be added to the blood the clotting time goes up because of the antithrombase action of the substance introduced. About eighteen months ago Charles, Cowan, and I (Best, Charles, and Cowan, 1937) published a paper in which we showed that heparin and protamine formed a very insoluble compound which could not easily be resuspended. More recently it has been shown by Chargaff and Olson (1937) that if heparin be given to an animal and be followed by protamine the effect of the heparin may be completely neutralized and the clotting time brought back to normal with great rapidity. This has been confirmed by Jaques and myself. Many results can now be brought forward in confirmation of the fact that protamine can be used to neutralize the effect of heparin *in vivo* and *in vitro* (Fig. 5).

Physiological Significance of Heparin

The first piece of evidence in favour of the view that heparin plays a physiological part is obtainable from a study of its distribution: the work of Howell, and subsequently that in Toronto and elsewhere, has shown its presence in various tissues, including blood. Again, the recent work by Jorpes, Holmgren, and Wilander (1937)

(see also Holmgren and Wilander, 1937) along histological as well as chemical lines has shown its presence in particularly large amounts in the mast cells of Ehrlich, and has suggested the possibility that these cells are responsible for its production. A third point has been brought out by Waters, Markowitz, and Jaques (1938) in my department—namely, that there is a good deal of evidence

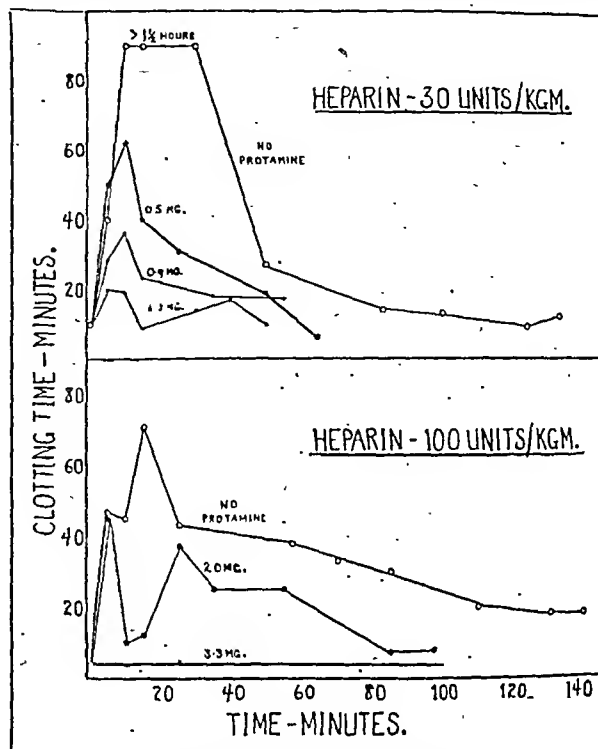


FIG. 5.—Neutralization of heparin by protamine. (From Jaques, Charles, and Best.)

that the increased clotting time seen in anaphylactic shock in the dog is due to the liberation of heparin. This has been shown also to hold good for peptone shock.

It has been known for some time that histamine, while it may account for many of the signs of anaphylaxis, has little or no effect upon the coagulability of the blood (Dale and Laidlaw, 1911). When a dog goes into anaphylactic shock there is a very great rise in clotting time—that is, from four to five minutes to perhaps forty-eight hours. This was originally shown by Biedl and Kraus (1909). Samples of the blood can be taken and treated with protamine, and the heparin equivalent estimated by this procedure. The results of experiments of this kind carried out by Jaques and Waters are shown in Fig. 6. These results show that heparin in a concentration of approximately 1.5 units per c.c.m. has appeared in the blood of the animal in anaphylactic or peptone shock. This amount of heparin is sufficient to raise the clotting time of the blood from the normal value to such extremely high levels—sixty to seventy hours—that it may be termed incoagulable. When an animal was shocked after hepatectomy, Waters, Markowitz, and Jaques found little or no rise in the clotting time of the blood or in the heparin equivalent. Furthermore, these workers have obtained from the blood of the shocked animal much more heparin than can be detected in the blood of the normal animal, while the liver of the shocked animal contains less heparin than normal liver. The physiological and chemical results provide practically conclusive evidence that the anticoagulant isolated from the blood of the shocked animal is heparin, and it may be possible to prepare this material

as the crystalline barium salt. It appears, therefore, that in anaphylactic shock in dogs histamine, heparin, and possibly other substances are liberated.

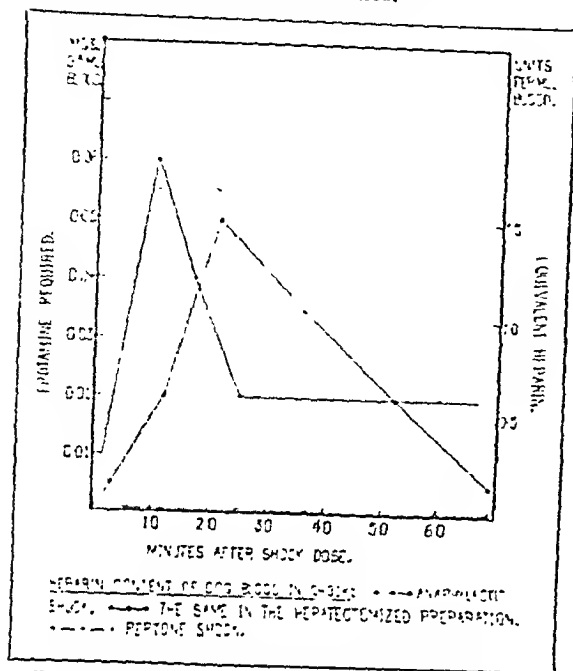


FIG. 6.—Liberation of heparin in anaphylactic and peptone shock in dogs. (From Waters, Markowitz, and Jaques.)

We may conclude that several points of evidence now suggest the possibility that heparin is a substance of physiological importance.

The Possibility of Clinical Application

As soon as more highly purified preparations of heparin became available investigations were begun in the department of surgery under the supervision of my colleague Dr. D. W. G. Murray. It was found that none of the preparations available except that which had been through the stage of the crystalline barium salt could be given with complete safety. The fact that this highly purified material can safely be given to human subjects over long periods is well established by the findings on some 350 patients, most of whom had experienced a major operation before heparinization was started (Murray and Best). The intravenous administration of heparin is never begun earlier than two or three hours after the completion of a major operation—a splenectomy, for example—and is continued until the patient is able to move actively about in bed. This may be for three or four days, or it may extend to weeks.

It is of great interest that workers in Sweden (Crafoord, 1937; Hedenius, 1937; Holmin and Ploman, 1938; Magnusson, 1938), using heparin prepared by the method elaborated in Toronto, have initiated clinical studies on the prevention of thrombus formation.

It is hopeless to attempt to secure information regarding the effect of heparin in the prevention of thrombus formation by the indiscriminate heparinization of post-operative cases or by the heparinization of isolated cases. This has not been attempted in Toronto. Murray and McKenzie are selecting, in so far as is possible, those cases in which the hospital statistics show that the inci-

dence of post-operative embolism is relatively high. I suppose the best type of case to study would be those exhibiting that rather rare condition known as phlebitis migrans. If it were possible to collect a group of these cases in one ward and to have them thoroughly studied before and after the administration of heparin a great deal might be learned.

A few words may be said with regard to the practical application of the work on coronary arteries in dogs. If the clinical cardiologist knew when thrombosis was about to occur—that is, if there were definite premonitory signs—he might by the appropriate use of heparin secure a short reprieve, perhaps even a long one, for some of his patients. The material is readily available, and can apparently be given safely to hospitalized patients; but our lack of knowledge, or perhaps the complete absence of premonitory signs, makes it impossible to conduct a clinical investigation along these lines. Heparin might be given immediately after one attack of coronary thrombosis, but clinicians do not speak with a single voice when discussing the spread of thrombosis from the original focus or the significance of intramural thrombi formed as a result of coronary thrombosis. If a clinical investigation of cardiac cases should be initiated, the necessity for studying very large numbers and of heparinizing only alternate cases is obvious.

One of the best methods of determining the clinical role of such a substance as heparin is to push ahead with more studies along physiological and experimental pathological lines in the hope that the clinical applications will become obvious. It is true, of course, that many of the experimental conditions which have been studied are not closely related to those observed in the clinic, but the results have been very stimulating, and one hopes that investigations along these lines will be pursued.

I should like to thank Professor Lovatt Evans for his invitation to lecture on this subject in his department.

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THORACOSCOPY IN DIAGNOSIS

BY

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(WITH SPECIAL PLATE)

The exact nature of an intrathoracic tumour is often very difficult to determine, but in recent years considerable help has been obtained from the skiagram, stereoscopic skiagrams, the tomogram, the bronchogram, and from bronchoscopic examination, and with these ancillary diagnostic aids it is true to say that in the majority of cases of bronchial tumours an accurate diagnosis can be made, and, furthermore, this type of tumour constitutes the large majority of intrathoracic growths. Nevertheless, there still remain the tumours arising from the mediastinum, from the pulmonary tissue or bronchioles, or from the chest wall, and secondary tumours, in the diagnosis of which the above-mentioned diagnostic measures often, and indeed usually, fail to establish their exact nature. In fact, in these cases the skiagram may be misleading, for the rounded, smooth, sharply defined outline of some of them often suggests an innocent tumour such as a dermoid or a fibroma, etc., but the subsequent history or investigation has proved many to be malignant. Even after the induction of a diagnostic pneumothorax the appearances may still be deceptive.

During the last decade there has been a very great advance in thoracic surgery, and, because of this, accurate diagnosis of these tumours has become more and more important; for if they can be proved to be innocent growths or growths lying free in the thoracic cavity, or even if they are malignant growths—provided they are confined to a single lobe, are discrete, and are not invading the mediastinum—surgical intervention can be expected to offer the prospect of a cure.

In spite of the great improvement in technique it cannot yet be claimed that an exploratory thoracotomy has reached the degree of benignity that is associated with an exploratory laparotomy, and, therefore, for the above reasons, when we have had to deal with such tumours we have endeavoured, by inducing an artificial pneumothorax and subsequently introducing a thoracoscope into the pneumothorax cavity, to ascertain the exact nature and extent of the growth, and, if possible, to remove a piece for section. At the same time it has also been possible to establish the precise anatomical relations of the growth, thus giving much help to the surgeon in planning his line of approach at the subsequent operation, a detail which may determine the success or failure of the operation; for, with the exception of cerebral surgery, there is probably no other branch in which the question of the approach to the operation is of such vital importance.

The method was first described in English in March, 1922, in the epoch-making paper by Jacobaeus and Einar Key in *Surgery, Gynecology and Obstetrics*. Since then further observations have been made and certain appearances recorded, but on the whole it has not received the attention it deserves. One reason perhaps is that fluid, either serous or haemorrhagic, may complicate the field, and although completely replaced by air the previous deposition of fibrin may obscure landmarks and all detail.

Even with fluid, or even with blood, this is, however, by no means always the case, and where there is no fluid and a diagnostic artificial pneumothorax is induced everything stands out with amazing clearness.

We believe that the cases which we are describing in this article demonstrate the value of diagnostic thoracoscopy.

Case I

A man aged 36 was admitted to the London Chest Hospital in February, 1930, complaining of blood-stained sputum. There was marked clubbing of the fingers. On the left side of the chest absolute dullness was found from the fifth rib downwards. Breath sounds were faint, and there was some pleural rub. The skiagram revealed a discrete rounded mass in the left lower lobe; the true lateral skiagram showed an oval sharply defined mass lying posteriorly. The Wassermann reaction and hydatid tests were negative. The white blood cells numbered 16,000 per c.mm., with 74 per cent. polymorphs. No tubercle bacilli were present in the sputum.

A pneumothorax was induced, and the lung, contrary to what we hoped, appeared to fold itself, as it were, around the mass. A thoracoscope was passed into the fifth space in the mid-axillary line. The surface of the lung was seen to be interrupted in many places by the invasion of what was obviously a malignant growth. In spite of this, as the tumour was so discrete, lobectomy was advised. This was performed by Mr. Romanis on March 21. Apart from a temporary empyema, which was drained and soon resolved, the patient made an excellent recovery, and six weeks later was well, gaining strength and putting on weight. He went away to a convalescent home, and six months later returned with the left side of the chest completely filled by malignant growth, apparently arising from the mediastinal glands.

Case II

A man aged 48 years was admitted to the London Chest Hospital complaining of pain between the scapulae. He had been quite well until two months before, when he was seized with an acute pain in the chest. The pain was increased by inspiration. This was followed by cough and some blood-stained sputum.

Physical examination was negative, except for some impairment of the percussion note in the left interscapular region. The Wassermann reaction was negative. The skiagram revealed a lobulated mass the size of a grapefruit, arising from the left hilar region. A true lateral skiagram showed a single spherical mass lying posteriorly. The bronchoscopic examination revealed some pressure coming from without, partially occluding the left main bronchus. An artificial pneumothorax was induced, and a thoracoscope was introduced into the fifth space anteriorly. The lung could be seen to be collapsed and free; the mass, reddish yellow in colour, was lying in the substance of the lung and infiltrating along under the visceral pleura. The condition was obviously malignant. In view of this no operation was considered, and the patient died six months after leaving hospital.

Case III

A woman aged 30, seen privately in March, 1938, complained of pain in the mid-sternal region. Eight weeks previously she had had pleurisy with some fluid on the left side. She was kept in bed for fourteen days, then went to her home town for convalescence. While there she consulted her own family doctor, who, because of the history of pleurisy, had the chest x-rayed. The radiograph revealed a mass on the right side, perfectly rounded in outline, apparently arising from the mediastinum opposite the region of the shadow of the aortic knuckle (Plate, Fig. 1). The true lateral skiagram showed the tumour to be situated posteriorly. An interesting feature in the history was that she had been hit by a tennis ball in the mid-sternal region four years before, and ever since she had experienced pain on and off in that region.

On admission to the London Chest Hospital a diagnostic pneumothorax was induced on the right side and the lung collapsed away from the tumour, leaving it free, unchanged

in position, and unaltered in shape. A thoracoscope was inserted in the fourth space, in the mid-axillary line, and a bluish-purple tumour could be seen, with fine veins on its surface arising in the posterior mediastinum from behind the great vessels and extending almost up to the arch of the subclavian artery and completely independent of the lung. A painting was made by Mr. Shiells (Plate, Fig. 2).

Four days later the patient was operated on by Mr. Holmes Sellers, and so far as was possible the tumour was removed. It was filled with a chocolate-coloured thick creamy substance. This was sucked out and finally mopped dry with gauze. The portion of the wall of the tumour under the great vessels had to be left behind; it was wired clean and swabbed with formalin. The patient made an uninterrupted recovery.

The report on the tumour was as follows: "The cyst wall consists in great part of vascular fibrous tissue with a striking amount of lymphoid tissue disposed mainly around the vessels. In some parts large thin-walled blood spaces are seen and haemorrhage has occurred. Other components of the cyst wall are fat, bundles of muscle fibres, ciliated columnar epithelium, and acinous glands. No ectodermal elements have been recognized, and no cartilage or bone." The blow from the tennis ball had possibly caused a haemorrhage into the teratoma.

Case IV

A man aged 33 complained of pain in the right side of the chest. Sixteen months previously he had had pain in the region of the dorsal spine radiating to the right costal margin anteriorly. For this condition he was admitted into a hospital in the North, where, after complete investigation, his appendix was removed; the pain, however, still persisted. Because of this he was again examined, and a skiagram of his chest revealed a mass in the right lung. He was admitted into the London Chest Hospital.

Physical examination was negative, except for some change in the percussion note at the right base posteriorly. The Wassermann reaction and the Casoni test were negative. The skiagram revealed a single spherical mass with smooth, sharply defined borders the size of an orange, situated in the right lower lung field (Plate, Fig. 3). A true lateral skiagram showed the mass to be lying close to the vertebral column (Plate, Fig. 4). Bronchoscopic examination was negative. An artificial pneumothorax was induced; the lung appeared to collapse away from the tumour, suggesting an innocent condition. A thoracoscope was introduced into the fifth space in the mid-axillary line. The mass was seen to be reddish yellow in colour, arising from the chest wall close to the vertebral column. It appeared to have a well-defined capsule. The lung was adherent to the growth at one point only, but it was infiltrated with multiple yellow sago-like nodules. Adjacent to the tumour, on the chest wall, were three secondary masses the size of a pea.

A section of the tumour was taken by means of forceps introduced through a second cannula; no undue bleeding was caused by this procedure. The section was reported by Drs. Glyne and Page as a mixed-cell sarcoma, ? malignant change in a neurofibroma. In view of these findings a radical operation was regarded as impossible, and the patient was referred for deep x-ray therapy.

A recent necropsy provides another illustration of the potentialities of the method.

A woman was admitted to another hospital with a massive pleural effusion. The spleen was enlarged and a mass could be felt in the epigastrium. All the usual tests were made, but without result, and the differential diagnosis was malignant growth or lymphadenoma. An exploratory laparotomy had been advocated by two or three physicians as a diagnostic measure. Before this was done, however, the patient died. The post-mortem examination revealed a huge malignant mass behind the stomach, large secondary growths in the spleen, and metastases in many other parts; but, what is of interest in connexion with this communication, there were a number of raised white nodules the size of half a pea-nut on the

parietal pleura. It would have been a simple matter to replace the fluid by air through the thoracoscopic cannula, to insert the telescope, see the nodules, and remove a portion for section, whereas the proposed alternative would have been highly dangerous.

As regards technique, one of us (F. G. C.) uses a single-cannula method with a direct-vision telescope. Through this single cannula all instruments can be inserted, including the biting forceps and a diathermy knob for the arrest of haemorrhage, if any. The other employs the two-cannula technique when removing a piece of the growth for section.

Conclusion

The eynies have suggested, occasionally with some truth, that modern methods of investigation are more distressing and dangerous to the patient than the disease itself; but this criticism cannot seriously be advanced in the case of an exploratory thoracoscopy: for in skilled hands the patient should feel nothing more than the first hypodermic injection of the local anaesthetic, and it is clear that this investigation, as illustrated by Cases II and IV, may save the patient an unnecessary thoracotomy. If a pleural effusion is present, then the thoracoscopy can be carried out at the same time as the aspiration provided the paracentesis is accomplished through a thoracoscopic cannula, a procedure which gives more efficient evacuation of the fluid than an ordinary needle, with no more discomfort.

With ordinary aseptic precautions an exploratory thoracoscopy should be without risk to the patient. This has been our experience with a large number of cases.

CONGENITAL ATRESIA OF THE OESOPHAGUS

BY

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(WITH SPECIAL PLATE)

The following case is recorded not on account of its rarity but because the condition has been so seldom mentioned in the English literature.

Case History

The patient was a female child born on August 23, 1937, of healthy parents. The mother had had three pregnancies: boy, who died at the age of 3 of pneumonia; a miscarriage; and the patient. Delivery in the present case, in the maternity ward of St. George's Hospital, was spontaneous and normal. Excessive liquor amnii was noted. There was some difficulty in reviving the baby, as she seemed choked with mucus. The excess of mucus continued, but nothing alarming was observed until the second day, when the mother's milk had come in. On being put to the breast the baby sucked easily, but in a few minutes choked, and turned blue in the face. The nurse rescued it, and sucked out the milk and mucus from its mouth. The same result was obtained at the next feed. Mucus in the mouth increased in quantity, and, apart from the attempted feeding, the child had attacks of cyanosis, which were relieved by clearing the throat.

On the second evening Dr. T. F. McNair Scott examined the child. It was lying in the cot, breathing with some difficulty and through a great deal of moist mucus in the mouth and nose. It was normally developed and nourished, but moderately dehydrated. The skin was clear. No glands were palpable. Examination of the head revealed no craniotabes. The anterior fontanelle measured about $1\frac{1}{2}$ by $1\frac{1}{2}$ inches, being depressed, and the posterior fontanelle one finger-tip.

The eyes, mouth, nose, ears, neck, and heart were normal. There was no impairment of percussion note anywhere in the lungs. Breath sounds were transmitted mainly to the interscapular region. Nothing abnormal was found in the abdomen. Respiratory sounds were clearly transmitted to the stomach region. The genitalia were those of a normal immature female and the limbs were normal. Meconium was being passed.

From the history of excessive mucus and inability to take food without choking, a diagnosis of congenital absence of the oesophagus was made.

INVESTIGATIONS

1. *Radiological*.—On examining the baby under the screen it was immediately noticeable that the stomach contained no air. After the child had sucked the bottle containing milk and a barium salt, some air did appear in the stomach. The opaque meal was seen to enter, and to distend a blind point of the oesophagus which ended at the level of the second thoracic vertebra. The baby vomited soon after, and became very choked up. A radiograph confirmed the condition (Plate, Fig. 1). In addition a hemivertebra was present between the fifth and seventh thoracic, and the sixth right rib was absent.

2. *Examination of meconium* by staining a smear of it with gentian-violet and decolorizing with acid alcohol—Farber's test (1933)—revealed the presence of squamous epithelial (amniotic) cells as in normal meconium. This indicated that there must be a communication between the mouth and the intestine. Since the proximal part of the oesophagus ended in a blind pouch there must have been a communication between the trachea and the stomach.

COURSE

In view of the above findings it was decided that no operative intervention was indicated. All feeding by mouth was stopped, and the baby was kept hydrated by the introduction of from 60 to 120 c.cm. of 5 per cent. glucose and saline intraperitoneally twice daily. The cot was kept at an angle of about 30 degrees, the head being down. Mucus continued to be quite profuse, and the baby had several attacks of cyanosis. With the aid of suction, and 1/200 grain of atropine when considered necessary, this was overcome. The baby remained comfortable, and slept most of the time.

The physical signs did not change much from those originally described until the day before death. The lungs remained resonant to percussion, but adventitious sounds developed, mainly rhonchi and coarse rales. On that day, following the intraperitoneal injection, quite profuse bleeding occurred from the puncture wound. Local pressure and thromboplastin were used, but the ooze continued. About thirty-six hours afterwards, with cessation of bleeding, the baby died. The blood taken after death was sterile. It was noted, however, that clotting did not occur.

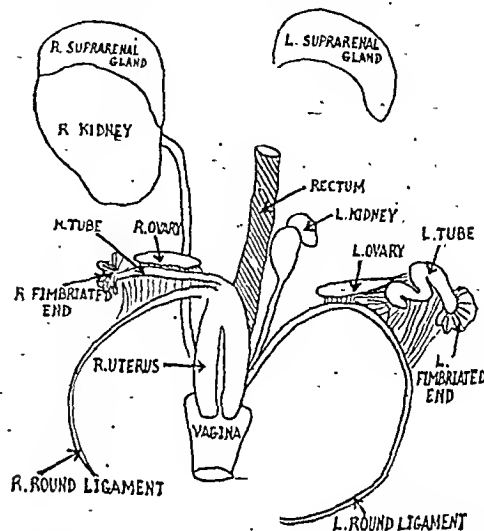
Haemorrhage occurring in a newborn infant associated with delayed or absent clotting suggested a diagnosis of haemorrhagic disease of the newborn. The unusual feature here was that the onset of the bleeding was delayed to the eighth day in the absence of a septicæmia.

Before performing the necropsy it was decided to inject lipiodol into the trachea to see if the suspected tracheo-oesophageal fistula could be demonstrated. This was seen on the screen, and the lower portion of the oesophagus was shown to be leaving the trachea about five millimetres above the bifurcation. The lipiodol filled the bronchial tree and passed to the lower end of the oesophagus (Plate, Fig. 2). It was prevented from entering the stomach by an air-lock, as was afterwards discovered at necropsy.

Necropsy

The body was that of a somewhat wasted child. There were numerous puncture marks on the abdominal wall. The congenital atresia of the oesophagus was confirmed, as was also the tracheo-oesophageal fistula (Plate, Fig. 3—St. George's Hospital Pathological Museum). A window has been cut in the anterior border of the trachea to show the fistula. There

was no fibrous communication between the two portions of the oesophagus. The stomach contained no food, only meconium. The rest of the gut was normal, as were the biliary system, liver, and spleen. The heart and great vessels were also normal, but the ductus arteriosus was still patent. The suprarenals were normal in size, shape, and position. The right kidney and ureter were normal. The left kidney was extremely atrophic, and the pelvis was very dilated and was as large as the kidney itself. The ureter, which entered the bladder, was very short, and as a result the left kidney was within the pelvis minor. The bladder and urethra were normal. The genital system was also abnormal on the left side. The left cornu of the uterus had not developed at all, and the left round ligament joined the right cornu at its cervical end. The medial end of the left Fallopian tube terminated blindly at some distance from the uterus. The left ovary appeared normal. The drawing here reproduced shows the condition



diagrammatically, the bladder being omitted for the sake of simplicity. No other abnormalities were found.

Cases in the Literature

The first published case of this condition was observed by Thomas Gibson (1703), a Fellow of the College of Physicians, in 1679, and it is noteworthy that his clinical description was faultless. He afterwards performed a necropsy, on which the diagnosis was made. Since then, however, the condition has received scant attention in the English literature, and it has been left to the American schools particularly, and to some extent the European schools, to draw attention to it.

Plas (1919) collected 136 cases. He showed that about 30 per cent. had other congenital abnormalities. Rosenthal and Himmelstein (1932) noted 255 cases in the literature, and 204 of these had tracheo-oesophageal fistulae. Recently at least ten cases have been reported annually. The various types of abnormality have been classified by McClellan and Elterich (1934). They describe twelve different types, which are clearly understood when one considers the development of the oesophagus and trachea. Keith and Spicer (1907) described the embryology, and Keith (1910) illustrated it by cases in a later publication. They state that in the 3.2 mm. embryo (third week) the floor of the anterior part of the primitive oesophagus becomes evaginated and forms the trachea. In the 12.5 mm. embryo (fifth week) the tracheo-oesophageal septum has completely formed.

The symptomatology as described in the case above is quite typical. Few live more than a week, and none has lived more than a month. Death is nearly always due to bronchopneumonia.

Treatment

Gastrostomies have been performed repeatedly; but, unless the cardiac end of the stomach is tied, the food flows backwards up the oesophagus into the trachea, except in the very few cases where there is no tracheo-oesophageal fistula. It has been the hope of some surgeons to keep the patients alive long enough to perform an intrathoracic plastic operation at a later date. This seems a forlorn hope, and it is questionable whether it would be justified even if successful, for so many cases are associated with multiple congenital lesions.

Summary

1. A report of a case of congenital atresia of the oesophagus with tracheo-oesophageal fistula is given.
2. The indications are that the anomaly occurs much more often than is generally believed.
3. The anomaly is nearly always associated with other congenital lesions.
4. It produces a quite characteristic syndrome, which if kept in mind makes a clinical diagnosis relatively simple.
5. Auxiliary methods of diagnosis are mentioned.
6. Death has occurred within four weeks in every recorded case.

I should like to express my thanks to Dr. T. F. McNair Scott, recently paediatrician to St. George's Hospital, for allowing me to record this case.

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THE BACTERIOSTATIC EFFECTS OF SULPHONAMIDE-P, SOLUSEPTASINE, AND M & B 693

BY

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The bacteriostatic properties of these three drugs on *Streptococcus viridans* and *Staphylococcus aureus* were examined by the slide method of Wright, modified by Fleming (1924, 1938). A different technique, described below, was necessary in the cases of *Neisseria gonorrhoeae* and *N. meningitidis*, as these organisms did not show sufficiently differentiated colonies for counting. The drugs were dissolved in saline and kept made up in dilutions of 1 in 1,000, sterilized by heating to 60° C. for one-half to one hour.

Streptococcus viridans and *Staphylococcus aureus*

TECHNIQUE

The tests were set up in the following manner. First a suspension of a fresh culture of the organism in sterile saline was prepared and matched to correspond in density with Brown's No. 1 tube. Human blood was then withdrawn and defibrinated by shaking with glass beads. Half

of the blood was separated and forced five to seven times through cotton-wool to reduce the number of leucocytes present. In this way the white cell count was lowered to 500 to 1,000 per c.mm. and most of the polymorphs were removed. Blood so treated is referred to below as "deleucocytized." Defibrinated blood was found to be slightly deleucocytized, the white cell count after defibrination falling from about 7,000 to 5,000 per c.mm., but many polymorphonuclear cells were still present.

Mixtures were then made of one volume of suspension of the organisms to three volumes of defibrinated and of deleucocytized blood. Equal volumes of the blood-organism mixtures and the dilution of the antiseptic were then mixed and slides set up as described by Fleming. Three dilutions of each chemical substance were employed, and the final dilutions in the compartments of the slides were 1 in 2,000, 1 in 20,000, and 1 in 60,000. Prepared slides were incubated at 37° C. in moist conditions for twenty-four hours, and after incubation colonies were counted under the low power of a microscope.

RESULTS

Streptococcus viridans—Three strains isolated from patients' throats were examined, and the results in all three examinations showed that the drugs affected the growth of the organisms, but only in the presence of white blood corpuscles, including polymorphs. A typical result of a count of *Str. viridans* is shown in Table I.

TABLE I.—Effect of Drugs on *Str. viridans*

| Drug | Number of Colonies in Dilutions of— | | | Control |
|-----------------|-------------------------------------|----------|----------|---------|
| | 1/2,000 | 1/20,000 | 1/60,000 | |
| M & B 693: | | | | |
| a | 16 | 20 | 20 | 900 + |
| b | Uncountable in all dilutions | | | ++ + |
| Sulphonamide-P: | | | | |
| a | 30 | 600 | 900 | 900 + |
| b | Uncountable in all dilutions | | | ++ + |
| Soluseptasine: | | | | |
| a | 20 | 800 | 800 | 900 + |
| b | Uncountable in all dilutions | | | |

a mixed with defibrinated blood. b mixed with deleucocytized blood.
+ sign after a number indicates the presence of very small colonies not counted in the figure quoted

Similar results were obtained for the other strains of *Str. viridans*. In the presence of defibrinated blood containing normal numbers of white cells it will be seen that M & B 693 is a very efficient bacteriostatic agent, even at a dilution of 1 in 60,000, whereas the other two drugs are efficient at a dilution not greater than 1 in 2,000. In deleucocytized blood none of the drugs has much bacteriostatic effect, although the colonies appear much smaller in the high concentrations than in the controls, which contained no drugs.

Staphylococcus aureus.—None of the drugs appeared to have the slightest effect on the growth of this organism. Two strains of *staphylococcus*, one freshly isolated from a boil, were examined, and in both cases the growth after twenty-four hours was confluent and general in all slides.

Neisseria gonorrhoeae and *N. meningitidis*

TECHNIQUE

These organisms were examined by the slide method, but this was abandoned after a few experiments, as colony formation was poor, making counting very difficult. The following method was then devised. Mixtures of one volume of suspensions of fresh cultures of the organisms and three volumes of defibrinated and deleucocytized blood

respectively were prepared as before. Fifteen drops of these mixtures were then measured into sterile dwarf test-tubes, and equal volumes of the various dilutions of the drugs were added. The final dilutions of the drugs were the same as in the slide technique. The mixtures were shaken and incubated at 37° C. for twenty-four hours under moist conditions. After incubation samples of the contents of the tubes were plated out on blood agar and the plates were incubated for a further twenty-four hours in a moist chamber. The number of colonies on each plate was then counted, and in this way an estimate of the bacteriostatic effects of the dilutions of the drugs was obtained. Table II illustrates a typical result with a stock culture of *N. gonorrhoeae*.

TABLE II.—Effect of Drugs on *N. gonorrhoeae*

| Drug | Number of Colonies in Dilutions of— | | | Control |
|------------------|-------------------------------------|----------|----------|---------|
| | 1/2,000 | 1/20,000 | 1/60,000 | |
| M & B 693 : | | | | |
| a | 0 | 0 | 10 | 77 |
| b | 73 | 80 | 32 | 26+ |
| Sulphonamide-P : | | | | |
| a | 6 | 17 | 5 | 77 |
| b | 7 | 9 | 29 | 26+ |
| Soluseptasine : | | | | |
| a | 0 | 2 | 11 | 77 |
| b | 1 | 3 | 3 | 26+ |

Here again two of the drugs acted much better in the presence of a full complement of leucocytes. Thus M & B 693 was bacteriostatic at a dilution of 1 in 60,000 in the presence of defibrinated blood, whereas when mixed with de-leucocytised blood it did not appear to be bacteriostatic at a dilution of 1 in 2,000. Sulphonamide-P (sulphanilamide) was bacteriostatic at 1 in 60,000 in the presence of defibrinated blood, but was not active at this dilution when mixed with de-leucocytised blood. This activity of sulphonamide-P is in agreement with the clinical findings of Cockkinis and McElligott (1938). Soluseptasine was active at all dilutions in both defibrinated and de-leucocytised blood. In this case it is possible that some difference in activity might manifest itself at higher dilutions of the drug.

Neisseria meningitidis

Preliminary experiments with a number of different strains of *N. meningitidis* indicated that soluseptasine was not as effective an agent against this organism as was M & B 693. Thus, in mixtures containing normal cerebrospinal fluid, a suspension of an organism grown from a fatal case in a recent epidemic, and various dilutions of the drugs, soluseptasine was found to be bacteriostatic at a dilution of 1 in 1,000 and not at 1 in 10,000, whereas M & B 693 was effective at a dilution as high as 1 in 50,000, even in the absence of blood.

When the organisms were examined by the method described above these results were confirmed, as may be seen in Table III.

The results shown in Table III indicate that in high dilutions the drugs act better in the presence of leucocytes—that is, in defibrinated blood. In lower dilutions sulphonamide-P appears to work slightly better in the absence of the leucocytes. This, however, was not a constant finding.

Of the three drugs M & B 693 appears to inhibit growth slightly more successfully than the other two in all dilutions, and with or without leucocytes. Sulphonamide-P is also effective in high dilution even in the absence of

leucocytes. It should be noted here that our results with this drug are better than those obtained by other authors

TABLE III.—Effect of Drugs on *N. meningitidis*

| Drug | Number of Colonies in Dilutions of— | | | Control |
|------------------|-------------------------------------|-----------|-----------|-----------|
| | 1/2,000 | 1/20,000 | 1/60,000 | |
| M & B 693 : | | | | |
| a | 13 | 23 | 11 | Confluent |
| b | 0 | 20 (inf.) | 80+ | " |
| Sulphonamide-P : | | | | |
| a | 170 | 134 | 54 | " |
| b | 23 | 60 | 105 | " |
| Soluseptasine : | | | | |
| a | 77 | 74 | 300+ | " |
| b | 44 | 700+ | confluent | " |

"Inf." means that the plate was slightly infected.

(Branham, 1937; Neter, 1938). Soluseptasine has the least effect on the growth of the organisms, although it is active at a dilution of 1 in 20,000 in defibrinated blood.

Summary

The bacteriostatic effects of sulphonamide-P, soluseptasine, and M & B 693 have been examined.

All three drugs inhibit the growth of *Str. viridans* at a dilution of 1 in 2,000 in the presence of defibrinated human blood, M & B 693 doing so at a dilution as high as 1 in 10,000. None of these drugs is effective in the absence of leucocytes.

None of the drugs exhibits any bacteriostatic effect on *Staph. aureus*.

The growth of *N. gonorrhoeae* is retarded by all three drugs in the presence of leucocytes. In de-leucocytised blood soluseptasine still exerts a strong bacteriostatic effect on the organism.

All the drugs are effective against *N. meningitidis* in the presence of corpuscles—in the case of M & B 693 at a dilution of 1 in 60,000. That drug is active at a dilution of 1 in 60,000 even in the absence of blood.

The dependence of these drugs on the presence of leucocytes is in agreement with the findings of Fleming (1938).

From the evidence set forth above it appears that M & B 693 may prove the most useful therapeutic agent in cerebrospinal fever and in conditions arising from infection with *Str. viridans*. Soluseptasine seems the most satisfactory for dealing with *N. gonorrhoeae*.

The drugs used in the above experiments were supplied by Burroughs Wellcome (sulphonamide-P), Dr. Ewins of May and Baker (M & B 693), and Dr. F. G. Hobson, Radcliffe Infirmary (soluseptasine). We wish to express our thanks for these gifts.

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C. D. De Langen, J. C. Boswijk, and C. L. C. van Nieuwenhuizen (*Nederl. Tijdschr. Geneesk.*, 82, 4970) record an outbreak of ten cases of pellagra in female patients in a mental hospital. Six had refused food, three had already suffered from gastro-intestinal disturbances, and one was under treatment by cardiazol. Nine of the patients were treated with nicotinic acid in doses not exceeding 200 mg. daily; all recovered without any severe toxic symptoms. One patient who was not so treated died.

SPONTANEOUS HYPOGLYCAEMIA

WITH REPORT OF A CASE

BY

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The syndrome of spontaneous hypoglycaemia is one that has received comparatively little attention in English medical literature, although numerous cases have been reported in America, Australia, and Europe; nor has it found a place in the standard textbooks of medicine in this country. Wauchope in her critical review (1933) quotes only one English case, that of Moore and his colleagues (1931), in which the syndrome resulted from amylose dyspepsia. Full descriptions of the clinical and pathological features of this condition have been given by several American authors, notably by Gammon and Tenery (1931) and Seale Harris (1933), who have also reviewed the literature; while in the last seven years eight cases have been reported in this country.

Review of English Literature

Ramsbottom and Eastwood (1932) recorded their experience with a woman aged 44 whose condition had been diagnosed by Dr. Eurich at the Bradford Royal Infirmary in 1930. This was a somewhat unusual case, in that Argyll Robertson pupils and extensor plantar responses were present in the intervals between attacks without any evidence of syphilis. At laparotomy no pancreatic abnormality was found, but an infected gall-bladder and appendix were removed, after which the patient improved temporarily, only to relapse in spite of a daily dose of 1 lb. of glucose. Barnard (1932) described a case in a woman aged 40 who died in hypoglycaemic coma, and in whom an adenoma of the islets of the pancreas was found; treatment with glucose had been tried with temporary relief, but glucose was ineffective in the final stages. Cairns and Tanner (1933) reported the case of a woman aged 52 who, after two years' history of recurrent "giddy" attacks, passed into hypoglycaemic coma. The blood sugar was found to be 41 mg. per 100 c.cm., and the patient died in spite of intravenous glucose injections, adrenaline, and pituitrin. Necropsy revealed an adenoma of the pancreas.

The case of a woman aged 41 who had previously received insulin treatment for diabetes was recorded by Griffiths and de Wesselow (1933). The sugar-tolerance curve of this patient was of the "lag" type with a final hypoglycaemia, and the clinical course and laboratory findings were noticeably erratic—features which were observed in some of Wilder's (1927) cases, and considered by Howland (1929) to suggest a malignant rather than a benign growth. There was no clear evidence of liver dysfunction, though on one occasion the adrenaline test gave negative results. Moore *et al.* (1934) recorded a case which they considered to be due to subacute parenchymatous hepatitis; they also gave the ultimate history of a previously reported case (1931), and mentioned having seen another case, in a man of 28, of "apparently true hyperinsulinism." One of the patients referred to by Jones (1935) as presenting mental symptoms due to hypoglycaemia was a man of 31, and the details given leave

little doubt that he suffered from spontaneous hypoglycaemia of pancreatic origin.

We present below the records of another example of spontaneous hypoglycaemia. It is probable that the condition is not so rare as is generally supposed, and that as its features are more widely known it may be increasingly recognized, and experience with a larger number of cases may enable a truer assessment to be made of the possibilities of treatment.

Case Report

A man aged 41, a painter, was referred to one of us as a "peculiar epileptic." For the past eleven years he had suffered from attacks of dizziness and unsteadiness of gait. At first these occurred only once or twice a year, but they had increased in frequency latterly, so that in the past year he had had one or two a week, and in the week before his admission to the Bradford Royal Infirmary on February 27, 1938, they were of daily occurrence; his doctor described him as "a nuisance to the neighbourhood" by reason of his malady. The patient had previously been healthy except for an attack of influenza in 1918; he had begun to put on weight at about the age of 30, when symptoms first appeared, but his weight had remained stationary at about 13 stone for the last few years. His parents, four sisters, and one brother are alive and well, and do not suffer from any symptoms that might be ascribed to hypoglycaemia or diabetes.

NATURE OF THE ATTACKS

Attacks are almost always heralded by a sensation of tingling, which is felt first in the lips when he is eating, in the right hand when he is engaged in manual work, and in the feet when he is walking. If an attack begins while he is reading the newspaper the first sign would be that the words "run together." After these prodromal symptoms the commonest form taken by the attack is a sensation described as "muzziness of the head" accompanied by lack of concentration, slight blurring of vision, and some confusion. Occasionally hallucinations occur, and as a result of these "dreams" the patient exhibits unusual though never violent conduct. During an attack his speech is slow and drawing and the attention wanders, there has never been any sphincter disturbance, abnormal sleep, headache, convulsion, or loss of consciousness. On two occasions, the first many years ago and the second fourteen months ago, the patient found that the right arm and leg became useless during an attack; the face has never been affected. The paresis lasted a few hours on each occasion and disappeared gradually.

More severe attacks have occurred, usually when walking home from work, tingling in the feet is followed by a drunken feeling and unsteadiness of gait, so that he leans for support on a wall or railing. The attack develops slowly enough for him to board a bus and reach his home; but here he collapses in a chair, feeling cold, faint, and confused, and often sweating. An attack may last for half an hour to one and a half hours, and always develops and passes off slowly. Most frequently attacks occur towards the end of the day's work, but they have also occurred before mealtimes and sometimes during a meal. The patient does not experience hunger during an attack, but he knows that if he takes food he can prevent a severe one developing, and he has formed the habit of having a mid-morning lunch at work for this reason.

EXAMINATION

The patient was a moderately obese subject weighing 13 stone, with an old-standing strabismus and myopia. The fat was of normal distribution, there was no unusual pigmentation of the skin, the hair was normal, as was the development of the sexual organs. Examination of the nervous system revealed no abnormal signs, while the only abnormality found in a general examination was a blood pressure of 170/100 mm. Hg. The urine and the cerebrospinal fluid were normal, and the Wassermann reaction was negative.

From a description of the attacks hypoglycaemia was suspected, and this view was confirmed on reducing the diet the next day. Whilst having his tea on this day the patient developed a typical attack in which the blood sugar was found to be 40 mg. per 100 c.cm. The sugar-tolerance curve after 50 grammes of glucose gave the following results:

| Time | Before Sugar | 30 mins. | 60 mins. | 90 mins. | 120 mins. |
|---------------------------------|--------------|----------|----------|----------|-----------|
| Blood sugar (mg. per 100 c.cm.) | 25 | 40 | 92 | 75 | 66 |

There was no glycosuria during the test, but sugar was found on one occasion in the early morning urine..

Further investigations to determine the aetiology of the hypoglycaemia were undertaken; the stools contained no undigested starch, and no diarrhoea was present. Pituitary function appeared to be normal, there was no radiological abnormality of the pituitary fossa, and the fields of vision were normal. The basal metabolic rate gave a value of -3 per cent. A test meal showed a rapid emptying time and a normal acid curve. There was no evidence of diminished laevulose tolerance. After a dose of 40 grammes of laevulose the following figures were obtained:

| Time | Before Laevulose | 30 mins. | 60 mins. | 90 mins. | 120 mins. |
|--------------------------------|------------------|----------|----------|----------|-----------|
| Blood sugar (mg per 100 c.cm.) | 31 | 31 | 28 | 24 | 20 |

Mobilization of sugar occurred normally after the subcutaneous injection of 10 minims of adrenaline:

| Time | Before Adrenaline | 10 mins. | 20 mins. | 30 mins. | 40 mins. | 50 mins. | 60 mins. |
|---------------------------------|-------------------|----------|----------|----------|----------|----------|----------|
| Blood sugar (mg. per 100 c.cm.) | 66 | 55 | 96 | 130 | 145 | 146 | 186 |

Discussion

Various authors have discussed the pathogenesis of hypoglycaemia, and its possible causes have been summarized by Wauchope (1933) as follows:

- 1. *Excess of Insulin.*—Therapeutic injections. Tumours and hyperplasia of the pancreas. Functional hyperinsulinism (idiopathic hypoglycaemia).
- 2. *Lack of Opposing Secretions.*—Disease of the suprarenal glands. Pituitary tumours: posterior lobe, anterior lobe (acromegaly). Myxoedema.
- 3. *Lack of Glycogen.*—Destruction of reservoirs: disease of the liver; wasting of muscles. Abnormal excretion of sugar: renal diabetes; lactation. Active depletion of stores: muscular exercise. Failure to replenish stores: starvation.
- 4. *Interference with Regulating Centre.*—Nervous disease affecting the pons. Overaction of the vagus.

In the present case no evidence had been obtained of disorder of the adrenal, pituitary, or thyroid glands; liver and gastro-intestinal functions were normal, and there was no renal diabetes. It seemed, therefore, that the cause must be sought in the pancreas.

From a study of the previously reported cases it appears that there is as yet no satisfactory criterion whereby the varieties of pancreatic hypoglycaemia may be differentiated. In the cases reported up to 1931 (Gammon and Tenery, 1931) the average duration of symptoms when a patient was first seen was two and a half years in the tumour group and four years in the non-tumour group, the longest periods being seven years and thirteen years respectively in the two groups. The erratic course of tumour cases has been stressed, but this has not been apparent in all such cases, although it might seem feasible that an adenoma or carcinoma, presumably exempt from

nervous control, should show a fluctuation in its functional activity dependent upon variations in its rate of growth. From those cases in which the adrenaline response has been observed there is some reason to suppose that it is more often negative in tumour cases, but the difficulties in interpreting this test are pointed out by Cammidge and Poulton (1933). The latter incline to the view that lack of response to adrenaline cannot be due to pancreatic hyperfunction, and criticize Wilder's explanation that the adrenaline must be swamped by excess of insulin, on the grounds that a balance must always exist, and that this must always be susceptible to alteration on the addition of more adrenaline. If, however, Wilder's view is correct, a negative adrenaline response might indicate exhaustion of the adrenaline-supplying mechanism, or possibly a diminution in sensitivity to adrenaline. In either case it would be expected to denote the severity of the disease rather than its pathological basis, and this is borne out by the fact that adrenaline often fails to relieve severe hypoglycaemia from any cause. The state of affairs in the pancreas is not always capable of diagnosis even at laparotomy, for small adenomata may be missed (Ziskind and Bayley, 1937).

On the evidence available, therefore, we concluded that a definite pathological diagnosis could not be made, and that there was as yet no indication for exploratory laparotomy.

Treatment

Medical treatment is of course palliative. Its aim is to keep the blood sugar from falling too low, and also from fluctuating too violently. To assess the value of the different methods available we first observed the blood-sugar variations in the patient on an ordinary ward dietary, and the results are shown in Fig. 1.

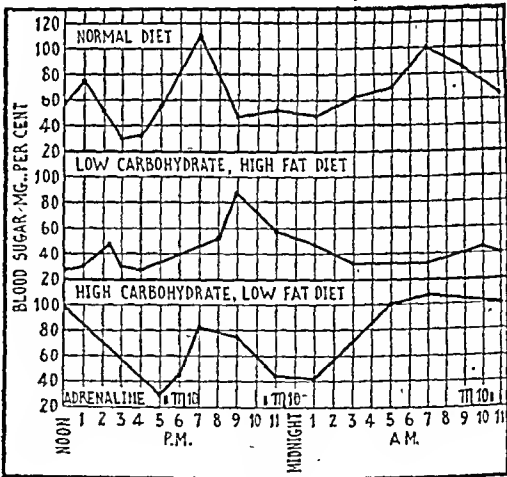


FIG. 1.

It has been suggested (Harris, 1933) that rational therapy should consist in measures which avoid stimulation of pancreatic activity. Accordingly the patient was given a diet consisting of carbohydrates 100 grammes, protein 70 grammes, and fat 160 grammes, and on the third day of this regimen the blood-sugar variations were again followed (Fig. 1). On the first day of this diet the patient felt worse than at any time since admission, but he had improved considerably by the fifth day. On the sixth day, however, he had a severe attack in which there was twitching of both legs but no other abnormal nervous signs. During all this period he complained of being "terribly tired." A diet of carbohydrates 500 grammes,

protein 70 grammes, and fat 70 grammes was then given, divided into seven meals. Subjectively his condition on this diet was better than with the previous one, though he still had "pins-and-needles" in the lips. The diet was then supplemented by injections of 10 minims of adrenaline at 5.30 p.m., 10.30 p.m., and 10.30 a.m., and the results of this appear in Fig. 1. A week later he had had no tingling of the lips for a few days, and stated that he would be quite satisfied if his present condition remained unchanged. He was discharged on the high carbohydrate diet, and ephedrine, $\frac{1}{2}$ grain three daily by mouth, was substituted for the injections of adrenaline.

On July 7, 1938, the patient was readmitted. Subsequent to his discharge he had had no attacks for six weeks, but had had a total of four attacks in the whole period of fifteen weeks. His weight had been stationary, and his general health and temper had improved: the blood pressure remained at 170/100 mm. Hg. The patient stated that on each occasion an attack had been the result of a delayed meal, and that with greater care he could have prevented them. The ephedrine was stopped temporarily and the daily blood-sugar variations again recorded while the patient was taking the 500-granime carbohydrate diet. The results given below indicate that a higher blood-sugar level had now been attained, and it was also noted that prodromal symptoms of hypoglycaemia occurred at a higher level of blood sugar than previously, suggesting that during the previous weeks the nervous system had become accustomed to more normal conditions.

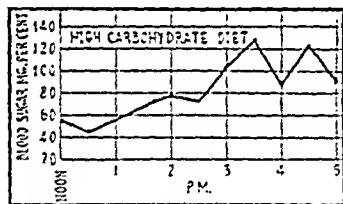


FIG. 2.

The duration of the response to ephedrine was next determined, and as it was found to cause a rise of blood sugar, beginning about three hours after administration and lasting two hours, the patient was discharged on July 15, 1938, with instructions to take ephedrine tablets four times daily at approximately 8 a.m., noon, 5 p.m., and bedtime. His diet was rearranged to contain 650 grammes of carbohydrate, divided into ten meals.

In view of the good response to medical treatment exploratory laparotomy was further postponed.

Commentary

One of the most striking features of this case is the extraordinarily low blood-sugar readings obtained in the absence of severe hypoglycaemic symptoms. Figures in the region of 30 mg. per 100 c.cm. were recorded several times, and even when the blood sugar reached the level of 16 mg. on one occasion and 20 mg. on another the patient was not in coma. So far as we are aware this has not been recorded before. (The blood sugar was estimated by a modification of the method of Calvert (1924) using the Zeiss photometer, and the technique was checked by estimation of glucose solutions of known strength.)

It will be noted that the point at which tingling or weakness first appeared was often determined by use of the part—for example, tingling of the legs when walking

and of the lips when eating—suggesting that some local product of muscular metabolism was the determining factor. Generalized muscular weakness of sudden onset in familial periodic paralysis is known to be associated with a fall in blood potassium, and an attack in this condition may be brought on by administration of glucose or insulin, or both together (Aitken and Allott *et al.*, 1937). In chronic hypoglycaemia the same biochemical abnormalities may occur, and it is possible that in the case here recorded the extra demand of neuromuscular activity interfered with the already disturbed potassium balance and produced the symptoms noted. The fall in the blood potassium was confirmed in the present case, for during a hypoglycaemic attack in which the blood sugar was 30 mg. per 100 c.cm. and weakness of hand-grip was evident the serum potassium fell from its normal of 21.4 mg. to 15.9 mg. per 100 c.cm. Unfortunately the effects of administration of potassium salts have not been observed.

Another unusual point concerns the time of onset of symptoms. Most cases show symptoms when fasting, and especially just before meals, but here it was repeatedly observed that the attacks began just after the patient had started to eat. This might be merely another example of the local effects of exercise mentioned above, the blood sugar being already low, or it might be due to an actual lowering of the blood sugar, presumably by means of a conditioned reflex. The same effect was noted by Howland (1929). Personal experiments on a normal subject, however, lent no support to the hypothesis that a reflex lowering of the blood sugar occurred when a meal was contemplated. Moreover, Howland's case was one of carcinoma, which could not be expected to be susceptible to nervous impulses.

Lastly, it may be pointed out that hemiparesis is a recognized though uncommon feature of hypoglycaemia, and it is important to recall the fact that this rather alarming occurrence may be a transient manifestation of the condition. We have come across similar attacks in a diabetic boy aged 11 years who was receiving protamine insulin, and in an adult aged 30 under similar conditions.

Summary

1. References to spontaneous hypoglycaemia in the English literature are reviewed.
2. The records of an additional case are presented and the difficulties of diagnosis and treatment discussed.
3. Certain unusual features in the symptomatology are commented upon.

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Clinical Memoranda

Treatment of Delayed Union of the Carpal Scaphoid

(WITH SPECIAL PLATE)

In the *British Medical Journal* of December 4, 1937, Mr. R. Salisbury Woods described a case of union of the carpal scaphoid after six weeks' delay in treatment. The excellent result obtained in his case induced me to trace for review a patient treated in a similar conservative manner about a year previously. In this case the period between the accident and the institution of efficient treatment had been much longer—nearly three years—and the period of treatment had been correspondingly extended. The result, however, proved very satisfactory, and the publication of such a case may encourage others to consider conservative measures when treating this most troublesome injury.

CASE HISTORY

In April, 1936, a man aged 30 was referred to me because of increasing pain and disability of the right wrist. The history was that three years previously he had skidded on a motor-bicycle and fallen on his right side with his hand still grasping the handle-bar. The right wrist was damaged and a diagnosis of "sprained wrist" was made. Treatment was limited to the usual home hydrotherapy efforts.

After six months of continued pain he sought advice elsewhere, and a radiograph was taken which showed a transverse fracture of the carpal scaphoid. He was told that the fracture would probably unite. He managed to carry on at his work as a metal turner, but pain persisted. When seen by me three years after the accident he stated that the pain was steadily increasing and had been much more severe during the last six months. A radiograph taken at this date (Plate, Fig. 1) showed an ununited fracture of the scaphoid, with some vacuoles in the bone. There was no arthritis.

I discussed the question of surgery with him as I thought that the damage was of such long standing as to make it unlikely that conservative measures would help. However, he was extremely keen to keep at his work, and agreed to give prolonged splinting a trial.

A leather-covered aluminium "cock-up" splint was therefore devised, of which the dorsiflexed portion fitted into the centre of his palm, and the arm portion was kept in position on the flexor surface of the forearm by a laced leather casing (Fig. 2). This allowed complete freedom of movement to all fingers and to the thumb. He wore this continuously for six months, being able to do all his work as a metal turner. The splint was removed only for the purpose of washing his hand, and during such times dorsiflexion was strictly maintained. There was some slight skin trouble from pressure and sweat, but with care and the use of methylated spirits and a dusting powder he was able to prevent the skin from breaking, and he strictly kept the correct position for six months. All pain disappeared within three weeks, and he felt but little inconvenience from the wearing of the apparatus.

A radiograph taken at the end of that time (Fig. 3) showed apparent union, and, no clinical sign of tenderness being elicited, the splint was discarded.

On reading Mr. Woods's case I re-examined the patient in February, 1938. He stated that he had had no further pain and that functionally his wrist was normal. Clinical examination confirmed this, and a further radiograph showed "bony union of the scaphoid with complete continuity of the internal border of the bone. There was considerable irregularity of the external surface representing the vacuolated areas noted at the first examination."

COMMENTARY

The surgical procedures suggested for the treatment of delayed union of these cases are by no means simple or

devoid of risk, and the results obtained are not universally satisfactory. So long as the diagnosis of "sprained wrist" is made without the exclusion of a fractured scaphoid by x-ray films, so long will these cases of delayed union occur. It would therefore appear that surgery in these cases should not be advised until a reasonably prolonged trial of conservative measures has been made. A man's ability to carry on at his work during such treatment is of great importance.

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The Diagnosis of Large Ovarian Cysts

(WITH SPECIAL PLATE)

The differential diagnosis of an ovarian cyst is usually perfectly simple, but there are a few cases in which laparotomy must be undertaken to confirm it.

For purposes of description it is customary to divide ovarian cysts into three groups according to their size: (1) the small ovarian cyst, capable of lodging in the pelvis; (2) the medium-size cyst floating free in the abdominal cavity; (3) the enormous cyst filling the abdominal cavity, displacing the intestines. It is with the third group, or largest tumour, that this note deals.

The differential diagnosis between ascites and an enormous cyst which completely fills the abdomen, flattening the gut against the posterior abdominal wall and having a single large loculus in front, may be impossible by ordinary clinical examination. Such a cyst will not show the abdominal wall lifting off its capsule in respiration; it will give rise to dullness all over the abdomen, and often it is possible to elicit a fluid thrill through it. Ascites may cause dullness which is absolute and complete over the whole abdomen owing to the gut being "drowned" in the excess of fluid; as a result the sign of shifting dullness cannot be elicited. Paracentesis of the abdomen is of no help, for cells may be present in both ascitic and ovarian fluid, and pseudomucin does not always appear in the latter.

It may be impossible clinically to distinguish between marked obesity and neoplasm, for the former gives rise to abdominal protrusion, a feel of resistance on palpation, and, occasionally, complete dullness on percussion. The diagnosis is readily made, however, by injecting iodotol (B.D.H.) through a Keyes-Ultzmann cannula into the uterine cavity. An anaesthetic is rarely necessary, but the patient must be transferred to a radiographic department and placed on a table fitted with a Potter-Bucky diaphragm. After the insertion of the cannula into the uterus, preparation to take the radiograph should be made before injecting the iodotol. Two or three films should be taken, without moving the patient, after the injection of varying amounts of iodotol—namely, 4 to 5 c.cm., 10 c.cm., and 15 c.cm. It is essential that enough oil be injected to ensure the filling of the uterine cavity and the tubal lumina.

In the case of ascites or simple adiposity the lengths and outlines of the Fallopian tubes would be approximately equal (Plate, Fig. 1), but in the case of a large ovarian cyst one tubal lumen would be seen to be greatly elongated and to extend above the brim of the pelvis in the direction of the upper abdominal cavity (Plate, Fig. 2).

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An Unusual Case of Bilateral Digital Epiphyseal Deformity

(WITH SPECIAL PLATE)

The rarity of this condition seems to me to warrant its publication. I personally have not encountered another example.

The case is that of a healthy girl aged 12. At the age of 3 she fell downstairs, but sustained no injury to her hands. For the past two years deformity of the index fingers has been noticed at the proximal interphalangeal joints, with medial deviation of the fingers. The joints have become thickened, and she was brought to see me at the Orthopaedic Institute, Oldham, on account of pain and deformity.

X-ray examination (see Plate) revealed a medial subluxation of the middle phalanx and a peculiar angulation of the epiphysis of the middle phalanx. There is, so far as one can see, no fragmentation of the epiphysis. The base of the shaft of the middle phalanx is markedly indented by the angular epiphysis. The distal articular extremity of the proximal phalanx is a little "pointed" on its medial side, and this "point" corresponds with the apex of the epiphyseal angulation.

The aetiology is obviously a matter for speculation. One may exclude trauma, as the condition is bilateral and symmetrical, and no other finger or epiphyseal plate is involved. Although the deformity has only been noticed for the past two years it is quite possible that the condition may be due to an abnormal intra-uterine position of the proximal interphalangeal joints of the index fingers, producing a mild subluxation. The position could be maintained *in utero* by the terminal phalanx of the index finger being tucked under and grasped by the flexed middle finger.

Manchester.

HENRY POSTON, M.Ch.

Congenital Deformities of Hands and Feet

(WITH SPECIAL PLATE)

The following case, radiographs of which are reproduced in the Special Plate, may be considered of sufficient interest to be placed on record.

The case is that of an Egyptian boy, aged 11, of the fellahin class, who came to this hospital for treatment for ankylostomiasis. It is curious that both feet and both hands should all have such similar congenital deformities.

He can grip quite strongly with his hands and perform all necessary actions. As he is illiterate he cannot write, anyway. He stands and walks well, and does not get unduly tired, though he has no arches to his feet. He does not go about barefoot like most of his fellows, but wears a pair of large old shoes to hide his feet, which rather resemble those of an ostrich or emu. The outlines of the soft parts and the bony defects can be seen quite clearly in the radiographs, for which I am indebted to the radiologist of this hospital.

C.M.S. Hospital,
Old Cairo.

E. N. CALLUM, F.R.C.S.Ed.

Full-time Extra-uterine Pregnancy

(WITH SPECIAL PLATE)

Cases in which extra-uterine pregnancy reaches full time without tubal rupture are seldom met with. The case here recorded was of this variety, but our main object in making this brief communication is to exhibit an x-ray photograph which is probably unique.

CASE RECORD

The patient was admitted to hospital with a history that she was beyond full time and labour had not come on. Throughout the course of pregnancy there had been no symptoms to suggest that pregnancy was other than normal. As a result of abdominal examination it was thought that the patient was about seven and a half months pregnant and that she had probably erred as to the date of confinement. As time went on it was found that the child was not increasing in size, and as the foetal heart could not be heard it was decided that an examination should be made when the patient was under the influence of a general anaesthetic. It was then discovered that the case was one of extra-uterine pregnancy which had gone beyond full time without tubal rupture. We thought that, if this were so, an interesting x-ray photograph might be obtained, and consequently the uterus was filled with lipiodol so that that organ and the abdominal contents might be photographed by Dr John Reid. It will be seen from the illustration on the Plate that some of the lipiodol not only filled the enlarged uterus but passed along the left Fallopian tube. As the lipiodol had failed to enter the right tube it was concluded that this structure contained the foetus. In the radiograph the child can be seen lying transversely. At operation it was found that loops of ileum and omentum were adherent to the unruptured right Fallopian tube. The vessels in the omentum had undergone considerable enlargement. When these attachments had been liberated the tube with its contents were removed *en masse*. On opening the tube it was found that the liquor amnii had been absorbed. The patient made an uneventful recovery.

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Accidental Vaccination of the Nose

(WITH SPECIAL PLATE)

Accidental vaccination is a well-known occurrence. We are recording this case, however, because it presented such a dramatic picture that it might have given rise to considerable difficulty in diagnosis.

CASE HISTORY

When seen in consultation on March 8 last the patient, a married woman aged 31, gave the following history. For about six weeks she had had a small fissure at the corner of her left nostril. On February 28 she began to notice enlarged and painful glands in her neck, especially on the left side. Two days later her nose became swollen and rapidly got worse, with vesiculation on the lower end and such oedema that her eyes were almost closed. She felt ill, and had a temperature of 101° with throbbing pain in her nose. Further inquiry into the history revealed that she had had a baby vaccinated on February 12, and the dressing had first been removed on the 23rd—that is, five days before the mother's first symptoms. The mother had never been vaccinated.

On examination she presented an acute inflammatory lesion of the nose, with such a degree of oedema of the face that one's first thought was of anthrax. The nose itself was bulbous at the tip and crusted, the margin of the ulcerated area showing pustules resembling those of variola. On the left cheek was a small group of vesicles (see the photograph, which unfortunately was taken after the most severe oedema had disappeared).

The patient was confined to bed after receiving a small dose of x rays (150 r). She was treated with perchloride of mercury fomentations and given 7½ grains of protosil thrice daily. A week later, on March 14, the swelling and inflammation had subsided and she merely had a little crusting. When seen again two months later the lesions had completely healed, but she was left with a group of small round superficial scars on the tip of her nose.

An attempt was made during her illness to detect the virus by inoculating a rabbit, without definite result; but as the lesion was secondarily infected and had previously been treated with antiseptics a positive finding was unlikely.

COMMENTARY

This case when first seen was so fierce in appearance that it might easily have been mistaken for a more serious condition. The intense surrounding oedema suggested a malignant pustule, but there was no central black slough. Another possibility was a primary chancre, but the rapidity of onset, the history of vesiculation, and other points made this unlikely. Finally one considered the diagnosis of a carbuncle, but here again the vesicular onset and the pustular margin of the lesion did not quite meet the case. On the other hand, the history of a child's recent vaccination and the resemblance to an ordinary vaccination lesion made the diagnosis fairly probable, and this was confirmed by the course of the illness and the final scar that resulted.

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F. F. HELLIER, M.A., M.D., M.R.C.P.

Spasm of the Central Retinal Artery

The following case notes may be considered of sufficient interest to merit publication.

CASE RECORD

On August 31, 1938, at 6 p.m., a man aged 57 consulted me about sudden blindness in his right eye. He said that two hours previously, while motoring, he discovered he could not see with his right eye, and that closure of the left eye almost led to an accident.

On examination I found that his left eye had 6/9 vision and in all respects was quite normal, except for a low degree of retinal arteriosclerosis. The right eye showed a semi-dilated pupil which did not react directly to light. Vision in this eye was reduced to bare "perception of light." Ophthalmoscopic examination revealed that the retinal arteries were markedly contracted, that the calibre of the veins was about normal, and that there was generalized oedema of the retina, especially around the posterior pole. I made a diagnosis of embolism and advised immediate operation. To this he agreed. He was a healthy man with no history of illnesses.

The patient was admitted to hospital and I performed the following operation at 6.20 p.m. I first gave him a retrobulbar injection of acetylcholine. Ten minutes more were taken up in preparing the eye and washing it. Five per cent. cocaine was instilled into the eye. A keratome was pushed into the anterior chamber and the aqueous rapidly evacuated. He was then given an ampoule of amyl nitrite to breathe, and massage of the globe was carried out. I had hoped to watch events in the fundus on the table, but the cocaine produced some exfoliation of the corneal epithelium and so prevented a clear view. The eye was bandaged and the patient put to bed. Next day with the affected eye he could see the stripes on my tie and see "hand movements." On the following day—that is, two days after the operation—he could count fingers at three feet. His visual field was full.

The patient was sent home on September 5, and on the 6th his doctor informed me that his blood pressure was 220 systolic. On September 7 vision in his right eye was 1/60, and his visual field was normal. The screen test showed a small central relative scotoma extending to 5 degrees around the fixation point. The patient was put to bed and received treatment for his raised blood pressure.

I last saw him on September 30. His right vision was then 3/60, but only by holding his eye in extreme abduction. I expected to find a sector defect in the field corresponding with the branch blocked by the embolus. Absence of such defect has made me alter my diagnosis to one of spasm.

Wallasey. W. DUNLOP HAMILTON, M.B., B.Ch., D.O.M.S.

Reviews

MANUAL FOR BOARDING-SCHOOL DOCTORS

Medical Practice in Residential Schools. A Manual for Medical Officers and Others. By F. G. Hobson, D.S.O., D.M., F.R.C.P. (Pp. 284; 8 figures; 3 plates. 10s. 6d. net.) London: Humphrey Milford, Oxford University Press. 1938.

Medical men attached to boarding-schools have long felt the want of a textbook devoted to their special needs, both in dealing with the particular diseases which are common to such institutions and with the administrative problems they present. In *Medical Practice in Residential Schools* Dr. Hobson has produced such a work, which will assuredly find its place on the shelf of every school doctor for handy reference. The chapters dealing with the disorders and diseases of school age are concisely written and in a manner the school doctor will find most helpful. The particular methods of organization in times of epidemic infection which are needed for efficient control and management are fully dealt with and cover very thoroughly this responsible side of a doctor's duties. And no one who has not had the experience of dealing with an epidemic in a boarding-school can appreciate how grave those responsibilities are and how much they tax the resources of those in charge. The chapters on measles, diphtheria, and the streptococcal infections are of particular interest and value, if one may select from so many excellent examples.

The book will certainly become a standard work of reference, and in future editions we shall hope to see a wider field covered. In the first place there is a sense of disappointment that from the preventive aspect alone more emphasis is not directed to the need for physical education as a necessary part of school life. The duty of training and developing the adolescent body to its best capacity is now a recognized part of education—as should be the teaching of biology. If we are to teach a boy or girl to cultivate health in a positive sense the foundation of such knowledge must be instruction in the functions of the body and mind. The chapter on nutrition, excellent as it is, seems not sufficiently directed to school problems. The school doctor is often not consulted at all in such matters. Economy at the expense of food, extras (especially fresh fruit as an extra), cooking and serving meals, the relation of meals to games and work, are all special problems bearing on school work. On many of these points the school medical officer's hands would be strengthened if he could quote an accepted authority.

A chapter could well be written on the basic handicap under which the school doctor labours by virtue of his position. He holds his post at the will and pleasure of the headmaster. He has as much voice in deciding questions of diet, bed spacing, and the like as he can persuade his headmaster to allow him, which is sometimes none at all. Heads of schools who have their own ideas on health questions are not unknown. The headmaster who "believes in" this or does not "hold with" that has no one to say him nay. Again, what applies to headmasters is even more true of parents. The unfortunate doctor has to pay lip service to every kind of crank and fetish in the field of treatment of disease. One small point we would plead for. The decision as to paracentesis of the drum in cases of otitis media should be based on evidence of rising pressure shown by bulging of the drum.

Why may we not have this point in our textbooks and impressed on the student?

We commend Dr. Hobson's book whole-heartedly to all who are interested in this branch of medicine.

CURTIS'S "GYNECOLOGY"

A Textbook of Gynecology. By Arthur Hale Curtis, M.D., Professor and Chairman of the Department of Obstetrics and Gynecology, Northwestern University Medical School. Third edition, reset. (Pp. 603. 318 figures. 30s. net.) London: W. B. Saunders Company. 1938.

All who are already familiar with this textbook will be warm in their welcome of the latest and best edition. New readers, be they students or graduates, will find it most complete and satisfying. The previous work has been entirely rewritten, with eight new chapters added. These include an excellent introductory section dealing with the female pelvic anatomy, followed by a brief survey of the embryology of the generative organs. Probably the most valuable addition is the section dealing with gynecological endocrinology, in which the present conception of hormonal activity and interrelationship is lucidly summarized and well illustrated. The chapter entitled "The Gynecological Patient Presents Himself" remains a feature of the book. Students and practitioners alike will find these pages filled with invaluable counsel, dealing as they do with those fundamental, but often overlooked, principles upon which both sound training and sound practice must be based.

Reference to sulphanilamide therapy, with due emphasis on the dangers of indiscriminate and uncontrolled administration of the drug, brings the chapter on "Infectious Processes" up to date. In dealing with the relation of cervical infection to sterility the author advocates amputation of the cervix in those cases of cervicitis in which no other cause for the sterility can be discovered, but makes no mention of the dangers of subsequent abortion should a high amputation be performed. The section dealing with puerperal sepsis gives emphasis to autogenous infection from vaginal organisms at the expense of the "droplet infection" theory. Reference to the valuable bacteriological and clinical work on puerperal sepsis performed in recent years at the Queen Charlotte's Isolation Hospital would improve this section of the book.

Tumours of the uterus and adnexa are admirably dealt with from every aspect, including a valuable and concise section dealing with the place of radiation therapy in the treatment of fibromyomata. The position of radical surgery and radiation in the treatment of carcinoma of the cervix is impartially discussed. Due and timely emphasis on the danger of radium in unskilled hands precedes a summarized account of the various techniques in common usage. Injuries to the pelvic floor and vaginal plastic surgery are splendidly described and illustrated. Sterility is fully discussed, and the arresting, though debatable, claim made that the best time to diagnose the condition is before marriage. Rubin's test is given preference to radiological investigation of the tubes, but the danger of wrongly interpreting the results of the former test is not mentioned, although in the past many patients have been agreeably surprised and many surgeons embarrassed by Nature's reply to the verdict of "blocked tubes."

From beginning to end this is an excellent work, and must be regarded as one of the finest textbooks of gynaecology.

CHEVALIER JACKSON

The Life of Chevalier Jackson. An Autobiography. (Pp. 230. illustrated 15s. net.) New York and London: The Macmillan Company. 1938.

The childhood and youth of Dr. Chevalier Jackson were passed in circumstances so straitened as to amount at times to actual want. His father had become saddled with a heavy load of debt, due to embezzlement by one in whom confidence proved to be misplaced, and the early years were overshadowed by this family misfortune. It has been said that a wealthy parent can give his son everything except the stimulus of poverty, but the reverse is not true because, in spite of *res angusta domus*, the parents of Dr. Jackson provided him with a very happy life at home. The tale of his sufferings at school and of the barbarous conduct of the older boys, as related in his autobiography, makes painful though fascinating reading, and the wonder is that the frail youth survived such treatment. The means by which the poor young man maintained himself as a student of medicine command admiration, and his adventures as a vendor of medical books, as a cod-fisher, and as a sea-cook prove his capacity both for endurance and for spinning a good yarn. There is not much told about the very early years of practice, but the determination to become a specialist was soon reached, and Dr. Jackson made a voyage to Europe in a Dutch ship in order to visit Morell Mackenzie in London. The horrors of that voyage are vividly described, but there is scarcely anything related about the sojourn in London, of which English readers would have been interested to know more. From this point onwards the career of Dr. Jackson is better known. The development of bronchoscopy at Pittsburgh, the translation to Philadelphia, and the creation of the professorial chairs are familiar to the medical world; but the financial difficulties and the recurring threats of pulmonary breakdown which had to be overcome are less well known.

Dr. Jackson has become a man with a mission, the mission being the spread of safe bronchoscopy, but he has had other missions as well. One of these was the struggle to get household lye, the cause of innumerable oesophageal strictures in American children, labelled as a poison. The ultimate achievement of this was attained in the face of a dead weight of passive obstruction rather than active opposition, and required an almost incredible amount of work, time, and money. Another interesting chapter of this autobiography tells the views of the author upon how assistants should be treated. These views have brought abuse and ridicule upon him, and while sympathizing with the liberality and generous spirit upon which these views are based and were put into practice, it must be admitted that they appear somewhat exaggerated. The assistant who could stand for long such treatment in full measure as here described without being spoiled would surely be something of a superman. There is a curious paradox in this book that while holding such views Dr. Jackson says scarcely anything about his assistants personally. For the reason given he must have the gift of choosing for assistants those with a touch of the saint in their composition, and the reader would have liked to know more of his personal association with them. Perhaps the reason for this omission is that it is only one of many, for the book might easily be double its length without tiring the reader. Dr. Jackson has been cunning enough to leave him wishing for more—more delightful tales and more brilliant illustrations—but he gets a sufficient picture of the man. The simplicity of his life, the beneficence of his work, and the greatness of

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HEPARIN AND THROMBOSIS

The recent studies of blood coagulation are of immediate practical importance to the physician and the surgeon, especially the latter, and we welcome, therefore, the opportunity of printing in this issue the lecture on heparin and thrombosis delivered by Professor Charles Best of Toronto on his visit to England earlier in the year. We surveyed in these columns a few months ago¹ the work of Dam and others which indicates that the haemorrhagic tendency in jaundice and disease of the liver is due to prothrombin deficiency and can be repaired by the administration of the fat-soluble vitamin K. Prothrombin may be regarded as a ferment-precursor which, under the influence of calcium and tissue extract, is converted into the ferment thrombin; thrombin then acts on fibrinogen to produce the clot or fibrin. The conversion of prothrombin into thrombin and the action of thrombin on fibrinogen can be inhibited by heparin. It is a moot point whether heparin is a normal constituent of the blood and the natural anticoagulant, but there seems little doubt that it is the factor responsible for the incoagulable state of the blood in anaphylaxis and peptone shock. Heparin was discovered in Howell's laboratory in 1916, but its anticoagulant properties could not be utilized outside the laboratory until the last five years, when non-toxic preparations became available as the result of the work of Professor Best and co-workers in Toronto and Jorpes and his school in Stockholm. Jorpes² describes heparin as a polysaccharide of high molecular weight which also contains nitrogen and sulphur. It appears to act by influencing the physical condition of the prothrombin, and it can easily be precipitated out with agents such as protamine or toluidin-blue, when the blood at once coagulates. The purest preparations of heparin contain up to 40 per cent. of sulphuric acid. The metachromatic violet staining of mucus and cartilage by toluidin-blue depends on the presence of mucicetin—or chondroitin—sulphuric acid, and the reaction is characteristic of high molecular esters of sulphuric acid. Heparin gives this reaction in extreme dilution, and an identical reaction is given by the metachromatic granules of the Ehrlich mast cells of the tissues. There is a parallelism between

the content of the viscera in mast cells and the amount of sulphate split off by acid hydrolysis, and there is reason to believe that the mast cells are the site either of formation or of storage of heparin.

The pure heparin now available is eight to ten times as strong as previous preparations and yet is only the same price. It is non-toxic by injection, and 500 mg. can be injected intravenously into a rabbit without ill effect. It is stable, and with care solutions can be safely autoclaved, though it is easier to sterilize by filtration. Dosage at present is confused by differences in measurements of activity. One manufacturer defines the unit of heparin as "the activity of that quantity of material which will prevent the clotting of 1 c.cm. of cat's blood for twenty-four hours when kept in the cold." Another firm's unit "corresponds to that quantity of heparin which is necessary to maintain unclotted 1 c.cm. of recalcified citrated ox plasma, of a pre-determined clotting power, for four hours at 37° C." Now Best has arbitrarily assumed that 1 mg. of his pure substance is equivalent to 100 units, though it is not yet certain that preparations are always of exactly the same purity or that we can dispense with biological assay. These different units apparently differ by about 500 per cent., and until international standards have been agreed upon users of heparin will be best advised to think in terms of milligrammes of pure preparations. Heparinized blood appears to be suitable for the majority of laboratory tests, with the exception of the Wassermann reaction, and, as Wilander points out,³ the same blood specimen thus suffices for examinations for which otherwise separate samples of whole blood, serum, and oxalated plasma would have been needed. There is no risk of haemolysis and no change in the size or fragility of the red cells. The heparin is non-reducing and will not interfere with any chemical analysis commonly performed on blood. There is nevertheless evidence that the leucocytes and thrombocytes soon cohere and form floccules in heparinized blood, and white cell counts should therefore be made at once. With pure samples of heparin haematocrit values appear to be reliable, but more work must be done on the sedimentation test with heparinized blood, as some authors, including Ström,⁴ have found the results capricious.

Heparin can be used in blood transfusion either by adding it to the blood as it is collected or by injecting it into the donor. In the latter method the donor receives an injection of 1 mg. of heparin per kilo of body weight, and the blood is withdrawn five to ten minutes later. At the end of one and a half to two hours the coagulation time of the donor returns to normal. Widström and Wilander⁵

¹ *British Medical Journal*, 1938, 1, 1050.² *Acta med. scand., Supplement.*, 1938, 89, 139.³ *Acta med. scand.*, 1938, 94, 258.⁴ *Ibid.*, 96, 365.⁵ *Ibid.*, 1936, 88, 434.

report that heparin has been injected into the pleural space to promote the resolution of experimental pleurisy in rabbits. The efforts of the Toronto school have turned largely to the study of methods for protracting the action of heparin and maintaining the diminished coagulability of the blood for prolonged periods, so as to avoid the risk of pulmonary embolism after operations and to prevent clotting in vascular surgery. With intravenous injections little is gained by increasing the initial dose above certain limits, but Murray and Best¹ have shown that the time of action can be prolonged almost indefinitely—for thirty or forty days if necessary—by continuous intravenous drip. In man this is given through an ordinary steel needle, which stays in the same spot for three to eight days. "General heparinization" is the term employed to denote that the clotting time of the blood in all parts of the body has been increased, and this has been effected by a continuous intravenous injection. The term "regional heparinization" has been coined to describe the injection of sufficient heparin into an artery proximal to a suture line to affect the clotting time locally in that vessel and in the blood returning from that region, but not to change the clotting time of the whole blood stream. Subcutaneously large doses of heparin are effective, and it was therefore natural to apply the same methods² as have been successful in prolonging the action of insulin. A heparin-protamine complex proved unsuitable for injection, but benzidine-heparin shows a definite prolongation of action, and Jaques, Charles, and Best³ have demonstrated that with large doses subcutaneously coagulation is diminished for thirty to forty hours. Although protamine itself has an anticoagulant action it neutralizes heparin by combining with it to form an insoluble salt. This reaction cannot be used *in vivo* owing to the toxicity of protamine, but it provides a method for treating blood for the presence of heparin *in vitro*.

The introduction of heparin has enormously simplified certain important experimental techniques in animals, such as transplantation of organs and exchange transfusions. Its most obvious applications to the human "animal" appear to be in arterial and venous surgery and in the prevention of post-operative thrombosis and embolism. Murray and Best have shown that if regional heparinization is used arteries and veins which have been sectioned and then sutured remain patent in about 80 per cent. of cases. If the lumen can be kept patent for seventy-two hours the suture lines heal and there is no longer a tendency to thrombosis or clotting at the site. Embolectomy can now be carried out many hours after the lodgment of the clot, as hepariniza-

tion will prevent clotting while the damaged intima is recovering. The prevention of post-operative thrombosis is more difficult to assess, but heparin has been used with complete success in Toronto in the after-treatment of fractured neck of the femur, prostatectomy, splenectomy, and other major abdominal operations in which thrombosis and embolism are peculiarly common. It is of course necessary, before beginning general heparinization, to wait four to twenty-four hours to allow the operation of the normal processes which control bleeding. Heparin is given at the rate of approximately 10 mg. per hour for seventy-two to 120 hours, and as 10 mg. of heparin can be obtained for one shilling one obstacle we previously referred to,⁴ when we stated that "the only difficulty that will face would-be users is in obtaining good heparin at any but an almost prohibitive price," no longer exists. Professor Best declares his intention to push ahead with experimental studies in the hope that further clinical applications will manifest themselves, but in the field from which he has already gathered so rich a harvest a good deal remains to be gleaned, and clinical workers have much to occupy them in repeating in man the procedures Professor Best has carried out in animals, in discovering if heparin plays any part in morbid conditions of the blood, and in determining its sphere of usefulness in the clinical laboratory.

CODEINE AS A HABIT-FORMING DRUG

It is common knowledge that international control of the traffic in opium alkaloids has been greatly complicated by the enterprise and skill of organic chemists. The conversion of morphine into heroin was the first important step in the synthetic production of drugs of addiction, and more recently at least three habit-forming drugs (dicodide, eucodal, and acedicone) have been produced from codeine. This difficulty was dealt with by supervising the wholesale trade in codeine, but since the latter drug was believed not to be habit-forming its retail trade was not regulated. This step resulted in a great increase in the popularity of codeine for use in such medicaments as cough tablets, and it is now estimated that the therapeutic use of codeine is about three times as large as that of morphine. The quantities of codeine required are obtained by preparing it synthetically from morphine. In the last few years disturbing evidence has been accumulating from various sources, and in particular from Canada, which indicates that codeine itself can be used as a drug of addiction, and that the remarkable increase that has occurred in the world production of codeine

¹ *Ann. Surg.*, 1938, 108, 162.

² *Acta med. scand., Supplement.*, 1938, 80, 190.

⁴ *British Medical Journal*, 1936, 2, 547.

is partly due to this fact. A summary of the known facts about codeine addiction recently prepared by Dr. P. Wolff¹ is therefore of considerable interest.

At the Hague Conference in 1912 it was decided not to include codeine among the drugs of addiction. The experts (one of whom was Dr. Wolff) appointed by the League of Nations to prepare evidence for the Conference on the Limitation of the Manufacture of Narcotic Drugs in 1931 gave the opinion that codeine was practically harmless as regards the production of drug addiction. This opinion was supported by substantial evidence, for extensive investigations undertaken at various times in the United States had revealed few, if any, certain cases of codeine addiction. Thus Treadway in 1930 analysed carefully 1,660 cases of drug addiction and found only a single case of codeine addiction. The situation at that time was that although morphinists, when deprived of morphine, might use codeine as a substitute, yet primary addiction to codeine was extremely rare. Dr. Wolff indeed states in this present article that only seven cases are known of primary addiction to codeine taken by mouth. The situation has changed recently by the development of subcutaneous or intravenous administration of codeine. That something is wrong in regard to the consumption of codeine is indicated by the fact that the figure per million inhabitants is about ten times as great in Canada and in France as in Great Britain; moreover, the annual imports of codeine into Canada have increased about threefold in the last decade. Investigations in Canada have shown that morphinists use codeine injections as a substitute for morphine. Experiments on morphinists also showed that codeine injected parenterally alleviated the symptoms set up by withdrawal of morphine and that abstinence symptoms occurred as soon as the codeine was stopped. An even more serious fact is that primary addiction to codeine injections has been proved to occur. The Canadian Government is taking steps to control the retail sale of this drug, and the problem of the chances of the occurrence of codeine addiction is being investigated in several other countries.

Dr. Wolff concludes his article by pointing out that there is little likelihood of codeine, when taken by mouth in the usual therapeutic doses, leading to addiction. He suggests that codeine should be avoided as far as possible in the medical treatment of persons who have formerly been addicted to morphine or of persons who are constitutionally predisposed to drug addiction.

INDUSTRIAL HEALTH RESEARCH

The eighteenth annual report of the Industrial Health Research Board¹ differs from its predecessors in that it not only contains the usual report of work done during the current year, but has also a summary of the main results achieved during the twenty years for which the Board has been in existence. An introduction to this summary traces briefly the gradual changes of outlook through which the Board has passed during these years. When the Health of Munition Workers Committee was formed in 1915 very little was known of the physiological laws governing industrial efficiency, and work proceeded in many cases under conditions as to hours, methods of work, and environment which were definitely detrimental both to the health of the operatives and to production. The committee gained so much valuable knowledge that it was decided that similar investigations ought to be maintained in post-war years, and accordingly the Industrial Fatigue Board was set up under the auspices of the Medical Research Council. At first the Board was mainly concerned with problems of fatigue arising from long hours of work, but later on this subject assumed less importance, and the special interest of the Board in problems of health was emphasized by substituting the word "health" for "fatigue" in its title. Moreover, the character of industry in general had changed considerably owing to the rapid advances of mechanization and the growth of light repetition work at the expense of heavier manual work. This put a premium on manual dexterity, and the "speeding-up" sometimes introduced was apt to react on the health of the workers, and especially on their spirits. The second part of the report, dealing with current research, describes a number of interesting investigations, only a few of which can be referred to here. Observations on the vision of a group of industrial workers showed that well over half had errors of refraction, three-fourths of which were uncorrected. It is important to ascertain if such proportions are characteristic of industry in general, and the Board therefore decided to extend the investigation to other groups of workers. The investigations now being made on heating and ventilation are mostly concerned with work at high temperatures, such as are met with in coal mines. It is interesting to note that in deep mines the effects of radiation may be substantial, the rock surfaces being sometimes 20° F. warmer than the air. The work on accident-proneness continues, with special reference to motor transport drivers, and it is claimed that the tests now used are to some extent predictive and should be of use in selecting new drivers. Studies of vocational aptitudes are being made in respect of temperament, vocational wishes, intelligence, and mechanical ability, both in adults and in juveniles of both sexes. Finally, occupational sickness is the subject of several investigations, the most important of which relates to a comprehensive inquiry into pulmonary disease in South Wales coal miners. It involves the investigation of cases of silicosis, the air-borne dust in the mines, and their atmospheric conditions.

¹ "The Significance of Codeine as a Habit-forming Drug," by P. Wolff. *Bull. Hlth. Org. L.O.N.*, vol. vii, Extract No. 10.

¹ Medical Research Council, 1938. H.M. Stationery Office. Price 1s. net (postage extra).

POST-MORTEM CHANGES IN BONE MARROW

The examination of the bone marrow by means of sternal aspiration has not only increased our knowledge of many haematological conditions but has also made apparent fallacies in our conceptions of normal marrow cytology. It has long been recognized that the study of human marrow obtained post mortem was unsatisfactory, as changes took place which rendered the staining of the cells difficult, and although fixed sections are excellent for giving an impression of the distribution and degree of cellularity, it was impossible by this method to study the cytology of the cells with that clarity which can be achieved in film preparations. It would appear, however, that after death changes take place not merely in staining properties but also in the apparent proportions of the various cells. In normal marrow obtained in life some 40 per cent. of the cells are neutrophil leucocytes, whereas in post-mortem material the majority of the cells are "round cells," commonly regarded as myeloblasts. This discrepancy has been recognized for some ten years, and was generally explained as representing an agonal outpouring of leucocytes from the marrow. Rohr and Hafter,¹ working in Naegeli's clinic at Zurich, offer a different explanation. They have performed sternal punctures at repeated intervals before and after death in a number of cases of non-haematological conditions and find no striking changes in the neutrophil content of the marrow in the ante-mortem state; but after death changes take place very rapidly. In all cases examined the neutrophil percentage dropped from the normal 40 to between 1 and 3.5 in less than twenty-four hours. In two hours the nucleus began to swell and at the end of four hours had become rounded, so that it was difficult to differentiate them from myelocytes, and shortly afterwards lysis began: further vacuoles formed in the cytoplasm, the cell outlines became obscured, and at the end of ten hours they merged into syncytial masses in which granules and nuclear debris lay. Similar changes were seen in the myelocytes, though to a lesser degree, whereas the myeloblasts remained unaltered for much longer; in fact this autolysis was proportional to the proteolytic activity of the cells and proceeded more rapidly in cases of chronic disease than those with acute conditions. In contrast to the neutrophils, the eosinophils showed practically no change in their form or number up to twenty-four hours, though in later stages autolytic changes also appeared. The investigators found no significant change in the number of erythroblasts, and they could be easily recognized many hours after death. But there were considerable alterations in the character of the cells; these were of two kinds. First, there was a great increase of cells whose nuclei showed karyorrhexis, and this break-up of the nuclear material began in the ante-mortem agonal state and reached a maximum within a few hours of death; it is interpreted as a degenerative toxic change possibly associated with a terminal acidosis. In addition to this there was evidence of post-mortem maturation of the cytoplasm, the proportion of acidophil (haemoglobinated) erythro-

blasts steadily rising during the first six hours. Rohr and Hafter observed little significant change in the megakaryocytes, and although there was an apparent increase in the number of reticulum cells their impression is that this is not an absolute increase but that the autolysis of the granulocytes makes the normally inconspicuous reticular syncytium more obvious. The importance of this carefully controlled work for morbid histology cannot be overestimated; if it is confirmed—and general observations make this more than probable—it must minimize the value of all detailed histological investigations on the bone marrow after death, and differential cell counts of post-mortem marrow may be regarded as almost valueless.

ANGIOID STREAKS—ELASTOSIS DYSTROPHICA

There has been considerable controversy as to the aetiology of the changes in the fundus which Knapp, in 1892, termed angioid streaks. The fact that different stages of the affection assume rather dissimilar appearances—haemorrhages, exudates, or pigment changes dominating the picture at different times—has not helped to clarify the issue, for on theoretical grounds different observers have implicated different processes, stressing one or other ophthalmoscopic feature. Histological studies have not been particularly helpful because of the difficulty in obtaining satisfactory material. This difficulty has been such that most of the older studies can be dismissed as not valid, for the diagnosis has not been beyond criticism in any of them. Interest in angioid streaks was revived on the description by Ester Grönblad¹ in 1929 of an associated skin lesion, the rare pseudoxanthoma elasticum. This observation has now been confirmed in practically all the cases of angioid streaks studied since then. It is of interest to note that in 1903 Hallapeau and Laffite,² in describing a case of pseudoxanthoma elasticum, reported the presence of what they called central retino-choroiditis. Apart from the inherent interest in this association, Grönblad's observation was of importance in implicating the membrane of Bruch as the primary seat of the affection, for in the skin condition the underlying lesion is extensive degeneration of the elastic tissue. In an excellent contribution by Böck³ histological confirmation of this supposition is advanced. Böck made a careful study of the eyes of a patient who showed the associated ocular and cutaneous conditions. Definite ruptures of the membrane of Bruch were clearly seen, and it is apparent that the appearance of angioid streaks must be due to these tears, while the various other phenomena seen in the fundus are secondary features. Further confirmation is found in the thesis by Prick⁴ published simultaneously and independently. Of even greater significance is the fact that both these authors report the clinical finding of vascular hypertension, and the finding at necropsy of extensive degeneration of the elastic

¹ *Acta Ophthalmol.*, 1929, 7, 329; *ibid.*, Suppl., I, 1932.

² *Ann. Derm. Syph.*, Paris, 1903, 4, 595.

³ *Z. Augenheilk.*, 1938, 95, 1.

⁴ *Pontine pseudobulbareparalyse bij pseudoxanthoma elasticum*. Thesis. Amsterdam, 1935.

system in the larger systemic arteries, so that there is every justification for extending the eye and skin syndrome to include elastic tissue degeneration in the vascular system. The name elastosis dystrophica suggested by Böck seems warranted. These recent observations explain the haemorrhages so often seen in the fundus in cases of angioid streaks. They explain, too, the occurrence of haemorrhages in other organs, as noted by Prick and also by Law.⁵ Of particular interest is the presence in Prick's case of pseudo-bulbar palsy, the result of a cerebral arteriopathy—secondary to arterial elastic tissue degeneration. The possible relationship to diskiform degeneration of the macula is worthy of study, as Grönblad has pointed out, for the histological feature of this affection is a lesion of the elastic membrane of Bruch, and clinically appearances simulating those of diskiform degeneration are often seen in cases of angioid streaks. Interesting, too, is the fact that both angioid streaks and pseudoxanthoma elasticum have been known to be familial in character—a point particularly stressed since the association of the two conditions has been recognized.

MORTALITY IN BELGIUM

In these days no sensible person uses the word "race" if he can help it—unless he is interested in the turf. A statistician familiar with the great names in the history of statistical methods, recalling the fact that among the very greatest are de Moivre, Laplace, and Quetelet, two Frenchmen and a Belgian, and noting that French vital statistics are conspicuously inferior to those of England and Belgian to Dutch vital statistics, might be tempted to think that race, or culture, had something to do with the difference, as perhaps it has. But in Belgium the medical statistical organization has been recently improved, and the statistician of the Ministry of Public Health in his lucid account of mortality rates in Belgium⁶ is able to give much information. He follows the general lines of such reports as the text volume of our Registrar-General's annual review, but includes more detailed tables (such as appear in the tabular volume of our statistics). M. Selleslags has throughout made direct comparisons between Belgium and Holland, which are almost always favourable, and often very favourable, to Holland. Standardized to the age and sex distribution of Belgium the Netherlands rate of mortality in 1930 would have been 10.8 per 1,000; the Belgian rate was 13.3. As M. Selleslags puts it, Belgium pays an annual tribute of more than twenty thousand human lives. Here and elsewhere the implicit assumption is that the differences between the rates of mortality depend upon controllable factors, an assumption which is pragmatically valuable because improvement of public health and sanitary services must always do good. But we hope that this purely statistical study may be followed by an economic and sociological comparison of these neighbouring States, which can be made much more competently by a Dutch or Belgian man of science

than by a foreigner. We should suppose that the economic structures, principal industries, systems of education, etc., differ widely, and that these are very relevant factors. In an appendix the author gives a number of valuable tables. One of these would provide a good theme for a sermon on the vanity of human wishes. If one omits mortality caused by automobiles—that is, retains industrial accidents, accidental drownings, poisonings, etc.—the rates per 100,000 males in 1901–10 and 1933–6 were respectively 47.1 and 33.2, a great improvement. But in 1901–10 there was, statistically speaking, no mortality through motor-cars, and in 1933–6 the rate was 14.6. So the total mortality from accidents in 1933–6 was 47.8 per 100,000, a little greater than in 1901–10.

EXPERIMENTAL DROWNING

F. G. Banting and his associates at the Banting Institute have recently turned their attention to another method of saving the life of the drowned, as a result of their own observations¹ on the physiological factors involved. They describe two types of drowning: in one a period of apnoea and swallowing is followed by gasping and the entrance of water into the lungs, whereas in the other the gasping phase is never reached and death occurs with the entrance of very little if any water into the lungs, obstruction by spasm of the glottis being the predominant feature. Such spasm may be set up by the entrance of small amounts of water into the upper respiratory tract, and the asphyxia produced is severe and prolonged, associated with a gradual slowing in the pulse rate. Measures to overcome the laryngeal spasm—such as the introduction of amyl nitrite, the use of a tracheal catheter for insufflation with 20 per cent. CO₂ in oxygen, and atropine to neutralize the vagal effect on the pulse rate—all led to improved recovery rates in the experimentally drowned animals. Artificial respiration was maintained during these and other methods of resuscitation, and it is emphasized that in dealing with human cases it must be persisted in longer than may be usual and even "until rigor mortis sets in." The electrocardiograph shows that the cardiac complexes can be detected as long as twenty-five minutes after the heart sounds are inaudible through the stethoscope. A summary of the measures recommended runs as follows: "As soon as the patient is recovered from the water he should be held up so that water may drain from the stomach and lungs and then placed in the prone position. All foreign matter should be removed from the mouth and larynx, —false teeth, weeds, etc.—and the tongue pulled forward with a handkerchief or tongue forceps, and the Schafer method of artificial respiration immediately started. It is of vital importance that there should be a free passage of air in and out of the chest. Therefore, if this cannot be detected the larynx should be swabbed with 10 per cent. cocaine or a catheter passed into the trachea with the aid of a laryngoscope, if available, or even by the direct vision method. If artificial respiration is performed without an adequate air passage

⁵ *Trans. ophth. Soc. U. Kingdom*, 1938, 581, 191.

⁶ *La Mortalité en Belgique*. By Willy Selleslags. Preface by René Sand. Brussels: Archives de Médecine Sociale et d'Hygiène et Revue de Pathologie et de Physiologie du Travail. (25 fr.)

¹ *Canad. med. Ass. J.*, 1938, 39, 226.

the pressure will cause rupture of alveoli, adding to the already heavy odds against the patient. If a tracheal catheter has been inserted initial suction of this tube will remove much of the foam filling the trachea and bronchii." Carbon dioxide (20 per cent.) in oxygen can be insufflated at the rate of 3 litres a minute, and in the type of drowning with little aspiration of fluid amyl nitrite blown down the tracheal catheter is regarded as "the most effective measure yet found." The injection of 40 minims of 1 in 1,000 adrenaline solution to assist the heart's action is also recommended, and atropine 1/30 to 1/25 grain should be given intravenously. These measures are applicable to all asphyxiated or electrically shocked patients with the additional modifications suggested for those who have been drowned. Once again it must be emphasized that, valuable as these additional methods may be, the most important in all three groups is "prompt, adequate, and prolonged artificial respiration."

THE SHWARTZMAN PHENOMENON

If a bacterial filtrate which on injection into the skin of a rabbit produces little reaction is also injected intravenously on the following day necrosis and haemorrhage occur at the site of the previous skin injection. This phenomenon was first observed by Dr. Gregory Schwartzman of New York in 1927, and since then has been exhaustively studied by himself and by many other investigators. In an important and useful work,¹ Schwartzman unifies much information hitherto only available in scattered form on a subject which has the merits of comparative novelty, undoubted mystery, and some promise of illuminating certain obscure problems of disease. The earlier chapters are a systematic exposition of the conditions under which the phenomenon is produced. The active principle concerned is of unknown nature, but its properties have been extensively studied; not all bacteria produce it, but, on the other hand, some substances other than bacteria will elicit the reaction in areas previously injected with bacterial filtrates. Perhaps the most striking difference between this phenomenon and others, such as that of anaphylaxis, connected with the effects of injecting foreign material parenterally is its utter lack of specificity in the sense that the two injections may consist of filtrates of quite unrelated bacteria. An extraordinary and quite distinct aspect of the subject is the occurrence of a similar reaction, sometimes leading to regression, in malignant tumours when a highly active bacterial filtrate is given intravenously; the possible bearing of this on treatment with Coley's fluid is obvious. The least convincing chapter is that in which the author strives to interpret some of the phenomena of naturally occurring disease in terms of this phenomenon. The suggestion that skin necroses in the sacral region in enteric fever, or certain haemorrhagic states, can be explained on these lines seems highly speculative. It has been shown

that an antibody which specifically neutralizes a corresponding bacterial filtrate is produced during recovery from certain infections in man, and titrations of therapeutic serum have been carried out on this basis with results differing from those obtained by estimating other kinds of antibody; there is some evidence that anti-meningococcal and anti-typhoid sera with a high capacity for inhibiting the phenomenon are correspondingly effective therapeutically. In spite of facts such as these, the bearing of which is after all only indirect, it does not appear that the Schwartzman phenomenon has yet been conclusively shown to have any exact counterpart in human pathology, and the fact that only the rabbit, of all animals so far tested, exhibits it typically and regularly seems an obstacle to drawing conclusions with a general application. In the bewilderment which the reader may pardonably feel over a subject so full of uncertainties he is unfortunately impeded further by the author's style, which is careless and obscure.

IN MEMORY OF OSLER

The fourth Osler Memorial Oration was delivered by Sir Humphry Rolleston at the sixty-ninth annual meeting of the Canadian Medical Association, held at Halifax on June 22, 1938. It was published in the *Journal of the Canadian Medical Association* (1938, 39, 313). The oration is of especial interest because it is written by one who knew William Osler well and deals with the latter portion of his life, which was spent as Regius Professor of Medicine at Oxford. Sir Humphry tells much about Osler, of his personality, of his charm of manner, of his humble-mindedness, of his desire to help, of his manifold interests, of his power of work, and of his resuscitation of a medical school which had almost become extinct. The oration is well worth the trouble it must have taken to produce, and recalls to many the traits of a great teacher of medicine.

Dr. H. Morley Fletcher left this country on October 28 for Australia, where he is going as representative of the Royal College of Physicians of London to the opening of the Royal Australasian College of Physicians in Sydney. The Royal College of Physicians has presented an illuminated address and a replica of the silver wand or caduceus which was presented to the College by John Caius in 1556.

The next session of the General Medical Council will open on Tuesday, November 22, at 2 o'clock, when the President, Sir Norman Walker, M.D., will take the chair and deliver an address. The Council will sit thereafter from day to day until its business is concluded.

Professor J. B. S. Haldane, F.R.S., will deliver the Lloyd Roberts Lecture on "Some Problems of Human Congenital Disease" at the Royal College of Physicians of London, Pall Mall East, S.W., on Thursday, November 17, at 5 p.m.

¹ *Phenomenon of Local Tissue Reactivity and its Immunological, Pathological and Clinical Significance*. By Gregory Schwartzman, M.D. Foreword by Jules Bordet, M.D. Humphrey Milford, Oxford University Press. 34s.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

CHRONIC MASTITIS

BY

CECIL ROWNTREE, F.R.C.S.

The condition generally known as mastitis, chronic interstitial mastitis, or cystic mastitis—to mention the most common names by which it is recognized—would be a relatively insignificant and unimportant disease were it not for the fact that in some of its manifestations it so closely mimics cancer of the breast, and that, furthermore, there is a widespread belief that it may be the forerunner of a malignant change in the affected organ.

Whatever its type and whatever its origin mastitis is almost invariably painful—not the severe throbbing pain associated with pyogenic infections of the breast, but a minor though none the less steady, nagging, neuralgic pain aggravated by movement or exercise, and influenced to some extent by the menstrual cycle. It is the pain that brings these patients to the doctor and not the accidental discovery of a painless lump, as is so often the case in cancer of the breast.

Mastitis is so varied in its manifestations, and the different types merge so gradually one into another, that it is very difficult to provide any satisfactory classification; but careful consideration of a large number of cases does permit some sort of selection of comprehensive clinical groups.

Subacute Mastitis

The best-defined group consists of cases of what should properly be described as subacute mastitis, characterized by painful swelling of a sector of the breast. The affected sector becomes tender, hard, and heavy, and acquires a cake-like rigidity, so that on manipulation it moves as one piece on the chest wall. A large part—as much as half—of the breast may be affected in these cases. This particular type of mastitis is generally unilateral; it is apparently more common on the right side than on the left, and is met with especially in women whose breasts are somewhat pendulous and who have recently engaged in some unaccustomed effort such as the first game of tennis of the season, spring-cleaning or similar strenuous exercise. In fact, it is pretty obvious that trauma is the determining cause in most of these cases; but trauma cannot be the whole story, for it is significant that the kind of mastitis met with in the tiny breasts of little girls just before puberty, and in boys too, closely resembles the type just described.

Pubescent Mastitis

These puberty cases provide an interesting and typical clinical picture, for here also the breast tissue becomes firm, tender, and rigid: but there is this difference—that the whole breast, such as it is, is involved, with the result that a little tumour is produced in the form of a flat disk with rounded edges and a thinner centre which closely resembles the shape of a nux vomica bean. It is characteristic of these cases that both sides tend to become affected, the second breast enlarging as the first gets better.

Mastitis in the Male

This bilateral involvement at puberty gives strong support to the suggestion of hormone imbalance as an aetiological factor in the disease, and stands in sharp contrast to the state of affairs in the adult male, where mastitis would appear to be almost invariably unilateral and almost invariably the result of trauma. Here also the clinical signs are striking and definite, for again the whole breast is involved, with the production of the bean-shaped mass already referred to. The shape of the swelling affords a useful diagnostic distinction from cancer of the male breast, which at any rate begins as an asymmetrical tumour of only a portion of the breast tissue.

Treatment of Subacute Mastitis

Subacute mastitis occurring in any of these forms tends to get well in a few weeks, but its progress may be aided by local applications of heat and belladonna and by firm support and pressure by brassière, bandage, or elastoplast. Protection from further direct trauma and limitation of use of the arm on the affected side are obvious adjuvants that should not be omitted. In cases where the breasts are large or pendulous it is important to insist upon a well-fitting brassière if recurrence of the trouble is to be avoided, and it is well to remember that these patients may be greatly helped by wearing a brassière in bed as well as on all occasions in the daytime.

These subacute cases are relatively uncommon types of mastitis that are comparatively easy to diagnose and to deal with, and they afford a striking contrast to the more common and the more difficult problems presented by the chronic cases:

Chronic Interstitial Mastitis

What are the predominating symptoms in this group? Unlike the adult subacute variety, chronic mastitis is often bilateral—a very important point when it is remembered that cancer is almost always unilateral; and more than one area of the breast may be affected—again a matter of importance when compared with cancer, which almost invariably starts as a single focus. The age distribution is fairly wide, for it is commonly met with from the early thirties until well after the menopause. It is not, however, seen in old age, and it is a fairly safe rule that after 65 or 70 most lesions of the breast are malignant.

Breasts which are the seat of chronic mastitis are in the main soft and pendulous, and it is the exception to find the disease in firm, well-preserved, and shapely organs. I have the impression that cancer shows no such discrimination. Enlargement of the axillary lymph glands is sometimes seen, but they are of the normal soft consistency, unlike the inelastic hardness resulting from cancerous infiltration.

Discharge from the nipple is not infrequent, and occasionally a small amount of yellow or greenish fluid may be expressed from both nipples although only one breast has given rise to discomfort.

Pathological Anatomy of Chronic Mastitis

For a clear comprehension of the problems occasioned by mastitis, a mental picture of what is going on or what may be going on in the affected breast is essential. This is, of course, not the place for a lengthy consideration of the pathological anatomy of chronic mastitis, but very broadly it may be stated that it is characterized by the formation of an excess of interstitial fibrous tissue and a tendency to cyst formation in the affected portions of the breast. At one end of the scale we see cases in which the development of fibrous tissue may entirely overshadow the cyst formation; the cysts are there but are few in number and microscopic in size, and the affected breast tissue is then a smooth homogeneous mass. At the other end of the scale are cases in which cyst formation predominates, and the clinical picture will merely present one or more simple cysts of any size between a pea and a golf ball.

Most common are cases in which fibrous tissue and cysts are more or less balanced, and the picture will be an irregular, shotty, and occasionally very hard mass which is made up of innumerable tiny cysts embedded in dense fibrous tissue. It is clear, too, that it is possible for this process of cyst-fibrous tissue formation to be present in more than one portion of the affected breast and to be at a different stage in each.

This thumbnail sketch of the pathological processes underlying chronic mastitis will serve to indicate how varied may be the clinical manifestations of the disease, and how difficult may be the task of the practitioner who is faced with the responsibility of deciding whether in fact it really is a case of chronic mastitis with which he has to deal, or whether it is something more serious. And a decision must be made at once, for it cannot or should not be deferred in order to await the effects of a period of tentative treatment.

Diagnosis of Chronic Mastitis

The finely nodular or shotty cases are generally easy of diagnosis: the patch tends to be sector-shaped, it is tender on manipulation, there may be more than one patch in the breast, and both breasts may be affected. The cystic cases, too, are often easily recognized; but there are wide variations, and whereas the true nature of a large, simple thin-walled cyst may be at once detected by its spherical shape, by its elasticity, and by the fact that the posterior hemisphere of the cyst may sometimes be felt bulging through the deep aspect of the breast, it is quite otherwise with solitary cysts firmly embedded in a thick mass of tissue in cases of fibrous mastitis. It may be impossible to distinguish these from carcinoma until after removal.

When fibrous tissue is predominant a hard mass develops which merges imperceptibly into the surrounding breast tissue, and gives, when grasped between the fingers and thumb, the impression of a definite tumour, but when palpated with the flat of the hand may not be apparent as a tumour at all. Great stress has been laid upon this last sign, but it is unsafe to attach too much weight to it, as certain cancers of the breast starting on the deep surface of the organ may present the same elusive characters.

It is when a nodule is of quite small size in cases of fibrous mastitis that the greatest difficulties in diagnosis are met with; indeed, there is no ordinary method of examination by which a very small cancer, a very small

cyst, and a very small mass of fibrous mastitis can be differentiated: and owing to the influence of widespread propaganda we are getting more and more of these early cases. Puncture with a fine hypodermic needle may demonstrate the fluid contents of a cyst: but the tiny ones are not easy to hit off in this way, and in doubtful cases our only resort is diagnostic removal of the suspicious mass followed if doubt still exists by histological examination.

Biopsy of Doubtful Breast Tumours

There are wide differences of opinion as to the wisdom of this procedure; indeed, many go so far as to lay down the rule that all suspicious breasts should forthwith be removed. This is surgery on totalitarian lines, and puts at a discount the long years of careful training with which most surgeons endeavour to prepare themselves. There is no convincing evidence which clearly indicates that there is danger in establishing the diagnosis by careful preliminary excision. It will be generally agreed that the patient should be spared if possible the ordeal of two visits to the operating table, and it is clear, therefore, that the diagnostic excision of breast tumours is best confined to those who have the knowledge necessary to enable them to recognize immediately the nature of the tissue removed, and the capacity to proceed with suitable operative treatment should the case prove to be malignant.

I recognize that this is a counsel of perfection and that those without much surgical experience must from time to time be faced with the necessity for removing one of these small masses for subsequent pathological examination. It is not always easy, particularly in large fat breasts; and a little practical point that I have found to be of great value is to fix the small tumour with a fine needle thrust into it through the skin before the incision is made. It is not easy then to lose one's way and to spend a long time searching for a little mass which can be strangely elusive in the surrounding fat.

In case the condition should prove to be malignant the gentlest possible handling is essential in order to avoid the possibility of squeezing cells into the neighbouring lymph or blood channels. Damage to the tissues also militates against that perfect healing of the wound which is so important if the preliminary excision is to be followed by a major operation at a later date. The most meticulous precautions should be taken to avoid infection of the wound, and it is well to adopt the additional safeguard of drainage in order to minimize the possibility of haematoma formation.

Treatment of Chronic Mastitis

To turn now to the treatment of chronic mastitis. It is obvious that in many cases it is necessarily surgical, because doubt as to the diagnosis imposes the necessity of removing the offending mass and thereby curing the disease or, at any rate, curing the symptoms and relieving the mind of both doctor and patient. While it is wise not to be niggardly in removing the portion that is under suspicion, there is no need at all in most cases for resection of wide areas of the breast.

Aspiration of Simple Cysts

In dealing with cases characterized by cyst formation it is always possible by aspiration through a stout hypodermic needle to empty individual cysts with a fair assurance that if the cyst be completely emptied it will not refill. Why, I do not know, but the fact is indis-

putable. But other cysts may develop, and although it may be possible to keep up with them by this procedure, the patient may become so distressed by the recurrent necessity for aspiration that it may be desirable to advise a limited amputation of the breast. If desired, this can be performed subcutaneously through a circumferential incision, leaving the nipple *in situ*; but I am bound to confess that the resulting area of depressed scar with the nipple perched somewhat precariously in the middle is to my mind more unsightly than the deformity left by a simple amputation with elliptical incisions which come neatly together in a linear scar. Complete symmetry is necessarily often obtained owing to the fact that multiple cystic disease of the breast tends to be bilateral and both sides may require amputation.

I am aware that I embark on somewhat controversial ground in advising the aspiration of simple cysts of the breast, but I have done it now so many times and for so many years with complete immunity from any kind of difficulty that I am convinced it affords a simple, safe, and effective method of dealing with them. There are two safeguards, however, that must be emphasized: first, the cyst must be completely emptied so that it collapses and entirely disappears, for if only half emptied it will return in a few weeks; moreover, if it is not possible to obtain complete collapse of a cyst by this means it indicates that there is something more than a simple cyst, and surgical exploration must be employed. The second safeguard is a most careful scrutiny of the fluid withdrawn. It may look like clear serum, it may be yellowish, or it may be green and turbid. None of these variations is of any significance, but if the fluid is blood-stained, then it means, or it may mean, an intracystic growth, and immediate surgical excision is indicated. In my experience this occurrence has been exceedingly rare.

One naturally asks oneself whether any treatment is possible that will stay the progress of multiple cyst formation, and I know of none when the cysts have achieved what one may term "clinical dimensions." But it is otherwise with cases of chronic mastitis where the cyst aspect is not clinically obvious; for there are two lines of attack which appear to hold out some hope of arresting what is, after all, a progressive disease. The first is the application of x-ray therapy, which does seem to be of value: it certainly diminishes pain, I think it softens the thickened tender masses, and I believe that it stays the progress of the disease. The second line of attack is based upon what would appear to be a well-founded view that all forms of chronic mastitis are to some extent dependent on hormone disturbance. The administration of hormone preparations such as theclol cannot at present be regarded as anything more than experimental, but it is obviously worthy of the detailed and extended trials that will be necessary before it is possible to come to any definite conclusion on the efficiency of the method in staying the progress of the disease.

Finally it should be emphasized that chronic mastitis is a relatively uncommon disease; or perhaps it would be more accurate to say that women present themselves for the treatment of chronic mastitis relatively seldom. It is less than half as common as cancer of the breast. Of any hundred women who come for treatment of chronic breast conditions sixty have cancer, ten such miscellaneous diseases as adenoma, lipoma, fat necrosis, and so on, and the remaining thirty have one or other of the manifestations of mastitis. It is a safe and wise rule, therefore, to regard any breast tumour as a carcinoma unless or until it has been proved by aspiration or biopsy to be innocent.

THE STATE OF THE PUBLIC HEALTH CHIEF MEDICAL OFFICER'S REPORT*

[SECOND NOTICE]

A summary of the earlier chapters of Sir Arthur MacNalty's Annual Report for 1937 as Chief Medical Officer of the Ministry of Health appeared last week at page 957.

Medical Intelligence and Research

A list is given of over fifty committees on public health and medical questions on which members of the Ministry's staff have served. Fourteen reports and memoranda of special medical interest have been issued during the year. Attention is also drawn to certain expansions in the work of the Medical Intelligence Section. The chief of these relates to the recently established liaison between the Ministry and the Central Council for Health Education, a body which was founded in 1927 to co-ordinate the work of health publicity, etc.

Research in medical statistics has revealed, among other things, that simple violence killed more than half as many males as all the infectious diseases taken together, that a very large proportion of these violent deaths occurred on the roads, and that just as there are accident-prone persons so there are sickness-prone persons—that is, persons for whose abnormal sickness rate no merely physical grounds can be assigned and malingering can be excluded. Other matters dealt with in this chapter range from an account of rat destruction on ships, docks, quays, etc., and rat-flea surveys at ports to the problems dealt with by the International Sanitary Convention for Aerial Navigation. Full particulars are also given of port health administration during the year and of international health work.

Tuberculosis in 1937

Though there was a slight increase in the number of deaths from all forms of tuberculosis the standardized death rate for 1937 remains the same as for 1936, when the figure of 657 per million was the lowest ever recorded. It is the most striking example known of reduction of the mortality of a disease in our own time.

There were 28,529 deaths from tuberculosis certified in 1937—261 more than in 1936. The slight rise in mortality from pulmonary tuberculosis was directly associated with the epidemic of influenza at the beginning of the year. There was also some increase in the mortality from non-respiratory forms of tuberculosis. During the year 59,918 new cases of tuberculosis (all forms) came to light in England and Wales as compared with 59,269 in 1936. The number of new cases and contacts examined for the first time by tuberculosis officers in England and Wales was 161,382, an increase of 6,158 over 1936 and 12,444 over 1935. These figures probably indicate that greater use is being made of the service for suspected cases. It is hoped that the intensive educational campaign carried out under the auspices of the Ministry early in 1938 will result in patients seeking advice at an early stage of the disease when recovery is most probable. The chapter ends with a brief note on the surgical treatment of pulmonary tuberculosis and a discussion of bovine infection.

Venereal Diseases

There is evidence that measures taken under the Venereal Diseases Regulation are lowering the incidence of fresh infections with syphilis in this country. Cases of congenital syphilis among infants show a further reduction, and deaths from such late effects of syphilis as general paralysis of the insane and locomotor ataxia show,

* On the State of the Public Health. Annual Report of the Chief Medical Officer of the Ministry of Health for 1937. H.M. Stationery Office. 3s. 6d.

CHARLES H. BEST: HEPARIN AND THROMBOSIS



FIG. A.—White thrombi forming inside a cellophane tube

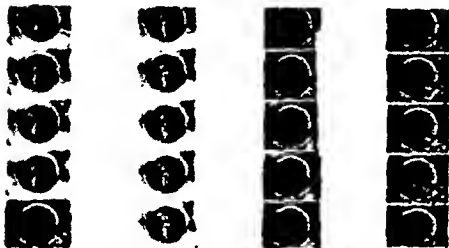
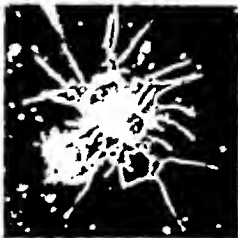


FIG. B.—Illustrating growth of white thrombi downstream, from above downwards and from left to right. (From Best, Cowan, and MacLean.)



I



II



III



IV

FIG. C.—I and II: Single platelets, showing digitations. III: The clumping of central refractile areas of platelets. IV: Polymorphonuclear leucocyte. (From Best, Cowan, and MacLean.)

A. EISELL MOORE: TREATMENT OF DELAYED UNION OF CARPAL SCAPHOID



FIG. 1.—Radiograph showing ununited fracture of right scaphoid, with some vacuoles.



FIG. 2.—Application of leather-covered aluminum "cock-up" splint; dorsi-flexed part fitted into centre of palm; arm portion held on flexor surface of forearm by leather casing.



FIG. 3.—Radiograph taken at the end of six months, showing apparent union.

F. G. CHANDLER AND H. V. MORLOCK: THORACOSCOPY IN DIAGNOSIS

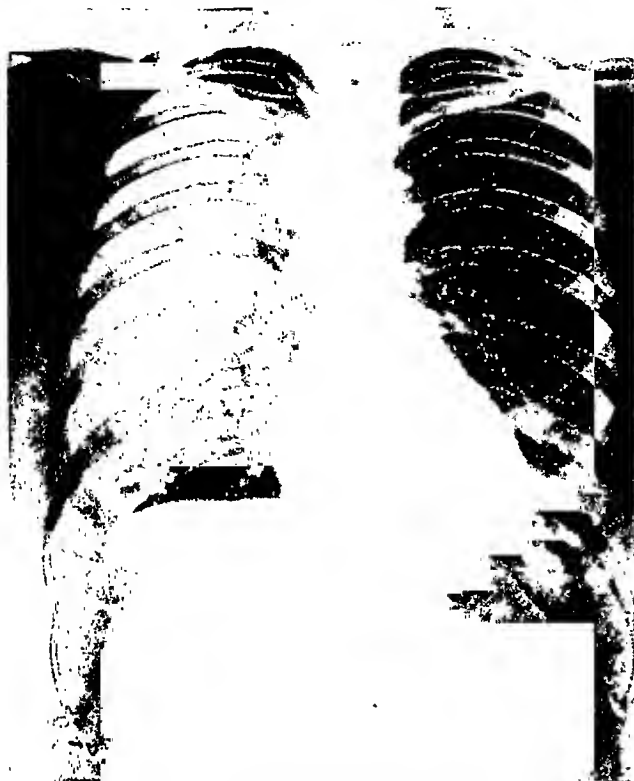


FIG. 1.—Case III. Radiograph showing a mediastinal teratoma in a woman aged 30.



FIG. 2.—Case III. The mediastinal teratoma as seen through the thoracoscope.



FIG. 3.—Case IV. Radiograph showing a single spherical mass in the right lower lung field in a man aged 33.



FIG. 4.—Case IV. Lateral radiograph. Biopsy after thoracoscopy showed this tumour to be a mixed-cell sarcoma.

J. W. D. BULL: CONGENITAL ATRESIA OF THE OESOPHAGUS



FIG. 1.—Radiograph taken in life.



FIG. 2.—Radiograph taken after death, showing Uptodol injected into the trachea filling the oesophagus and outlining the bronchial tree



FIG. 3.—Specimen showing the congenital atresia of the oesophagus and the tracheo-oesophageal fistula.

J. ST. GEORGE WILSON: DIAGNOSIS OF LARGE
OVARIAN CYSTS

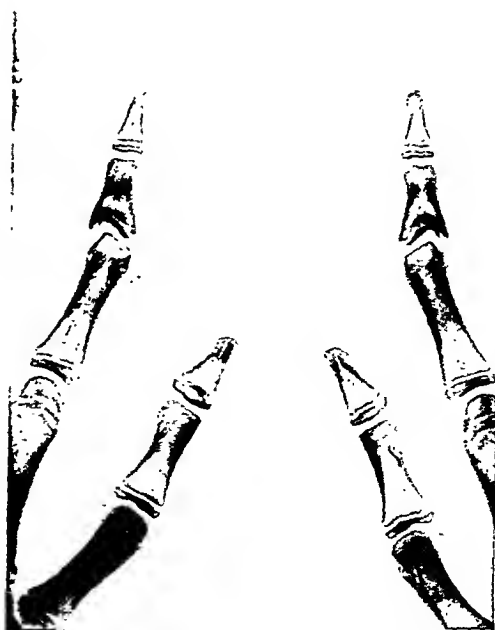


FIG. 1.—Uterus and tubes normal.



FIG. 2.—One tube considerably elongated compared with the other.

HENRY POSTON: BILATERAL DIGITAL
EPIPHYSEAL DEFORMITY



Note the medial subluxation of the middle phalanx of each index finger and the peculiar angulation of the epiphyses.

E. N. CALLUM: CONGENITAL DEFORMITIES OF HANDS AND FEET



FIG. 1.—Radiograph of both hands.



FIG. 2.—Radiograph of both feet taken from the dorsum.

S. J. CAMERON AND H. J. THOMSON: FULL-TIME EXTRA-UTERINE PREGNANCY



Radiograph showing lipiodol in the enlarged uterus and the left Fallopian tube, with the full-term foetus lying transversely in the unruptured right Fallopian tube

S. G. BEDFORD AND F. F. HELIER: ACCIDENTAL VACCINATION OF NOSE



This patient had never previously been vaccinated. The photograph was taken after most of the oedema had disappeared.

in males, a further fall though there is not much change as regards females. The figures for gonorrhoea show a slight increase over those for 1936, but this may be due to a larger proportion of infected persons resorting to treatment centres. An account is given of the new and promising method of treating gonorrhoea by the sulphonamide group of compounds, and a necessary warning is given against their use except under medical advice.

The Cancer Problem

There is still no indication of any decline in cancer mortality, and the year 1937 once more shows increases over the preceding year, both for males and females, though those increases are less than those manifested last year. The total number of deaths was 66,991 for both sexes compared with 66,354 in 1936, an increase of 637; the previous year's increase on its predecessor was 1,847. These mounting figures do not necessarily mean that the causes of the disease are becoming more prevalent year by year. Account has to be taken of the increasing longevity of the population whereby more people survive into ages in which the liability to cancer is greater, and of the increasing accuracy of diagnosis. It is pointed out that, until the wide-flung researches into causation bear more abundant fruit, our chief methods of attack are by early and accurate diagnosis and efficient treatment. Here, partly owing to advances in diagnosis, but more especially owing to the newer and more effective means of treatment, the outlook is now brighter than ever before. Apart from the progress of surgery, an increasing knowledge of the technique of treatment by radium and x rays has contributed to this result. The section closes with a discussion of the most promising lines of advance, and suggestions are made whereby the modern methods of diagnosis and treatment might be brought within the reach of a larger section of the population. It is essential that the provision of additional facilities be made known to both medical practitioners and the public, and people should be encouraged to seek advice and treatment at an earlier stage than is now often the case. Fortunately, there are signs that the provision of treatment in the radium centres has led to a greater demand for it.

Relation of Food to Health and Disease

Much work was done during the year on the subject of nutrition. The work of the Advisory Committee on Nutrition has been mainly concerned with an inquiry into family budgets, which is being conducted by the Ministry of Labour, the relation between income distribution and family expenditure on food, and quantitative dietary surveys. The League of Nations has published its final report on "The Relation of Nutrition to Health, Agriculture, and Economic Policy." Reference is made to certain surveys and investigations—namely, the dietary survey of the West Riding of Yorkshire, the ante-natal investigations in Blackburn and elsewhere, the collection of data in respect of measurements and clinical assessments relating to physical efficiency, and the rate of growth of babies. The Milk Nutrition Committee, whose first report was published early in 1937, issued a second (interim) report on the research done in schools in England and Scotland. Among other points brought out in this report is the fact that no constant differences were observed between the rates of growth of children receiving raw milk and those receiving pasteurized milk.

Suspected food poisoning outbreaks which came to the notice of the Medical Department of the Ministry numbered ninety-four, as compared with eighty-two in 1936 and 137 in 1935. On the subject of Salmonella infections it is pointed out that in many of the outbreaks the source of infection was not discovered. Suggestions are made as to how the work of investigation can be materially helped by those concerned in dealing with suspected cases of food poisoning. In con-

nexion with the purity of food, reference is made to contamination of food by fluorine and other substances, and advice is given on the home canning of vegetables. A note on the use of refrigerators points out that while these have many advantages danger may result from ignorance of their limitations: "refrigerators are not sterilizers," and the food must in the first place be sound, whether intended to be stored in a refrigerator or elsewhere.

Conclusion

In his final chapter Sir Arthur MacNalty draws together the various threads, and reviewing the vital statistics for 1937 states: "The vital statistician must consider long-range periods, and it does not disturb him if one year's mortality figures show a slight rise over the previous year, provided that the figures over a decade show reduction." This year a new function has been added to the Department, in that to the Ministry of Health has been assigned the responsibility for dealing with matters relating to the provision of hospital accommodation in England and Wales for the treatment of air raid casualties in the event of hostilities. For Scotland the Department of Health has assumed corresponding functions.

Among the appendices of more general interest may be mentioned Appendix A (Fatalities in the United States of America from "Elixir Sulphanilamide"), illustrating the tragic possibilities which may accrue from placing untested drug preparations on the market; and Appendix B (Advances in Knowledge of the Streptococcal Infections), the streptococci being a group of organisms which probably do more damage to the public health than any other bacteria.

HOSPITAL ZONES IN WARTIME

Following upon the International Red Cross Conference held in London last June, a committee of military and legal experts met in Geneva on October 21 and 22 to draw up suggestions for a convention for the establishment of hospital or sanitary zones in time of war. Eighteen countries were represented by about forty experts, some appointed by their Governments, some by their National Red Cross Societies, and a certain number by both. The British representative was Lieutenant-General Sir Harold Fawcus, Director-General of the British Red Cross Society. Other Governments represented were those of Germany, Belgium, Denmark, Latvia, Poland, Sweden, Italy, Switzerland, Yugoslavia, Turkey, and Brazil. Insurgent, but not Republican, Spain was represented. After a long discussion, in which the main contest lay between the military and the legal points of view, a convention was drafted which will be submitted to the Swiss Government with a view to the assembly of a diplomatic conference for approval of the convention and its attachment to the Geneva Convention of 1929.

New Draft Convention

The articles of the new draft convention lay it down that hospital localities or sanitary zones intended to receive the sick and wounded shall be protected and respected by the belligerents. This benefit is to extend not only to the land but to the air. They will be reserved to the medical services of the armies to the exclusion of all other military uses. It is provided that they must be situated and maintained outside the field of operations, including the sea front, and sufficiently far from military objectives not to be in peril of bombardment. They must not serve as a refuge for persons who were not residing there before hostilities. The localities must be indicated visibly at their borders by the emblem of the Geneva Convention. In time of peace each of the parties to the new convention will communicate to the International Committee of the Red Cross a list of localities which it is proposed in time of war to assign for this purpose. At the

beginning or in the course of hostilities each contracting party must notify, again through the International Committee, the localities which it may be proposed to institute, specifying in an exact manner their position and boundaries. If the localities so designated are on a list which has been communicated to the International Committee at least three months before the beginning of hostilities any objections must be notified within three days from the receipt of such information, but if the localities did not appear in the pre-war list an interval of twenty days between notification and objection may be permitted. Other articles provide for the cancellation of the agreement with regard to a particular locality and the period which must ensue before such cancellation can become operative; also for a procedure of inquiry according to the articles of the Geneva Convention, in the event of dispute. In the case of the invasion of the country by an enemy the protected locality is to continue to be utilized as such, subject to the notification of opposition by the dispossessed belligerent.

The zones are to be subject to the control of a supervisory commission with at least three neutral nationals nominated by the International Committee and agreed by the State on whose territory the localities are situated. Each member of such commission may, at the discretion of its president, be given a specified area to supervise. It will be the business of the commission to see that the rules of the convention are observed, to draw the attention of the belligerents to any infraction, and if no notice is taken of such warning, the supervisory function may be withdrawn and the belligerent States be so informed through the International Committee. A further requirement is that the belligerents shall facilitate to the fullest extent possible the task of the commission, in particular by affording its members the necessary privileges and immunities in the exercise of their functions. On a complaint that the conviction has been violated by an enemy a contracting party may demand an inquiry under Article 30 of the Geneva Convention.

The history of this subject goes back to 1933, when the seventh Congress of Military Medicine and Pharmacy, held at Madrid, made a recommendation for the establishment of hospital towns and areas to give shelter to sick and wounded members of the forces in time of war. A commission of medical and legal experts met at Monaco in 1934 to formulate a draft, and the fifteenth International Red Cross Conference, held at Tokyo later in the same year, asked the International Committee and the National Red Cross Societies to consult their Governments with a view to stimulating action along these lines. A meeting of experts was held in 1936, at which further discussion of the problem raised a large number of essentially military questions, and a year later, at another meeting of experts, called with a view to the revision of the Geneva Convention, this question was again approached, and it was recommended that all national societies which had not yet communicated the opinion of their Governments should be once more consulted. This was done, and a report was made to the International Red Cross Conference in London last June (*British Medical Journal*, June 25, p. 1381, and July 2, p. 32), of which the recent meeting at Geneva is a consequence.

G. Barbagallo (*Policlinico*, 1938, 45, 230. Sez. Med.), who reviews the literature and records his personal observations on twenty-one cases, consisting of one of subacute endocarditis, six of undulant fever, and fourteen of typhoid fever, states that in some infectious diseases it is possible not only to isolate the pathogenic organism from the sternal bone marrow, but also to obtain it from the bone marrow when it cannot be found in the peripheral blood. Moreover, it is possible to cultivate it from the sternum at times when blood culture is not possible, as in advanced stages of the disease or when the fever is not very high. The technique of puncture of the manubrium sterni according to Arinkin's method and with Baserga's needle appears to be simple and harmless.

LUNACY AND MENTAL DEFICIENCY

BOARD OF CONTROL ANNUAL REPORT¹

Statistics of mental disorder and deficiency vary little from year to year. The curves for admissions and ascertainment tend to rise slightly, but not enough to cause misgiving. Far more mental defectives have to be dealt with than in years gone by, but that is because of the greater thoroughness with which such cases are reported to the local authorities. The population of mental hospitals rose during 1937 by about 2,000, but it is emphasized that this has no necessary connexion with the incidence of mental disorders in the general population, being merely the increase shown by the excess of admissions over the combined deaths and discharges.

One unexplained feature this year is that the reduction in the number of certified admissions to the mental hospitals, which was so marked in 1934 and 1935, has been checked, although at the same time there has been a rise in the number of voluntary admissions. The latter increased by just over 1,500, but admissions under certificate fell only by some 300. The total admissions to public mental hospitals were 26,892, the voluntary ones accounting for 8,414. At the end of 1937 the number of persons suffering from mental disorder—voluntary, temporary, and certified patients—notified as under care in England and Wales was 157,353, an increase of 1,831 on the figure for the previous year.

The death rate in the hospitals rose slightly to 7 per cent., an increase of no statistical significance, and the rate remains remarkably low when the high proportion of senile patients and patients in a physically enfeebled state is remembered. Diseases of the myocardium remain the largest single cause of death. There were only fifty-nine cases of enteric fever during the year, with twenty-five deaths. Tuberculosis of the respiratory system accounted for 539 deaths, a ratio of just over 4 per 1,000 resident patients. Out of a resident population of 136,721 patients in mental hospitals at the beginning of 1937, 9,544 were discharged during the year as recovered and 6,997 as relieved. The recovery rate per cent. calculated on the direct admissions was 31.2 (29.1 for males, 32.8 for females).

Out-patient Centres and Private Practitioners

The Board hardly conceals a certain disappointment at the way in which out-patient centres are developing. The number of such centres under the Mental Treatment Act in England and Wales is 167, a slight gain on the year, but the Board feels that there is still ground for criticism in that many of the centres are mainly diagnostic in character. The value of early diagnosis is not minimized, but it is felt that more continued treatment of those mental disorders which do not necessitate institutional care might be afforded. The difficulty is the insufficiency of staff. "If centres continue to be staffed insufficiently by doctors who have to give up (as many do) part of their leisure to out-patient work, there can be little hope of improvement in this direction."

The Board has emphasized in former years the importance of associating mental hospital staffs with the out-patient centres, but it points out that this does not mean that the centres must necessarily be staffed by whole-time doctors. The instance of St. Albans Clinic is quoted, where psychotherapists in outside practice have been employed, and the Board suggests that this system is one which might well be tried elsewhere. One argument in its favour is that it would give suitable practitioners a chance to establish themselves in private practice in this branch of medicine—a difficult thing to do outside London.

¹ Twenty-fourth Annual Report of the Board of Control for the Year 1937. Part I. London: H.M. Stationery Office, 1937. (Pp. 84. 1s. 6d. net.)

Higher Posts in Mental Hospitals

Another criticism which the Board makes is with regard to the tendency to fix at an unduly low level the upper age limit for appointment of superintendents of mental hospitals. In one case the upper age limit was 40, a condition which must restrict the field of selection.

"We do not undervalue the energy and enterprise of youth, but we feel that appointments involving the care of large numbers of sick persons, to say nothing of the control of mixed staffs often running into hundreds, call for experience and a knowledge of the world which few can acquire without a reasonably long training as a second-in-command. If it is true that most people learn mainly by making mistakes, it is at least equally true that the mistakes made by a deputy can usually be corrected, while the mistakes of a superintendent seldom can be without at any rate a disastrous loss of prestige. Moreover, these premature promotions mean that the top post may remain in the same hands for a longer period than is, in general, desirable. . . . We are opposed to a system which determines success or failure before a man has reached the middle of his medical career."

This is said particularly in connexion with the appointment of medical superintendents, but there are intermediate appointments to which the same principle applies.

The reluctance of some authorities to appoint a medical superintendent at an early stage in the development of a mental deficiency colony is also regretted by the Board. Apart from the need for expert advice in organization and the planning of extensions, there are many ways in which a growing colony needs a medical head. It is admitted that there may be occasional exceptions, but a non-medical administrator, even with nursing experience, cannot be expected to organize the daily treatment of patients and to direct the staff in a colony of 300 or 400 patients of both sexes.

"Success or failure in the future depends largely upon creating a sound organization and a good tradition. To postpone the appointment of a medical superintendent until the necessity for one can no longer be ignored may appear to be an economy, but it is the kind of economy which, in the long run, is apt to prove very expensive."

No visiting medical officer can have the same knowledge of patients as a resident who has them under constant observation.

Mental Deficiency

The statistics of mental deficiency, interesting and abundant as they are, throw no clear light on the prevalence of such deficiency, nor do they allow comparison of one area of the country with another. High figures may merely mean unusual activity on the part of the authorities. The figures do vary remarkably with areas. Take the two areas at the top of the list—the county of Cardigan with 7.69 reported defectives per 1,000 of the population, and the county borough of Walsall with 7.09. Cardigan has ascertained as subject to be dealt with only 1.27 per 1,000, and has actually placed in institutions or under community care only 0.25, while Walsall has ascertained 4.77 per 1,000 and placed 4.34. The lowest proportion reported in any area (1.9 per 1,000) is in West Hartlepool: the local authority has ascertained them all as subject to be dealt with, and has placed in care 0.83 per 1,000. In only a few cases do the numbers in institutional or community care closely approximate to the number ascertained; one instance is Bradford, where 3 per 1,000 of the population have been ascertained and 2.99 placed. Ascertainment, as the Board points out, is undoubtedly the first step, but it may be a useless one unless followed by the provision of care and training both in colonies and in the community—that is, under licence, guardianship, or statutory supervision.

Prominence has been given to the whole subject of the community care of defectives by a law case in Lancashire relating to a patient who was granted licence under the Mental Deficiency Acts. The Board in its report deals extensively with the considerations which should be borne in mind and the steps which should be taken before patients are sent out on licence. The advantage of licence over other forms of community care during the critical years of transition from an institution to life in an outside community lies chiefly in its elasticity and lack of formality. It is intended that it should provide supervision and practical help for defectives, and the power of quick action retained by the superintendent of the institution makes it a safe and favourable form of family care during the years of trial. The number of defectives on licence, under guardianship, and under statutory supervision is 70,500, or 56.2 per cent. of the whole number of known defectives.

At the beginning of the present year close upon 122,000 defectives, whether subject to be dealt with or not, had been reported to local authorities, an increase of 4,830 over the previous year's figure, and almost exactly double the figure of ten years ago.

A.R.P. in Mental Institutions

The Board receives numerous inquiries as to what air raid precautions ought to be adopted in mental hospitals and mental deficiency institutions. While it is difficult to believe that the most vindictive enemy would deliberately bomb a mental hospital, such hospitals are large and imposing buildings and might be mistaken for objects of military importance. In one hospital a protective scheme has been devised and air raid drill practised with success. Patients of the better types have shown an intelligent interest in the drills, have learned how to use gas masks, and some of them have acted as wardens. One report suggests that panic is less probable among the mentally sick than among the general population.

Not often does the Board receive from a patient what it can describe as an eminently sensible suggestion, but one such has been received this year from a patient at Claybury, that visiting chiropropodists might with advantage be employed in mental hospitals.

The Board sent two of its commissioners (Dr. Rees Thomas and Dr. Isabel Wilson) to Budapest, Vienna, and Frankfurt to study the technique of the cardiazol treatment of schizophrenia. Without making extravagant claims either for this treatment or for treatment by insulin shock, the Board feels that it is most encouraging that at last a determined effort has been made to devise some active treatment for a form of mental disorder which has hitherto proved so intractable. Even if it be true that some of the recoveries might have been effected by the older methods, the speeding up of recovery under these new treatments is a great advantage.

At the end of the report the Board hands the British citizen the bill. The total net cost of mental hospitals, including loan charges, is £9,253,528, and of certified mental deficiency institutions £1,348,846, in both cases an average of about 27s. or 28s. a week for each patient.

A report on the use of celluloid in the manufacture of toys, fancy goods, and other articles (Cmd. 5790: Stationery Office, 9d. net) has been issued by the Departmental Committee appointed by the Home Secretary a year ago. It is recommended that the use of celluloid as a component of combs, cuffs, collars, shirt fronts, and hair ornaments should be prohibited. The report also draws attention to the illicit trade in inflammable film known as "junk," and suggests that its sale or hire should be prohibited. Any celluloid articles such as dolls, combs, and similar articles which are at present on sale should be clearly and conspicuously marked "celluloid."

Reports of Societies

THE FEMORAL NECK IN CHILDHOOD

In the Section of Orthopaedics of the Royal Society of Medicine on November 1 Mr. ROBERT OLLERENSHAW delivered his presidential address on "The Femoral Neck in Childhood." During the whole of life, he said, the femoral neck was a vulnerable structure, but at no period was it more subject to various pathological changes than in infancy and adolescence. He gave a long list of these changes, but concentrated on two of them—namely, that type of coxa vara which, for want of a more scientific name, was called infantile coxa vara, and "slipped" upper epiphysis.

Infantile Coxa Vara

Mr. Ollerenshaw's personal cases numbered sixteen in all, ten of them bilateral and six unilateral. The average age of the group was 6 years. The clinical signs were a rolling gait, lordosis, raising of trochanters, loss of abduction, and complete absence of pain. A striking feature in all his patients was their smallness of stature. With regard to aetiology, there appeared to be no hereditary influence, there was an absence of any history of trauma, and there were no signs of rickets. The pathological changes were those of an aseptic necrosis, followed by regeneration of bone. He had found no changes in the blood calcium and blood phosphorus. The condition in its very earliest stages presented small areas of rarefaction in the femoral neck, increasing rapidly in size, and coalescing to form the area usually found when these patients were first examined. The condition became rapidly worse, and eventually, if not treated surgically, ended with the head of the femur several inches below its normal position, with almost no femoral neck at all, complete inability to abduct, and an extremely difficult gait. Treatment consisted of a wedge osteotomy, the wedge being sufficiently wide at its base to allow the femoral neck and shaft of the femur to come into line. This necessitated a very wide abduction, and unless this apparently exaggerated abducted position was produced the operation might fail to yield its desired effect. After the osteotomy was done the body weight was carried almost vertically through the femoral neck, and not across it as before. The neck then became changed in character and developed into a real bony structure.

"Slipped" Epiphysis

Turning to his second group of cases, those of "slipped" upper epiphysis of the femur, Mr. Ollerenshaw said that he had had twenty-two of these. All the patients were between 13 and 16 years of age. Slipping of the upper femoral epiphysis was not the result of trauma, but of disease, and was chiefly concerned with endocrine imbalance. The very large proportion of cases exhibiting definite disturbance pointed quite clearly to the underlying cause. It was clearly established by experiment that trauma to the upper end of the femur would not produce a clean separation of the normal epiphysis. The traumata which were often reported in cases of slipped epiphysis were too trivial to produce even a fracture of the femoral neck, let alone to separate the epiphysis. In the case of a diseased epiphyseal line, however, the normal body weight alone was enough to cause a slip. His patients, with two exceptions, were "heavy" children, eleven of them being of the adiposo-genitalis type.

Most anatomical textbooks put the age of union of the upper epiphysis at 18 years. He believed it was actually considerably earlier, probably from 14 to 16 years. In his opinion repair of a slipped epiphysis took place by

bone. He said this for two reasons: (1) he believed there was no recorded case of a slipped epiphysis giving way for a second time after it had once been united; and (2) in a case upon which, because of gross displacement, he had to operate he observed that the two separated surfaces contained bony elements.

If these children could be caught in the pre-slipping stage—a period in which there were complaints of occasional aching or limping—they should be immediately fixed in plaster and all weight-bearing prevented for three months, followed by calliper for six months. The opposite hip must be carefully examined and regarded with suspicion. In no case had Mr. Ollerenshaw observed definite pre-slipping changes which could be demonstrated radiographically. He had followed two lines of treatment. For those in which the slipping had recently occurred he did replacement under anaesthesia and fixation in plaster. Other cases, which were of some weeks' standing, and in which manipulative treatment could not be effected, he treated by subtrochanteric osteotomy, and abducted the limb sufficiently to reproduce the normal angle of the neck. These cases were given the same period of prevention of weight-bearing as the first group. The cases in which osteotomy was done were undoubtedly functionally satisfactory, but, of course, a little shortened. Manipulation and replacement in the normal position of neck and epiphysis, followed by plaster fixation for three months and subsequent prevention of weight-bearing for a further six months, might be relied upon to produce a very large proportion of good results.

HAEMOLYTIC STREPTOCOCCAL INFECTIONS IN RELATION TO NOSE AND THROAT

The annual Semon Lecture under the auspices of the Section of Laryngology of the Royal Society of Medicine was given on November 3 by Mr. W. M. MOLLISON, whose general subject was "The Laryngologist's Debt to Research." Mr. Mollison quoted from McBride, who delivered the first lecture, to the effect that most of Semon's writings touched on the borderland between general medicine and laryngology, and said that it was that borderland which he proposed to explore. His exploration, however, was devoted to only one sector—namely, acute infections with the haemolytic streptococcus in the origin of which the throat and nose played such an unenviable part.

Mr. Mollison said that haemolytic streptococci were found more often in carriers than in cases of acute infection. No other organism showed so high a disproportion between carriers and disease. D. Colebrook had proved that the nose was far less to blame than the throat. Of fifty-seven cases swabbed, only three had the haemolytic streptococcus in the nose and not in the throat, and in a series of 500 swabbings of the nose and tonsils of doctors, nurses, and attendants (on parturient women) in only 5.4 per cent. were haemolytic streptococci found in the nose, while in 20.3 per cent. they were present in the throat. As the presence of the haemolytic streptococcus was so frequent—one in seventeen of the population carried it—what prevented them all from contracting or taking the infection?

Factors concerned in Resistance

Two groups of factors were concerned in resistance—namely, blood and tissue resistance, which he would not consider, and secondary factors, general and local: the first category included age, sex, nutrition, avitaminosis, fatigue, climate, associated and subsidiary infections, crowding, and the carrier rate; and the second category, the skin and mucous membrane, tonsils, mucus in the nose, and organisms in the throat. Among these local

factors he dealt particularly with the tonsils, which, though a splendid barrier against infection, did sometimes fail and become a focus. When the tonsils were attacked by an overpowering infection they might become an active source of general infection, and their removal, even in the acute illness, might then be advisable.

It was probable that the presence of haemolytic streptococcus in the throat made it less likely that the host would suffer from acute tonsillitis. It was common knowledge that doctors and nurses were open to infections on returning to work after a holiday during which they lost their immunity and presumably their streptococcus. Fever hospital nurses during their first weeks of service were susceptible to streptococcal tonsillitis, but as they became passively immunized the incidence of cases fell sharply.

There were two principal causes for the origin of infection by the haemolytic streptococcus, one of them milk (not in the province of the laryngologist, except that infection of milk might arise from throat infections in those handling it), and the other an infected person, a so-called contact. Infection originated from a contact or carrier directly, indirectly through a third person, or by droplet infection, this last being the most frequent method of spread. Infection could also be carried in dust, and also, rarely, be air-borne. The lecturer mentioned experiments which suggested that the haemolytic streptococcus could survive for as long as ten weeks in dust.

Prevention of Infection

On the subject of prevention Mr. Mollison said that, not unnaturally, the prevention of cross-infection had exercised the minds of all those in charge of hospitals. As the type of infection never changed among cases of the same type in a ward it followed that they could safely be nursed together. Patients nursed in cubicles only acquired fresh infections introduced by nurses or maids. A sister with even a slight cold could introduce a fresh type, and to prevent this efficient masking should always be practised. The fact that cubicle nursing gave a high degree of protection was emphasized by the following instance: of 167 children suffering from measles nursed in an ordinary ward of twenty-six beds—not crowded—twenty-three died—that is, 14 per cent.; while of 150 nursed in isolation wards only six died—that is, 4 per cent.

Ideally each patient should be isolated in a cubicle and the utmost care be exercised to prevent the introduction of infection by those entering. Alternatively, the exact bacteriological grouping of the infective streptococci in the throats of all persons admitted to hospital should be carried out, and those with the same group nursed together. Both these plans presented considerable difficulties. Actually the method generally in use was so-called bed isolation. It had been found that in the prevention of cross-infection the distance between cot or bed heads was more important than air space per bed.

The Common Cold

Mr. Mollison added a few words on the common cold. The adult carrier was a menace to children, but adequate masking had been shown to be effective in preventing catarrhal infections. As a result of masking of nurses and doctors enteritis (due to catarrhal infection) could be eliminated from children's wards. As an illustration of the extreme difficulty of preventing infection by the virus of the common cold, he mentioned that an infected person prepared food for chimpanzees, which are susceptible to colds, and in spite of very careful antiseptic precautions on the part of those who distributed the food the animals became severely infected.

Laryngologists might think (said Mr. Mollison in conclusion) that bacteriologists took too jaundiced a view, but the tragedy of death from septicæmia after a simple "clean" operation, or after a straightforward removal of

tonsils and adenoids, or after a normal childbirth could not be minimized, and must convince everyone of the vital importance of making a wide search to discover and eliminate the infecting streptococcus. There were, nevertheless, some who felt that the risk of infection from the streptococcus in the normal throat was very remote; they would rely on local examination by an expert to decide if there was any inflammation in the throat and nose, as the risk of infection was then much enhanced. This seemed to be placing a great responsibility on the laryngologist, and one which many would be reluctant to shoulder. What was a "clinically" normal throat? Every laryngologist knew how impossible it was to say that the tonsils were not an infecting focus. The only rational conclusion to be drawn was that bacteriologists must be the final arbiters.

CROHN'S DISEASE

At a meeting of the Devon and Exeter Medico-Chirurgical Society on October 27 Dr. A. AUSTIN EAGGER read a paper on Crohn's disease.

Dr. Eagger said that the condition was described first by Combs and Saunders (1813) and later by Abercrombie (1828). Brann and Le Dentu (1909) called attention to non-specific inflammatory tumours of the intestine. Moschowitz and Willensky (1924) described four cases, in three of which the caecum and ascending colon were affected; in the fourth case the splenic flexure was involved. Crohn and others (1932) defined the condition as a regional ileitis, "a disease affecting the terminal ileum of young adults and characterized by subacute or chronic necrosis with scarring and ulceration of the mucosa, accompanied by exuberant fibrosis leading to stenosis or fistula formation." Diarrhoea was always present. Later reports by Edermann and Burt, Harris Bell and Brun (1933), Jackman (1934), Erb and Farmer (1935), Mlayer and Rosi (1936), and others showed that Crohn's original definition needed some modification. Cases had been noted at ages ranging from 2 to 60; diarrhoea was an inconstant feature; and regions of the intestinal tract other than the ileum might be affected.

Four Clinical Types

Four clinical types were now recognized: (1) acute cases with signs of intra-abdominal inflammation; (2) cases with symptoms of ulcerative enteritis; (3) cases with stenosis and symptoms of chronic obstruction; and (4) cases with persistent external or internal intestinal fistulae. The stenotic type seemed to be the commonest. The acute type might resolve or develop into one of the other three types. In the ulcerative type there was a history of diarrhoea with loose offensive stools, which might contain pus, blood, or mucus, accompanied by attacks of colicky abdominal pain, nausea, loss of weight, and mild pyrexia. A tender mass was typically to be felt in the right lower quadrant of the abdomen and there was a mild leucocytosis with marked secondary anaemia. Stenotic cases show the symptoms of partial obstruction and a tumour was sometimes palpable. In the fourth group the usual history was that of fistulae appearing and persisting after appendicectomy for supposed appendicitis.

The aetiology of the disease was uncertain. Erb, in his cases, recovered a coliform organism from the mesenteric glands, liver, and gall-bladder. Relphs suggested that the inflammation occurred in response to a low-grade infection, possibly conveyed by foreign bodies. Mailer had found a streptococcus of the *viridans* group in the blood stream in some cases. Differential diagnosis was difficult: in the acute cases, from bacillary dysentery and appendicitis; in the chronic, from malignant disease, the specific inflammations, ulcerative colitis, tuberculosis, Hodgkin's disease, and actinomycosis. Hourly radiological examinations after the administration of a barium

enema might enable the diagnosis to be made. Kantor stated that loss of segmentation and peristalsis in the lower ileum gave early radiological evidence of the disease. Later, filling defects in the terminal ileum appeared and the so-called "string sign"—a thin irregular streak of barium connecting the dilated ileum above to the caecum below—was characteristic if present. If the condition did not resolve spontaneously it progressed steadily and ended fatally if not surgically treated.

Case Report

Dr. Eagger described a case under his own care. The patient, an unmarried woman aged 43, had had jaundice fifteen years before and frequent attacks of vague abdominal pain ever since. In January last she had an acute attack of lower abdominal pain, accompanied by rigors, pyrexia, and vomiting, and followed by persistent mild constipation. When Dr. Eagger first saw her, on April 17, she had a furred tongue, a normal temperature, and a pulse rate of 80. There was tenderness and rigidity two inches below and to the left of the umbilicus. A radiological examination of the alimentary tract three days later was negative. A catheter specimen of urine examined on May 10 was normal, but four days later she had an acute attack of pain followed by haematuria. A specimen of urine collected the following day contained pus, red cells, and staphylococci. There was a polymorphonuclear leucocytosis, and a left retrograde pyelogram revealed no abnormality. An intravenous pyelogram a week later was normal and so was a catheter specimen of urine collected on May 24. Throughout this period there was marked wasting, weakness, anorexia, and depression. On May 25 visible peristalsis was observed. Laparotomy by Mr. A. L. Candler five days later revealed in the mid-portion of the ileum a tumour-like mass about eight inches long, which was densely thickened and reddish purple in colour. The mesentery was thickened and the glands enlarged. The affected gut was resected and a lateral anastomosis performed. Recovery was uneventful.

Dr. W. A. Robb examined the resected portion and reported as follows: "The specimen consisted of ten inches of small intestine (ileum). The proximal two inches were dilated and showed a moderate degree of hypertrophy. The subsequent seven inches showed a very dense infiltrative hypertrophy with increasing stenosis of the lumen, which would barely admit a quill pen. The mucosa appeared to be covered with a yellow slough. The mesentery associated with the hypertrophied area was also densely thickened and appeared to consist largely of fibrous tissue. Microscopically the lesion appears to be subacute inflammation affecting the mucosa, submucosa, and muscular layers, and the subperitoneal tissue. There are numerous lymphocytes, plasma cells, fibroblasts, polymorphonuclears, and eosinophils, together with a few giant cells. Histologically the picture is that of regional ileitis."

At the same meeting Dr. FRANK ROPER discussed the association between polycystic renal disease and cerebral "berry" aneurysms and described an illustrative case.

SERIAL RADIOGRAPHY IN CHEST DISEASE

At the opening meeting of the North-Western Tuberculosis Society at Manchester Dr. G. JESSEL, in his presidential address on serial radiography in pulmonary disease, said that radiology was the most important single factor in the diagnosis of pulmonary disease as it enabled an accurate diagnosis to be made earlier than was usually possible by clinical methods alone. Fortunately the provision made for x-ray examination throughout the country was steadily increasing. Serial radiography, by which was meant the taking of two or more radiographs of the same patient at one time or at intervals, was desirable both in diagnosis and in treatment. As regards diagnosis the initial antero-posterior radiograph was frequently inadequate, and further radiographs could be usefully taken in oblique, lordotic, or lateral positions. Again, it might be necessary to take

another radiograph after a short interval of time, when the appearances might be entirely different—for example, in inflammatory conditions, and particularly in the pneumonias. Stereoscopic films were a form of serial radiography, but had the disadvantage that they were expensive as a routine procedure. The tomograph also was able to provide useful series of radiographs illustrating the condition at various distances behind the sternum.

Turning to treatment, Dr. Jessel said that whenever any form of special treatment was attempted a series of radiographs was essential, especially in artificial pneumothorax. Whenever other forms of treatment were used—for example, gold or cadmium—serial radiography enabled the progress of the case to be followed. As Wingfield had shown, the direct spread of a temporary quiescent tuberculous lesion in the lungs could frequently be detected only through serial x-ray investigation. In chronic pulmonary tuberculosis the physical signs were often vague and indefinite, and routine radiography at intervals enabled the progress of a patient to be watched and his condition assessed. In this way the pathological changes associated with tuberculosis—for example, fibrosis and calcification—could be followed. In dispensary and private practice a comparison of radiographs taken before and after treatment gave useful information and provided a permanent record.

The cost of serial radiography might be urged as a serious objection, but where x-ray facilities were available it was economical, within limits, to make full use of the apparatus, and the information thereby obtained was well worth the money expended.

The inaugural meeting of the Midland Medical Society took place on October 26 at the Midland Hotel, Birmingham, under the presidency of Professor SEYMOUR BARLING. After a dinner, which was attended by over seventy members and guests, the inaugural address was delivered by Sir JOHN FRASER. His subject was the history of the circulation. He gave credit to Servetus, who first described the pulmonary circulation. Harvey's experiments on veins and their valves were described, and the lecturer concluded his address by a summary of modern knowledge of the treatment of circulatory disease. Professor LEONARD GAMGEE, in proposing a vote of thanks, pointed out that William Withering, who introduced digitalis, was a physician in Birmingham.

The Midland Mental Pathological Society held its ninth general meeting in the New Medical School of the Birmingham University on November 3. Professor H. H. Woollard, M.D., F.R.S., of University College, London, gave a paper illustrated by lantern slides on "The Innervation of Blood Vessels." He dealt with the origin and course of sympathetic fibres to the arteries and arterioles in the limb; nerve fibres were also illustrated having a probable relation to the nocifensor system and to muscular pain. Professors R. D. Lockhart and H. P. Gilding, Mr. F. R. Stammers, F.R.C.S., and Drs. T. C. Graves and F. A. Pickworth took part in the discussion which followed. There was an appreciative audience of twenty-five members and forty-two visitors.

The sixteenth Voyage de Noël on the French Riviera will extend from December 26, 1938, to January 1, 1939. The cost of this six-days tour is 1,500 francs, and the itinerary may be obtained from the Federation of the Health Resorts of France, the English office of which is at B.M.A. House (North Wing), Tavistock Square, W.C.1. This charge is exclusive of the journeys between England and Cannes, where the tour will start: places to be visited include Antibes, Grasse, Vence, Cap Martin, Monaco, and Nice.

Local News

ENGLAND AND WALES

Great Ormond Street Hospital for Sick Children

The recent opening by the King and Queen of the rebuilt and reconstructed Children's Hospital recalls that this institution was the first and for some years the only children's hospital in the United Kingdom, serving as a model for the other children's hospitals subsequently established. The new building has risen chiefly on the site of the former garden. It has seven stories constructed to accommodate 326 patients, including wards for thirty-six private patients, three operating theatres, and various laboratories, kitchens, and the other departments required by a modern hospital. What is left of the old hospital is at present housing the out-patient department, which is now also being reconstructed. The eighty-sixth annual report of the Board of Management covers the calendar year 1937, and a short history of the hospital can be obtained from the secretary. Generous response to the rebuilding fund appeal has enabled the progress of the work to be accelerated, but it is announced that a further £250,000 is still required. In spite of the work of reconstruction the number of in-patients treated during 1937 exceeded that in 1936. The weekly average cost of in-patients increased somewhat, mainly owing to improvements in the dietary and the higher cost of surgical and dispensary supplies. The figures for the branch hospital at Tadworth Court were much the same as in the previous year, the work of the recovery section and the convalescent pavilion permitting continuity of treatment and medical research which would otherwise have been unobtainable. All appointments to the honorary and salaried medical staffs are now equally available to men and women. Although a larger staff is now employed, no additional expense has been incurred, thanks to the adoption of a new scheme suggested by the medical committee. In the medical report it is remarked that the appointment two years ago of a resident anaesthetic registrar has secured the keeping of accurate records of this important section of hospital work. Last year nearly 8,000 general anaesthetics were administered, and premedication has proved of great value in this connexion: of the patients receiving an anaesthetic in the in-patient department approximately one-third were relieved of all apprehension by this modern procedure. Prolonged desensitization against asthma was found to render the attacks less frequent and milder, though it did not prevent their occurrence. A new protective serum against scarlet fever was tried in one of the surgical wards with great success, the amount of injected material being very much smaller than any hitherto used. There was a great decrease in the number of children attending the department for venereal diseases, and since such a decline has been reported all over the country it is obvious that the intensive work in such clinics in past years has yielded valuable results and that these diseases are being controlled.

Birmingham Health Report

The report for 1937 of the medical officer of health for the City of Birmingham records a slight rise in the death rate, largely owing to the prevalence of influenzal conditions in the spring. On the other hand, the infant mortality at sixty per thousand has never been lower in the city, although equalled in 1930, while the maternal mortality also shows a gratifying reduction, especially satisfactory as evidencing a diminution in septic conditions in childbirth. The Birmingham birth rate shows a slight rise for the fourth year in succession, but this coincides with the highest illegitimate birth rate for ten years, attributable, so the report suggests, to the more general use of contraceptives regarded as certain preventives of the result

of licence. During the year under review a municipal salaried midwifery service was established in accordance with the requirements of the Midwives Act, 1936. Following a number of compulsory and voluntary retirements the midwives available for the city at the end of the year totalled 158. Of these ninety-nine were city midwives, forty-seven independent, and twelve working under the Maternity and Queen's Hospitals. The emergency service for the domiciliary treatment of obstetric shock and haemorrhage was used for eight cases during 1937. All these patients recovered, and the consultants concerned expressed favourable opinions of the value of this service. Under the Public Health Committee's scheme general practitioners called in consultants for eighty-one obstetric and twenty-six puerperal cases.

SCOTLAND

Hospital Co-operation

In an address at the opening recently at Girvan of the annual Congress of the Royal Sanitary Association of Scotland, Dr. James M. Mackintosh, Chief Medical Officer of the Department of Health for Scotland, emphasized the necessity for co-operation between the voluntary and the statutory hospitals. He said that 1938 marked an important centenary in public health; before 1838 no Act of direct sanitary intention had been placed on the Statute Book. The increased interest in public health stood out as a feature of progress in the twentieth century. But the full implications of the modern doctrine of personal health had not yet been realized. Physical fitness alone was a barren ideal, and must be linked with some idea of what was to be done with the body when it was made fit. A re-examination of the whole educational system was necessary with a view to giving health education a central place. No scheme of medical services could be successful until there was a complete working arrangement between the voluntary and the statutory hospitals. With a wise use of existing resources the inadequacy of hospital accommodation would be relatively small. The principle of regional co-operation had been tried with considerable success in Aberdeen, and there was evidence of tentative schemes elsewhere. Co-operation had failed not because of lack of money or opportunity but because of lack of faith. There was a hesitation to take the necessary action because it would interfere with long-established practices.

On the second day of the congress, Dr. W. G. Clark, medical officer of health for Edinburgh, dealt with some aspects of public health policy. Regionalization, he said, was an important matter at the present time, for local public health organizations were generally too small to deal with exceptional circumstances such as outbreaks of infectious disease. When public health measures were regionally administered, consulting staffs were available, large hospitals of 400 to 500 beds were more economically equipped, and in the event of an epidemic the whole resources of the region were at the disposal of the locality involved. Such schemes could only be carried out when a large centre was included, and it was doubtful if any area of less than 100,000 population could afford to maintain what was now regarded as a complete health service. With regard to infectious disease, he urged that a central register of carriers should be prepared and kept by the Department of Health.

Hospital Extensions

At the opening of an extension to Galashiels Hospital, which has cost £25,000, Sir John Fraser of Edinburgh University said that voluntary hospitals were encountering difficulties in obtaining sufficient money to maintain the usual standard of efficiency and at the same time to make necessary extensions. The problem of hospital adminis-

tration had been discussed for several generations. The treatment of patients in small country hospitals not only relieved suffering locally but afforded opportunity for a corresponding number of patients to be treated in the hospitals of the larger centres. The importance of this type of assistance was not sufficiently recognized, and if it could be made more general it would go far to solve difficulties of the larger hospitals. Illness was often more easily borne in the quietness of a country town than in a big city, and he believed that this factor would be increasingly taken into consideration in the hospitals of the future. The extension provides a new wing with a public ward and several private rooms, and in addition there is a new operating theatre, laundry, and kitchen, and an up-to-date x-ray installation. The hospital, which previously accommodated fourteen patients, has now thirty-one beds.

An auxiliary hospital to the Dumfries and Galloway Royal Infirmary, which has been provided at a cost of £18,000, was opened by the Earl and Countess of Mansfield on November 3. The Earl of Mansfield explained that this addition, the Grove Convalescent Home, would provide accommodation for fifty-five patients, and that the directors also contemplated an extension to the infirmary, but there had been delay in the latter scheme owing to negotiations with local authorities, who desired to reserve for their own needs some seventy beds in the institution.

Correspondence

Treatment of G.P.I.

SIR,—Dr. B. H. Shaw's letter in your issue of October 29 (p. 917) quotes some figures purporting to show the results of different methods of fever therapy in G.P.I. Statistical evidence readily lends itself to misinterpretation. I would stress the fact that clinical recovery is not an accurate criterion of the efficacy of any type of treatment. It seems unlikely, having regard to the histopathology of the disease, that therapy does more than destroy the syphilitic infection whereby, although inflammatory changes may resolve, degenerative changes persist. Thus the resultant clinical picture will depend on the degree of degeneration present before treatment is begun. Investigations carried out here have led us to the conclusion that the production of a normal cerebrospinal fluid is a more reliable gauge of the success of treatment than that of "clinical recovery." As regards the recovery figures quoted, it should be pointed out that the Board of Control figures relate to mental hospital admissions, many of the patients being already far advanced cases, whereas Neymann's figures refer to general hospitals as well as mental hospitals.

Regarding the mortality rate of malaria therapy, I would like to quote from the records of patients treated here between June, 1937, and June, 1938; this time period was selected purely at random, and may therefore be regarded as a sample of our general results. During this time 107 men and fifty-six women were admitted suffering from G.P.I., and of these 100 men and forty-five women were treated by malaria. Among the women no deaths occurred either during the course of malaria or within a few weeks after; of the men three deaths could be directly attributed to malaria; one of these developed severe cardiac asthma during fever and died from heart failure. At necropsy a plaque was found at the beginning of the left coronary artery, although the aorta itself was relatively healthy and careful examination of the heart

during life revealed no abnormality; seven others died within two to three weeks following termination of malaria. It might therefore be argued that malaria was also responsible for their deaths, but in four the disease was well advanced before therapy was undertaken. Of the remaining three the cause of death was respectively appendix abscess, lobar pneumonia, and generalized boils. This death rate is little if any higher than that quoted by Neymann, and having regard to the very small number of cases left untreated it can on these figures be argued that malaria therapy is as safe as electropyræxia. Of the eighteen untreated cases seven were men, of whom two were treated with trypanamide—one on account of his age and uncompensated cardiac condition and the second because of his emaciated condition; one died within five days of admission and four within six weeks. Of the eleven women, one died five days after admission, seven within four weeks, and three within three months.

Among cases treated successfully by malaria have been patients with aortic and mitral disease, diabetes, Huntington's chorea, and many cases of syphilitic aortitis.

As the treatment of G.P.I. by electropyræxia is of relatively recent origin, I can hardly agree with Dr. Shaw that "an authoritative comparison with other methods of treatment is *long overdue*." (The italics are mine.) It is not my purpose to decry the value of electropyræxia, but I am convinced that malaria therapy is still one of the most successful therapeutic agents in the treatment of neuro-syphilis and is far from being the 'dangerous' procedure it is implied to be in Dr. Shaw's letter.—I am, etc.,

Horton Hospital, Epsom, Nov. 1.

W. D. NICOL.

Social Pathology

SIR,—Dr. A. J. Brock in his letter to the *Journal* of October 8 (p. 762) raises the question, "Is our nation becoming less healthy?" This is a very important question, because, as Dr. Brock notes, the future existence of the British peoples depends not only on a knowledge of the correct answer but also on action based upon this knowledge. What answer we give depends on the meaning we attach to the word "health." For example, we may consider national health in terms of height, weight, longevity, and freedom from devastating epidemics. Accordingly, when official statistics indicate that people are becoming taller and plumper, are living longer, and are free from severe outbreaks of infectious disease, we assert that the nation is becoming healthier. However, we must not forget that this assertion of improving health is really an inference based on an assumption, the assumption being that the needs of living men and women are exactly comparable to the needs of livestock—namely, suitable food, shelter, air, light, and physical exercise. In the past all "public health" measures and most "social" ones have been based on this essentially veterinary assumption. Indeed, it was inevitable that this should be so, because these needs are so obviously basic ones. Improvement in national livestock health has been effected therefore—at least in part—by a growing knowledge of the nature of these needs and by the application of measures directed against environmental factors which frustrate or deny the fulfilment of these basic animal needs. In practice this has been achieved by "public health" action in respect of impure or inadequate diet, improper housing, defective drainage, insufficient exercise, etc.

There is, however, another way of regarding health, and this is based on a different assumption. It includes the veterinary assumption, but regards it as partial and inade-

quale. It states that living men and women have another range of needs—for example, work, work to an end, leadership, a belief that life has a meaning or goal, etc. It also assumes that if these psychological needs are frustrated by environmental factors then the impulses behind them, being denied satisfaction, turn in upon the people and begin to destroy them. (A useful account of this assumption is given by Karl Menninger in his book *Man Against Himself*.) Sometimes the self-destruction is very obvious, as in suicide; sometimes less obvious but just as definite, as in chronic and recurring neurotic illnesses, as well as in many examples of organic sickness labelled by such terms as anaemia, rheumatism, gastritis, peptic ulcer, bronchitis, etc. (psychosomatic illnesses). Also, self-destruction may be manifested in a more remote way, as in the refusal to bring forth children. In other words, a community in which basic psychological needs are frustrated slowly falls sick, disintegrates, and decays. On this assumption statistical facts which reveal disintegration of this nature would be the following: (a) a rising suicide rate; (b) a rising incidence of psychoneurotic and psychosomatic illnesses; (c) a declining birth rate. All three of these trends are shown in our national statistics during recent years.

This second concept of "health" is nearer the proper meaning of the word, which originally referred to wholeness or integration. It also has reference to the ideas of vitality, efficiency, and life more abundantly. The question, "Is the nation becoming less healthy?" can no longer be answered with a vigorous and self-satisfied negative. The indices suggest the possibility of a very different answer. Failure to appreciate the deeper meaning of "health" and the absence of action against environmental factors (including social measures) which frustrate the basic psychological needs of a community will, on this second assumption, result in further disintegration.—I am, etc.,

Glasgow, Nov. 2.

JAMES L. HALLIDAY.

Decline of Breast-feeding

STR.—The unnecessarily high death rate from enteritis and diarrhoea in babies under 1 year still continues, and Dr. J. C. Spence (October 8, p. 729) is quite right in stressing the fact "that the encouragement of breast-feeding is one of the methods of combating the excessive infant mortality. But there are many who do not recognize it." He goes on to quote from the annual report of a medical officer of health in one of our large towns in which the medical officer advances the astounding proposition that breast-feeding on the whole is not a success, in fact that it is a more frequent cause of dietetic trouble than artificial feeding, and also affirms that he has not seen any evidence that convinces him "that the artificially fed child is more prone to disease or more likely to succumb to disease than his naturally fed brother"; finally, he thinks that the mother is better if she does not feed her child.

Again, some general practitioners in North Kensington formed a medical society with the object of investigating the cause of infant mortality in Kensington. Dr. Horace A. Nathan says (October 29, p. 916) that the following sentences may be quoted from their report: "If it is accepted that environmental conditions can so affect a mother that an infant at birth is lacking in vitamins, it seems likely that breast milk will be similarly lacking. Could a more unsuitable person be found to breast-feed this particular infant?" Of course, there is no shred of evidence to support this hypothesis. If only the doctors

had spent their time and energy in studying the technique of breast-feeding they would have done valuable service in lowering the death rate. During the siege of Paris in 1870 mothers had to feed their babies on breast milk because no other food could be procured for them. The result was that the infant death rate declined considerably the environmental conditions being anything but ideal.

The views which I have quoted show the direction in which some of the profession are influencing the mothers of our rising generation, and if it were not for the welfare centres, whose main purpose is to encourage breast-feeding in every way, possibly there would be little chance of keeping the death rate from enteritis even at its present level. I agree with Dr. Spence that about 95 per cent. of women can suckle their babies and that only 5 per cent. cannot do so for various physical reasons, but when he says that the mother should choose the times of feeding most suitable to herself and her child I really cannot agree. I should have thought that no one would question the importance of regularity of feeding times, as irregularity in this respect has been such a constant cause of vomiting and diarrhoea.

Thirteen years ago I was asked by the public health authorities to attend cases of enteritis and diarrhoea in their own homes when the mother could not afford medical fees. I have seen 1,500 such cases in their own homes during this period, and the mortality works out at 3.5 per cent. Most of these infants were artificially fed, and the cause of the illness was dietetic. No pathogenic organisms were found in the majority of cases. Outbreaks of Sonne dysentery occurred from time to time, but these were of a mild order, and the children usually were on the way to recovery in five days.

I have seen a considerable number of breast-fed babies with vomiting and diarrhoea. The treatment consisted in stopping the breast milk for twenty-four hours and allowing the baby to take as much water as he wanted. The next day breast-feeding was begun again; the vomiting usually stopped completely, but the diarrhoea continued for a few days and was treated by a bismuth and chalk mixture, three times a day. I never gave any artificial food. Some of these cases were in a good deal of pain, passing blood and mucus in their motions, and the mothers and doctors were anxious to stop the breast milk, but, luckily, they allowed me to pursue my course, and the results were excellent. I have never seen a fatal case of diarrhoea and vomiting in a baby that was being entirely breast-fed, except once in a child of 2 months who died from otitis media. The diarrhoea and vomiting was secondary to this, so that all the deaths in my series of cases occurred in artificially fed infants, except two who died from Sonne dysentery.

Over-feeding with breast milk, apart from attacks of diarrhoea and vomiting, has no disastrous effects such as one sees in artificially fed infants; it can be rectified by increasing the intervals between the feeds and only allowing the child to suck for three to five minutes at a time. I have seen infants put on weight in a satisfactory manner and remain satisfied on only three or four feeds in the twenty-four hours. The trouble arises when there is not enough breast milk; this may only be a temporary condition, but the error is often made of giving a bottle alternately with the breast, so that the child has three breast-feeds and three bottle-feeds in the day. This practice is wrong because the quantity of breast milk is sure to diminish owing to the lack of that stimulation which suction gives to the breast. A far better method is to give a complementary feed directly after the breast-feed and to give the artificial food with a spoon out of a cup instead of filling a bottle. After a week or two of this treatment the breast milk will often increase in quantity, so that the complementary feeds can be discontinued. I have often brought back the breast milk after the infant has ceased suckling for five weeks in cases in which the child was doing badly on artificial food. It only requires perseverance, and is always worth while provided one can squeeze a drop of milk from the nipple. In cases of mammary abscess in one breast the infant can be fed perfectly well on the other side.

I have only indicated some of the common difficulties in the technique of breast-feeding. I believe the importance of education is not sufficiently recognized, and under these conditions it is very alarming to see in a recent order of the Ministry of Health that panel practitioners attending postgraduate classes are not to receive instruction in diseases of infancy or childhood. Surely, in large towns among the poor and overcrowded population an up-to-date knowledge of the diseases of infancy and childhood is the most important branch of medicine for the general practitioner to study. I sincerely hope that the Ministry will reconsider its decision.—I am, etc.,

Kensington, Nov. 5.

RONALD CARTER.

Prognosis of Anxiety States

SIR,—It would appear that Dr. Arthur Harris does not appreciate the significance of the criticism that has been made of his article on the prognosis of anxiety states (*Journal*, September 24). He set out to estimate the factors of prognostic importance in a follow-up of 123 cases (this was one of the stated objects of the investigation), but completely excluded the question of treatment. I pointed out that this was a curious procedure, and indicated that it rendered his results of little value. In your issue of November 5 (p. 966), however, Dr. Harris attempts to justify the omission on the singular ground that he "could not determine accurately how much and what type of treatment each case had received," and from other remarks he makes it is evident that the patients had received very different forms of treatment.

In effect, therefore, Dr. Harris has, evidently unintentionally, provided the answer to the question I put in my previous letter as to whether he considers that treatment is to be regarded as significant in estimating the prognosis in anxiety states, and his answer is in the negative. This may conceivably be true, but is it what he meant to imply?—I am, etc.,

London, W.1, Nov. 7.

FREDERICK DILLON.

Thimble for the Surgeon

SIR,—Mr. Dickson Wright emphasizes justly the importance of Mr. T. E. Coulson's clinical memorandum in your issue of October 15. The use of a thimble to guard the finger when making a stab incision is a valuable device, especially in cases of acute peritonitis, and I am surprised to learn from Mr. Dickson Wright's letter that more use is not made of it, in spite of Sir William Wheler's writings on the subject. Some surgeons, of course, disdain such adventitious aid and cut down boldly into the hollow of a cup made by the hand and fingers, but such a manœuvre presupposes an original incision which will admit the whole hand.

For some years I have used a finger shield made by Messrs. Down Bros. for the late Mr. C. P. Childe of Portsmouth.

"The instrument allows free flexion of the finger. When used inside the abdomen, the forefinger encased in the finger shield, and the mid-finger, are inserted together. The latter feels that nothing is in the way, and the guarded finger is then cut down upon at once with a single stroke of the knife."

Personally I have found it more convenient to wear the shield on the mid-finger with a finger on either side to protect the viscera. As compared with a thimble, there is less danger of this instrument slipping from the finger, but a thimble is simple, efficient, cheap, and easily procured, and, as Mr. Dickson Wright says, should have its place in every surgeon's kit of instruments.

I am not sure that the suprapubic route to which Mr. Coulson refers is always the best in the treatment of pelvic

abscess. In many such cases the abscess tends to point in the rectum or vagina, and on examination an area of softening will be readily appreciated on the wall of either cavity. Sinus forceps are sufficient to lay open the abscess. Drainage established by this route is dependent, and the abscess cavity closes in quickly. Contrary to what one might expect, the opening in the rectum or vagina heals smoothly. An additional advantage is the avoidance of a tube which traverses the peritoneal cavity.—I am, etc.,

MICHAEL J. SMYTH, M.Ch., F.R.C.S.

London, W.1, Oct. 31.

SIR,—In the *Lancet* of April 10, 1909, Mr. C. P. Childe described a metal finger-guard made by Messrs. Down Bros. for use in making a counter-opening. This guard has been in general use since that time, and it is less likely to slip off and is less clumsy than a thimble. Mr. Childe primarily advocated its use to supersede having to cut down on one's finger or on to an instrument inserted intraperitoneally. The latter method involved the risk of wounding intestinal tissue. The guard was to be worn on the forefinger, and the middle finger could then detect any intestine that was in the way. The thimble method, if preferred, should certainly be used in the same manner.

But there is still an element of danger. On one occasion when using the guard I wounded a piece of collapsed small intestine which had escaped notice on the thumb side. Fortunately I noticed a little bile staining on the bright nickel, and was able to find and hold the gut into the small wound with my thumb and repair it, with no bad result; but I feel sure that if I had been using a thimble I might not only have lost the gut but the thimble also and perhaps the patient.

A safe way is to displace the intestine with the middle finger, press it against the peritoneum, and then slide the guarded finger forwards to this spot before cutting down.—I am, etc.,

London, W.1, Nov. 7.

G. H. COLT.

Septal Deflection

SIR,—I read with interest Mr. W. S. Syme's article on septal deflection in the *Journal* of September 24 (p. 656). At the Annual Meeting at Plymouth the subject was discussed, and I believe Dr. Ritchie Rodger said that the operation of submucous resection of the septum was probably not too often performed. From time to time rhinologists are cautioned against resorting to this operation on inadequate grounds. I am inclined to lean towards Dr. Rodger's point of view, as I believe that the operation will not be performed unnecessarily if the surgeon realizes that it is for the benefit of the patient and not for the benefit of himself. I agree with Mr. Syme that submucous resection of the septum is the favourite operation of some specialists. If it is their favourite operation because they do it so well in indicated cases, then I have no quarrel with them, since it is an operation which must be adequately performed. It can usually be performed once only, and it must therefore be a complete and not a so-called "partial" submucous resection, and special attention must be paid to the upper part of the septum opposite the middle turbinates. A patient on whom a partial submucous resection has been performed to remove an offending spur near the floor of the nasal cavity is as liable to develop frontal sinusitis after the operation as before if a deviation is left high up in the septum. I have on more than one occasion been put to a difficult task in performing an intranasal frontal operation in a case in which the chance of doing a submucous resection has been spoiled by such a partial resection. I believe

that submucous resection should be performed more often during other intranasal manipulations to give better access to the area of operation. If this were done, nasal polyps would be more effectively removed and ethmoidectomy more effectively performed; intranasal frontal operations would give better results; post-operative anterior rhinoscopy would more readily reveal recurrence of disease; and there would be less chance of adhesions after removing or attempting to remove polyps through a narrow nasal cavity.—I am, etc.,

National Hospital, Bloemfontein,
South Africa, Oct. 21.

J. E. THOMSON.

Periodicity of Influenza

SIR,—Recent studies of neoplastic periodicity have shown (*Brit. J. Surg.*, 1938, 26, 113) that in a number of patients the primary or recurrent malignant disease has followed about three weeks after an influenzal attack. In the attempt to collect further instances of this relationship I should be grateful for the help practitioners could afford me by sending me notes from their case-histories or from patients' diaries (1) of the exact dates of recurrent influenzal attacks, and (2) of any instances of malignancy following influenza.

Influenzal periodicity may be studied (1) in epidemics and (2) in individual patients' case-histories. The former has yielded valuable results. Taking the end-of-the-war severe epidemics there were three peaks, in July–August, 1918, in November, 1918, and March, 1919; these illustrate the "half-periods" noted in neoplastic recurrences as possibly due to a double strain; and following each strain in a thirty-three weeks' periodicity we can fit in all the succeeding major and minor epidemics, noting that in the summer months we have similar "missed periods" to those seen often in neoplastic diseases. The present rise was to be expected; the next major epidemics may be expected in February–March of 1939 or 1940, or in February, 1941, or in January, 1942 or 1943, as reference to the table of dates (*loc. cit.* above) shows.

But epidemics from their nature must have considerable variations, and the estimation of the precise periodicity is more likely to be obtained from individual patients' histories: in this way practitioners could render valuable assistance, as more knowledge of the periodicity of influenza would enable accurate predictions to be made of the months when serious epidemics are likely, and patients could take prophylactic measures, with a reduction in both influenzal and cancer mortality.—I am, etc.,

London, W.1, Nov. 5.

J. H. DOUGLAS WEBSTER.

Cure of Colds

SIR,—Dr. J. B. Sherman's article on the prevention of colds (*Journal*, October 29, p. 903) prompts me to mention a method resulting in a quick cure or, one might say, an abortion of a cold. This method might be adopted by surgeons and physicians, and certainly by physiotherapists, for themselves and their families.

The treatment to produce abortion of the cold must be resorted to within the first few hours or at least on the evening of the day on which the cold appears, for then one or two treatments—in my own case one treatment—will result in the drying up of the nasal secretion, the disappearance of the sensation of fullness in the ears, and the vanishing of the husky voice with the production of an almost abnormally dry pharynx. It consists in placing the 6-metre short-wave glass-covered electrodes on each

check: the metal electrode is withdrawn, so as to heat the deep tissues more than the skin, and the treatment is applied for ten to fifteen minutes. If one has a proper fear of a cold one has a treatment twice on the first day and, if necessary, on the following day. Elderly patients—even if one avoids the caloric reaction by applying the same heat to each check—will feel giddy for five minutes following the treatment, and so must sit still after it.

Incidentally this treatment when repeated is excellent for acute sinusitis, and in the case of subacute sinusitis, when the fear of dissolving the toxins in the nose with water has vanished, it can be combined with the use of Lowndes-Yates suction apparatus.—I am, etc.,

Harrogate, Nov. 1.

W. S. THACKER NEVILLE.

Civil Medical Organization in War

SIR,—If we are to judge by the conversation of many of our colleagues in recent weeks the medical profession as a whole is greatly concerned with the organization of medical services in time of war. It may well be that the Government has a practicable scheme prepared, but with the evidence of general muddle in the past few weeks still fresh in our memories we can be forgiven if we continue to harbour misgivings. The history of the A.R.P. Department of the Home Office is hardly such as to instil confidence.

We wish to draw attention to two large issues in the organization of medical services.

1. In the last war in which we were engaged part of the profession joined the Army while the remainder stayed out of uniform and carried out the necessary attendance on the civilian sick. Such a division of labour was natural and reasonable in warfare as conducted in those days. Unfortunately, however, as we are all aware, the technique of war has changed, and the front line which has now to withstand the brunt of the enemy's fury is to be found in the homes of our civilian population—a front line, incidentally, crowded dangerously with millions of people as yet undisciplined to deal with the expected onslaught of bomb, gas, and fire. We therefore feel that the division of the profession into purely military and civilian components is completely artificial, and can only lead to misdirected energy and ultimate chaos of the medical services. This is particularly true of congested urban areas but, as we shall hope to show later, may well apply to rural districts also. If bombing is sufficiently intensive and continued over fairly lengthy periods (and this we may reasonably expect if the bomber is to achieve the end it has in view) hundreds of so-called civilian doctors in the affected areas will for long periods be engaged in nothing less than military practice—that is, for lengthy periods they will be giving whole-time service to the State and yet not be State servants. No matter how we organize first-aid posts, ambulance services, etc., the family doctor will have to devote himself to hundreds of cases of minor surgery in order to relieve hospitals already congested with the more seriously injured. Further, many elderly doctors with surgical experience in suburban areas may be called upon to relieve the overworked full-time surgeons in the hospitals, in which case the purely civil work to which they had been allotted will be completely neglected and their income from it correspondingly reduced.

2. The second point we wish to stress is the medical implications of large-scale evacuation of population into rural areas. We are led to understand that at least three and a half and perhaps five million people will be evacuated from London, and proportionately

large numbers from the East Coast and the industrial Midlands. In such circumstances we do not think we exaggerate when we estimate that at least six million town dwellers will suddenly find themselves herded into the rural districts of England and Wales. The medical problems involved in this immense shift of population are of a type quite different from those we have already considered; but of at least equal importance in the urgency of their solution. This aspect of the problem was referred to by Professor Major Greenwood in his admirable letter in the *Journal* of October 22 (p. 861), and it is unnecessary to labour the matter; it is clear enough, however, that if large numbers of town children accustomed to what may be termed mechanized sanitation—the turning of taps, pressing of switches, and pulling of plugs—are to be suddenly billeted in farms, cottages, and holiday camps, the closest supervision of water and milk supplies and of sanitation will become an urgent necessity. The earth closet properly used may be beyond reproach, but it easily becomes a menace to health.

Rural water supplies, even in these days, are not always above suspicion, and are frequently uncertain in quantity if not in quality. To ensure such adequate supervision the staffs of the public health departments of those rural sanitary authorities into whose areas immigration is to take place will have to be both strengthened and augmented. For in rural areas the M.O.H. is often a busy general practitioner, able to devote relatively little time to health problems and relying mainly on his sanitary inspector; moreover, the combined post of sanitary inspector and surveyor is even yet not unknown. Another obvious problem is that of the movement of populations from infected areas. It requires no expert knowledge and big little imagination to realize the dangers which will arise if the need for evacuation coincides with an epidemic in a district of typhoid, diphtheria, or influenza. It seems that, at the least, plans for mass immunization against typhoid and diphtheria should be in readiness, and more strenuous efforts might well be made during peace time to get children protected against the latter disease if not against the former. The evacuation of the three thousand Spanish refugee children from Bilbao last year showed on a small scale how successful mass inoculation can be in preventing the dissemination of typhoid from an infected group.

But enough has been said to indicate some problems and dangers which will inevitably arise, and we are at least entitled to ask what steps have been or are being taken to meet them. The problems being so immense, and the civilian and military aspects so intermingled, we feel that organized whole-time service for all doctors, whether civil or military, is essential. If such a State service should be introduced we would urge that some form of local autonomy for the profession should be an integral part of the scheme.—We are, etc.,

L. S. FRY.

L. P. GRAY.

London, E 4, Nov. 1.

SIR.—Mr. R. Ogier Ward in his letter (October 29, p. 914) points out that in any future war the number of dead and wounded would run into many thousands every twenty-four hours. If this is a fact, and I believe under modern war conditions it will be so, whether the large towns are evacuated or not, surely surgeons and doctors will find it absolutely impossible to cope with the work they will be called upon to do. In that case would it not be better to throw all the weight of our profession into the prevention of war rather than to prepare for something which is a physical impossibility?—I am, etc.,

Manchester, Oct. 31.

WINIFRED HALL.

Air Raid Precautions

SIR.—As medical officer of health of a county of a thousand square miles whose war-time population will be some three-quarters of a million, living to a great extent amid very important coal, iron and steel, aeroplane, and munition works, I was under the heavy responsibility of organizing the necessary aid for possible air raid casualties. There were conditions imposed which from the first appeared to me to negative the formulation of a successful scheme. I did not hesitate to argue to the utmost of my power against these conditions with the departments concerned, but without effect. Experience during the crisis has convinced me that I cannot leave it at that. I now feel at liberty to express my beliefs and to make my suggestions to the medical profession. It is not my wish to criticize the past; when I mention it I do so only to show that it is necessary to consider suggestions for the future.

I am unable to understand the Home Office argument that the first-aid posts are not for those requiring medical aid, and that anyway there will not be enough doctors to staff them. The people will expect medical as well as first aid at the posts. I believe that the treatment of casualties outside hospitals cannot be left entirely to medically unqualified first-aid volunteers. I believe that medical aid must be available promptly at every first-aid post: without it a tremendous amount of unnecessary work will be thrown on the nearest hospital, which will be all too fully occupied. I believe that medical aid at the posts will provide that feeling of security without which we must anticipate panic not only among the injured but among the first-aid volunteers, most of whom will have had no previous experience of dealing with casualties. As to there not being sufficient doctors to staff the first-aid posts, the Home Office appears to be under the impression that to provide medical aid at first-aid posts would necessitate doctors being stationed there whether the posts are called upon to function or not. That is not my idea.

There is another matter which should receive the fullest consideration of the profession—I refer to the secret compilation of the services that doctors were prepared to render in war time made by the British Medical Association on behalf of the Committee of Imperial Defence. At no time during the crisis, in spite of repeated and urgent requests, were the British Medical Association permitted to divulge that information, without which it was impossible for medical officers of health to arrange casualty services in their areas. The sooner the magnitude of the medical side of air raid precautions is realized the better, for when it is it will also be appreciated that it cannot be efficiently organized as a last-minute panic improvisation.

The solution to the medical problem is to my mind very clear. The problem is to provide medical aid for casualties occurring among a population at least twenty times as great as that at any time seriously exposed to casualties in the last war. Then nobody suggested that the problem could be efficiently met by a service such as is now suggested—namely, an ill-defined, uncertain, voluntary service, almost parochial in character, without rank, uniform, or disciplinary powers. It is essential that we should build on our past experience. What is obviously required is a civilian counterpart of the R.A.M.C. In short, we require a permanent Air Raid Medical Corps. This corps should be built upon the lines of the Territorial Army. It should be a uniformed corps, with rank, local training depots, and equipment, and a similar system of enlistment, pay, and allowances to that of the Territorial Army. As

this corps would be dealing with casualties among women as well as men the corps should have women as well as men in all its ranks. Selection of recruits should be made with care at least equal to that exercised by the Territorial Army, and the corps must have prior call on the services of its members in war time. The services of members could be required over a defined area. The function of the corps in war time would be to provide for the civil population all medical and ancillary services required inside or outside hospitals. Among other things it would provide a nucleus of trained but non-medical first-aid personnel as a standing crew at each post during war time, and would be expected on short call to provide from the local depots what I might describe as surgical flying squads for posts or hospitals. Space will not permit me to go into further details, but I hope I have given enough to make clear what I suggest is required.—I am, etc.,

Derby, Nov. 1.

W. M. ASH.

SIR,—I should like to add my support to what has been said in your columns by Mr. R. Ogier Ward, Dr. Clement Francis, Mr. J. Johnston Abraham, and Lieutenant-Colonel Cyril Helm on this subject.

There is no doubt that had war come at the end of September last it would have found us woefully unprepared. The magnitude of casualties from high explosive bombs in large towns like London would have been enormous, among both the lay and the medical population. This would have meant that the limited supply of doctors would have been grossly overtaxed and their numbers greatly decimated, so that very soon there would not be sufficient to deal with the casualties as they arose. To fill the existing hospitals in London with casualties and staffs of medical people would be the surest way of sacrificing valuable and useful lives that could be and ought to be preserved.

Surely the first thing to aim at is to reduce the number of casualties to a minimum. No doubt the best way to do this would be to deal with the bombing machine effectively. At present no method is known, though Sir Kingsley Wood says he does not despair of this being done. Until this can be accomplished other methods must be found. It seems to me that the most satisfactory way would be the construction of an elaborate system of bomb-proof shelters on a most extensive scale. Carefully planned, this system could act in war time not only as shelters during air raids but as places of safety for casualties, where medical and surgical attention could be given without interference and risk from raiding aircraft. This would not only ensure that the number of casualties would be comparatively small and able to be dealt with without overtaxing the doctors, but it would create a sense of security and avoid panic. Further, by suitable planning the system could be used to relieve the ever-increasing traffic problem—in both peace and war time—for storage and garaging, and no doubt it could be put to many other uses. The cost would be great, but it would not be useless. It would be effective in its aim and would be of permanent use and a good investment from several points of view, besides giving work to many of our large army of unemployed. Further, the cost to the State of the many lives that would be unnecessarily sacrificed under such conditions as exist at present would by contrast be far greater. Hospital cases would have to be transferred to "safe" areas, but by such a system these would be greatly reduced in numbers. A certain amount of evacuation of civilians would probably still be thought desirable, but under these conditions this could be limited and the

necessary disorganization which this entails restricted accordingly.

We have had a breathing space now, and much might be accomplished before an emergency arose. War is terrible enough at any time, especially modern warfare, but we have a right to expect that everything should be done as far as possible to mitigate these terrors and to prevent all unnecessary sacrifice of life.—I am, etc.,

ARTHUR G. WELLS, F.R.C.S.

Medmenham, Bucks, Nov. 1.

SIR,—There are many pitfalls in thinking unimaginatively of another war in terms of the last, for science has not stood still in the last twenty years. No village in England is now remote from the vastly increased load that a modern bomber can carry at 250 m.p.h. over a range of 1,200 miles. A map of the places which suffered from air raids in the last war shows thirty-three in Norfolk. Thus although a purely agricultural county it was certainly in the danger zone. To-day our village is the same eighteen miles from the sea in distance, but only 4 minutes 13 seconds in time. Our one consolation is that bombs cost money, and we do not expect to be honoured deliberately with any "eggs," but an efficient air force with patrols continuously in the air may well expect to make speedy contact with squadrons of enemy raiders, and hope to bring some down. Thus planes loaded with high explosive, incendiary, or gas bombs may crash even in villages.

While admitting that high explosive bombs will be danger No. 1, gas will rank as No. 2. Thanks to the four wars since 1918, we know that deep shelters are an efficient but expensive counter to high explosive bombs on cities; gas, however, has not been tried out to the same extent as it would be in a totalitarian war between nations with first-class chemical industries. Chlorine was effective at Ypres in 1915 even against disciplined troops when it caught them unprepared and unprotected, and was again effective against the Italians when preceded by arsenical smoke, which penetrated their then inefficient respirators, causing them to vomit and discard their protection. We have been told too often that gas holds no terrors for civilian populations if . . . The public have never realized the implications underlying that qualifying "if" and remained blissfully inert until the crisis.

In July, 1918, "mustard" shells caused 8,000 casualties in one night against trained troops with good respirators because it was not detected. Mustard gas would be without doubt the chemical agent of election should another great war occur. Last time the enemy, being conscientious chemists, used it at the front in a pure state, but we now know that it is as effective in the crude state, of which there would be cheaper and unlimited supplies. Mustard gas hampers even trained troops with the necessity for anti-gas clothing and slow laborious decontamination, but against an untrained and unprotected population its insidious persistence and prolonged after-effects would prove demoralizing, and the nation whose civilian morale cracks first is the loser. Yet Lieutenant-Colonel Cyril Helm (*Journal*, October 29, p. 915) would provide the cities with their admittedly essential bombproof shelters at the expense of village gas-masks! Living as I do in a "remote" village some four minutes from the danger zone, I am thankful indeed that he is not a dictator, although the completeness of our bucolic precautions in the crisis would have surprised many a slumbering city father.—I am, etc.,

Litcham, Norfolk, Oct. 30.

ERIC PUDDY.

A.R.P. and Underground Car Parks for London

SIR,—By extrapolating a graph curve of the numerical increase in recent years of private cars in Great Britain we can obtain ample evidence that unless measures are taken to restrict the daily flow of such vehicles into and out of the metropolitan area the already serious traffic congestion will shortly end in a literal impasse. If private cars on strictly official or trade business or owned by bona fide residents of London were alone allowed inside, and all cars whose occupants were concerned solely with shopping, visiting, theatres, dining, etc., were compelled to be parked outside, say, a six- to eight-mile radius from the Marble Arch, we should not be threatened with an alarming increase of the already existing difficulties of traffic organization. To accommodate prohibited cars commodious underground parking sites would have to be constructed on the principal radiating routes that link up the metropolis with outlying provinces.

The cost of making such parks would admittedly be high, but there would ensue a good return for the initial outlay and cost of upkeep not only financially but in other and more important ways, such as from (1) parking fees and (2) work for the unemployed. The parks, being below ground and well protected overhead, would provide excellent clearing stations for wounded and shelters for thousands of residents evacuating London in the event of air raids. The A.R.P. authorities would have at their disposal and within easy access safe, well lighted and ventilated localities equipped with sanitary arrangements, water supply, and so forth. Adoption of such measures would defeat the disadvantages of a sudden incursion of large numbers of adults and children into country villages with inadequate housing and drainage facilities, and in which neither water nor food supply is capable of meeting the demands of a great number of suddenly introduced extra mouths.—I am, etc.,

CHARLES M. BEADNELL,
Surgeon Rear-Admiral.

Egham, Surrey, Nov. 4.

Food and Nutrition

SIR,—Your leading article in the *Journal* of October 29 (p. 895) on the subject of Crawford and Broadley's book, *The People's Food*, while affording an excellent summary of contents, does not avail itself of the opportunity of supplying a critical estimate. For instance, a general remark could have been made on the sparse treatment of the case of the group who do not spend enough to obtain an adequate diet, an occurrence not to be wholly excused on the grounds of the "advertising" basis of the inquiry, while it could have been pointed out, as was done recently in a review in the *Journal* of another statistical publication, that when one has read the book the addition to one's knowledge is mainly a matter of detail. In fact, in regard to this latter point, the main thesis of the book, relative to the existence of ignorance on dietary subjects and the necessity for education in this respect, has been stressed for years by several writers—for example, Cathcart in the *Journal* of February 27, 1937 (p. 436).

As in other investigations of the same type, there occur here the usual fallacies due to the essential unreliability of the dietary standards, with their blind "shots in the dark" in many instances, or additions, according to taste, opinion, or mere guesswork, to ascertained metabolic requirements, where these exist. The addition of infinitesimally small amounts of certain substances may raise by astronomical figures the numbers in the population alleged to be suffering

from malnutrition, as is well instanced in the table on p. 158 with reference to vitamin A, where the whole population turns out to be undernourished. Failure to include a supply of vitamin D in the dietaries renders the figures for calcium and phosphorus requirements suspect. In the forming of such dietaries the Law of Diminishing Return should receive consideration, and the principle of aiming at accuracy of technique in experimental work only up to the standard of the largest unavoidable experimental error cannot be neglected. The latter canon, adapted to the nutritional sphere, implies that anti-nutritional factors other than of the alimentation variety, some of them of considerable magnitude, little known, and to a marked degree uncontrollable, may swamp not only the terminal fine adjustments in the alimentation field, which, owing to the Law of Diminishing Return, produce proportionately less effect than earlier additions, but even these earlier additions themselves.

While not underestimating the importance of "ignorance" and "education" in the present case—indeed on the contrary—one must point out that "the most urgent problem of all at the present time" would not appear to be, as the authors state on p. 301, "the severely practical task of educating the people of this country in the importance of proper diet," but rather that of supplying an adequate diet to those who have not the means available to procure it.

The main thesis of the authors is stated on p. 161. In all probability, they say, between 20 and 30 million individuals in the population are subsisting on an inadequate diet. Of these, 8 millions are not spending enough to procure it. This leaves, by difference, 12 to 22 millions who, though spending enough on food, are not obtaining an adequate diet. The problem with regard to this latter group, they state, is one for "education"—a difficult matter, as they point out on p. 86, owing to the "lack by the population at large of any spontaneous interest in dietetic subjects."

It is a relatively straightforward matter to obtain statistics regarding the proportion of the population who, while spending sufficient for the purpose, do not obtain an adequate diet, to draw the obvious conclusion that "ignorance" is responsible, and to indicate that "education" is the remedy. Where not enough money is spent to obtain an adequate diet the situation is different. Here three factors—"lack of money," "ignorance," and "luxury purchase"—are involved. The present investigation, though supplying figures for this group as a whole, gives no indication as regards the respective responsibility of these three items within the group. I admit that the procuring of reliable information on this point, since it involves among other things oblique personal criticism, is a difficult matter, as may be instanced by Dr. Neustatter's cautious approach to the subject (*Supplement*, October 1, p. 223).

Suppose, however, that in some way it has been obtained. It is not apparent what general scheme could be framed on it as a basis for ameliorating the situation. "Ignorance," of course, can be met by educative measures, but owing to their inherent basic difference no single plan could at once apply to the "lack of means" and the "luxury-purchasing" categories. In addition, in the actual application of the hypothetical remedy inquiry would be necessary to establish the right of individual cases to partake of the benefits; and this inquiry could be made, once for all, at the outset for the purpose of applying what appears to be the real remedy.

Such considerations go to show the futility of *ad hoc* dietary surveys in this sphere. The fallacy involved in applying statistical laws to individual cases requires no emphasis. In the present instance the application of a national, average, "per caput" cost figure for a dietary to a certain social class or to individual cases from families of varying family composition is entirely without warrant; the climax is reached when it is applied to cases where such psychological factors as "ignorance" and "luxury-purchase" are in evidence. The situation is an individualistic and intensely personal one to which statistical methods are inapplicable. A "locality" factor (reflecting to a considerable degree middleman's costs and profits) is also involved, for owing to varying costs in different districts (vide Dr. Neustatter's price table for

Bermondsey) no general or national average figure for the cost of a dietary in any one social class can be applied to this same class in a district or subdistrict chosen at random.

The only justifiable procedure in the circumstances would appear to be the obvious one. Relevant information regarding income, etc., and local dietary costs having been obtained in regard to an individual presumed to be in need of help towards obtaining an adequate diet, the data are available for deciding whether the individual in question should receive it on the grounds of actual lack of money. If so, it would appear that appropriate action should be taken on the spot not only on humanitarian grounds but also—if the position is accepted that private personal affairs are a public concern to the extent of justifying an inquiry—in order that the work done in carrying out this invidious task (which incidentally a promise of "relief" would render less arduous) should not be wasted. Such cases, indeed, constitute merely a special subsection of unemployment benefit and public assistance—special in the sense that particular care has to be taken that assistance is necessary because of actual lack of money and that, when afforded, it arrives at its true destination.

The details of how such a scheme could be made to function in practice have already been indicated in outline in a previous letter (*Journal*, June 30, p. 257). It is obvious also that in carrying it out data much more reliable than could otherwise be obtained might be collected, which data would have reference not only to alimentation in regard to the state of nutrition but also to other even more important factors having a bearing on it, if such an undertaking did not prove to be too intricately complicated and impracticable.—I am, etc.,

Aberdeen, Oct. 31.

J. P. MCGOWAN.

Safe Childbirth

SIR,—In my book, *Safe Childbirth: The Three Essentials*, I have pointed out that easy labour depends not only on a well-shaped pelvis but also on flexible pelvic joints, and that such flexibility can be attained by correct exercises practised during pregnancy so that the pelvis may expand at the joints (sacro-iliac and pubic symphysis) during the act of birth. For this to occur those postures should be advocated which are adopted instinctively by most women if left to do as they like at the time of confinement—squatting, crouching, kneeling. So far in England I have not found a maternity hospital where I can have patients trained in the correct exercises and postures and confined in the posture best suited to them. To confine crouching a woman whose joints are rigid and whose pelvic floor is contracted is to court disaster—though I find that patients whose joints are flexible (whether naturally or after appropriate exercises) have easier and quicker confinements even if not allowed to assume the postures I advocate for delivery.

My conviction is that neither doctor nor midwife is to blame for our maternal mortality rates, but the mother herself, who must be taught she is an active agent, not a passive sufferer. She must regard herself as an athlete in need of training for her special job, not a poor invalid who must lie down and have the sympathy and prayers of all lest she die of it. Sister Randell of St. Thomas's, with her thirty years' experience, has developed in accordance with this idea a series of suitable ante-natal exercises to increase this natural mobility of the pelvic joints, with other exercises, of an opposite character, to be done during the puerperium to strengthen those muscles which draw

the component parts of the pelvis together. It was necessary to find out what postures seemed most agreeable and natural to the patients during labour. To this end Miss Randell provided the patients with paper and pencil to record their impressions. We have secured some valuable information from this source alone, outstanding being the fact that the posture on back or side was most painful and never willingly assumed. Patients prepared on these lines have easy confinements and regain their normal figure almost at once, as photographs show.—I am, etc.,

London, W.1, Nov. 5.

KATHLEEN VAUGHAN.

Undulant Fever

SIR,—A report of another case of *Brucella abortus* infection may be of interest.

On November 11, 1937, I was called to see a male, aged 32, who gave me a history of having felt sleepy in the afternoons and evenings for a period of about ten days, and, in fact, of having dropped off to sleep while reading the paper on returning from his office. He complained of violent headache and vomiting; his temperature was 102.2° F., his pulse and respiratory rates were correspondingly raised, and his tongue was slightly furred. Clinically I could find no cause for his condition, and made a provisional diagnosis of gastro-intestinal influenza. I treated him symptomatically, prescribing a fluid diet with phenacetin, caffeine, and bismuth carbonate. On the following day his headache and vomiting had ceased and his temperature had dropped to 100° F. After five days his temperature was between 98.4° and 99° F. in the mornings and between 99° and 100° F. in the evenings. The patient said he felt quite well and wanted to get up; this, of course, I refused to allow. At the end of twelve days, on November 23, I observed a few spots—perhaps eight—vaguely resembling rose spots, on the thorax and abdomen. The temperature was still between 99° and 100° F. from 6 p.m. to 10 p.m., but was normal at all other times; the tongue was still slightly furred. I thought of the possibility of one of the enteric group of fevers or undulant fever, and took some blood; the following is a copy of the pathologist's report:

"Negative for *B. typhosus* in dilutions of 1:10, 1:25, 1:50, 1:100, and 1:250. Negative results also obtained for *B. paratyphosus* strains A and B in similar dilutions. With *Brucella abortus* agglutination takes place in dilutions of 1:50, 1:100, 1:500, and 1:1,000, but dilutions of 1:2,500 and 1:5,000 remain negative."

I then tried protein shock therapy with T.A.B. vaccine. The intravenous injection was given at 10 a.m., and by 10 p.m. on the same day the temperature had risen to 105° F. and the pulse rate to 104. The patient was feeling sick, had a violent headache, and was sweating profusely. Next morning his temperature was 97.2° F.; it remained subnormal for two days, then became normal.

The patient made an uninterrupted recovery. He has not suffered any recurrence or relapse although nearly a year has elapsed.—I am, etc.,

J. A. KENNETH DOUGLAS.

Neyland, Pembrokeshire, Nov. 2.

The international committee for instruction and action as regards the protection of the civilian community in time of war, which was set up at Luxembourg on July 4, met on October 28 at the Grand-Ducal Palace, and considered first its three-monthly review, *The Protection of the Civil Population in War*, the first number of which has already been published in Paris. Subcommittees have been constituted to deal with propaganda, diplomacy, military matters, medical treatment, legal questions, civilian defence, and protection of women; the activities of these subcommittees are beginning at once. The next meeting of the international committee will be held in Luxembourg next January.

Medical Notes in Parliament

Civilian Defence

Speaking on November 1 on the appointment of Sir John Anderson the Prime Minister said he would in fact be the Minister for Civilian Defence. He would have charge of air raid precautions and also be responsible for determining arrangements for national voluntary service. Mr. Chamberlain added that the Ministry of Health was in close touch with local authorities, and was responsible for the medical services, including nursing and ambulance provision. Other Departments concerned included the Board of Education, which must marshal children in case of evacuation. It was necessary that the activities of all the different Departments should be co-ordinated, so that each might know beforehand exactly what would be expected of them in an emergency.

On November 1 Mr. Lloyd informed Mr. Simmonds that action had already been taken, on the report of the Anderson Committee on Evacuation, both in the light of the recommendations in the report and of the experience gained during the recent emergency, to examine and prepare in detail evacuation schemes. Steps had been taken before the recent emergency to have ready schemes such as could be operated at once if there were no time for lengthy preparation. Information was given in the Press about such a scheme which had been prepared for London. It was, however, fully recognized that with time for preparation much could be done to improve such schemes, and the detailed work necessary for this purpose was in progress.

The King's Speech

The speech from the Throne outlining the programme of business for Parliament in the new Session was read by His Majesty the King in the House of Lords on November 8. In the course of it the following declarations were made:

The problems of civil defence, including that of the effective utilization of the resources of the nation for national voluntary service, will in future receive the undivided attention of a Minister—the Lord Privy Seal.

My Government will press forward with better housing, both urban and rural, and will proceed with the development of the educational services. They will vigorously continue the campaign for the improvement of the public health, and in particular will submit to you proposals for the earlier and more effective treatment of cancer.

The policy of My Government will continue to be directed to improving conditions in the special areas.

A Bill will be laid before you to amend the penal law dealing, in particular, with young offenders and those who commit repeated offences.

Measures will be laid before you to assist the production, improve the quality, and increase the consumption of milk.

Among the measures which you will be invited to pass will be Bills to amend the law relating to the carrying on of the business of insurance; to amend the Unemployment Insurance Acts; and to raise the amount of the Miners' Welfare Levy, in order to provide additional funds for the building of pithead baths.

A Bill will be submitted to you for the purpose of re-organizing Scottish administration, and centralizing the Government Departments in Edinburgh. Further action will be taken to deal with slums and overcrowding in Scotland, and a measure relating to the financial provision for this purpose will be submitted to you. You will also be invited to consider other Scottish measures, including a Bill for the amendment of the marriage law.

Debate on the King's Speech

During the debate in the House of Lords on November 8 on the motion for an address in reply to the King's Speech Lord STANHOPE gave an assurance that there was no intention on the part of the Government to curtail the social services of the country. He pointed out that in the King's Speech there was a reference to an effort which would be made to deal with cancer, a disease which had replaced tuberculosis as the greatest scourge afflicting mankind. Its seriousness could be gauged from the fact that, according to his information, cancer was responsible for no fewer than 200 deaths a day.

The debate on the address was adjourned until November 10.

IN THE HOUSE OF COMMONS

In the House of Commons, on November 8, the motion for an address of thanks in reply to the King's Speech was moved by Mr. Hely-Hutchinson and seconded by Mr. Markham. Mr. MARKHAM said he was glad to notice the reference to the Government's determination to eradicate cancer. This addition to the social services would be cordially welcomed in all parts of the House. The more effective treatment of cancer could not be carried out by the existing voluntary hospital system, and they would all like to see the most up-to-date methods, in co-operation with the local authorities, to set up adequate staffs and centres for the treatment of this great scourge. More than that, however, the great thing was to eliminate the ignorance, inertia, and fear which were the greatest allies of cancer in this country.

Mr. ATILEE complained that there was nothing in the King's Speech with regard to the social services, that there was no mention of unemployment, and that the Government was equally vague on the question of the special areas. Nothing was said about the condition of the people nor about old age pensions. The Labour Party considered that the foundation of the national strength was in the condition of the people, and that a sound policy of nutrition was a basis of strength; and that that could not be obtained through a means test. The Labour Party welcomed the proposals for the reform of the penal system, the proposals to deal with cancer, and those relating to pithead baths.

GOVERNMENT REPLY

Mr. CHAMBERLAIN said that the Minister of Civilian Defence (the Lord Privy Seal) would give his prompt and undivided attention among other subjects to the evacuation of the civil populations from certain places in times of emergency. The second point which would occupy the Minister's attention would be the provision of adequate shelter accommodation in vulnerable areas. On the subject of national voluntary service a good deal of preliminary planning had been done for the mobilization of the nation's man power, and the Minister would accordingly find a considerable amount of material ready to his hand when he came to formulate his plans under that head.

NO REDUCTION IN SOCIAL SERVICES

With regard to the social services, it was not to be expected that we could at once and at the same time embark on an enormous armament programme, the whole cost of which we were not yet in a position to estimate, and face projects of social improvements which would lay on the taxpayers fresh and impossible burdens. There was no foundation for any suggestion that the Government was contemplating cuts in the existing social services. Nothing that had been said by any Minister gave any foundation for such an accusation, and, as the King's Speech showed, the Government was still making further extensions of the social services. The provisions for public health, the work of housing, and the clearing of slums and providing for overcrowding still went on vigorously. A new proposal mentioned in the King's Speech for making a frontal attack on that perhaps most frightening of all diseases, cancer, would,

he knew, have the approval of all parts of the House. Mr. Attlee had mentioned nutrition, and had spoken as though, because the word did not appear in the King's Speech, it must necessarily be absent from the minds of the Government. It had been in his own mind for many years since a conversation which he had, when he was Minister of Health, with the late Sir Walter Fletcher, who had said to him that by a comparatively small expenditure on teaching people how to feed themselves and their families we could do more to improve the health and physique of the nation even than by the greater efforts which were then being made at the Ministry of Health to improve housing conditions. That statement was so striking that it made a very deep impression on his mind, and as a matter of fact the Minister of Health to-day was engaged on the most far-reaching and comprehensive inquiry into the food habits of the people that had ever been made in this or any other country. Everybody would agree that the more information they had about this subject the better, in order that when they did proceed they might be building on solid ground and be certain they were proceeding on right lines. Referring to agriculture, Mr. Chamberlain said that the most important measure and one of the earliest to be introduced would be the new Milk Bill. The main principle of the Bill was to encourage the consumption of liquid milk, alike in the interests of the farmer and of national health.

The debate was adjourned.

Civil Population in Air Attack

On November 3 Mr. HERRERT MORRISON opened a debate on protection of the civil population in air attack. He said that during the crisis there was a deficiency in the number of gas masks in some localities and some masks were delivered short of vital parts; there were mental hospitals under the care of the London County Council which had not received gas masks to this day. On the subject of hospitals Mr. Morrison said the authorities had to anticipate casualties on a large scale. It was essential that the hospitals organized locally and centrally should trace the movements of the patient from the time he might be damaged in the street, to the first-aid centre, then through the casualty hospital to the base hospital. Ambulances and stretchers were needed. This business was nowhere more vital than in London with its numerous local authorities and hospital authorities. Since 1930 there had been five different inquiries on this subject. Four of these ended without reaching conclusions; finally came a report of the Wilson Committee presented on July 20, 1938. The crisis came in September, and there was no time to finish the plan for the organization of the hospitals. Supreme direction was then undertaken by the Ministry of Health. Fortunately, the London County Council was reasonably prepared and ready with medical reserves and food reserves. In structural precautions in hospitals the council, like other authorities, was not so well prepared, because technical advice was not supplied by the Home Office until June 17, 1938. The story was the same with ambulances. No additional stretchers had been received when the crisis was acute. To supply them was a Government responsibility, and when, under pressure from the London County Council, the Ministry of Health assumed general ambulance responsibility a supply of 4,000 was secured by the end of the crisis week. After the Ministry of Health had taken that responsibility from the Home Office, it issued a circular on September 23 instructing the Metropolitan Borough Councils to earmark ambulances, although it should have known that ambulance organization was the duty of the London County Council under the Air Raid Precautions Act and under the regulations made by the Secretary of State. The boroughs were responsible for first-aid stations, which ought to have been under the Ministry of Health. These were short of medical supplies and of stretchers.

Sir SAMUEL HOARE replied for the Home Office, and pointed out that local authorities had been slow in acting upon Home Office circulars about the reception and distribution of respirators. Eventually the Home Office had to act on its

own initiative, and within a few days over 38,000,000 were distributed.

Mr. R. C. MORRISON said the Ministry of Health was not helpful during the crisis. The local hospitals had no advice or information at all. The voluntary hospital in his constituency (Tottenham, North) was unable to inform the local authority whether it was to be regarded as a base hospital for air raid precautions. The Home Office in the middle of the crisis instructed local authorities that they should distribute to every house in the United Kingdom a booklet principally occupied with information on how to make rooms gas-proof. On the day that booklet was distributed a conference was held at the Ministry of Health, and representatives of voluntary hospitals were there told that "as regards gas-proofing, gas is no longer considered to be a major risk, and it is not thought that any special precautions should be taken."

Sir JOHN ANDERSON, speaking for the first time as Minister responsible for Air Raid Defence, said the question of how to fit in the local authorities would have to be looked at afresh in the light of recent experience.

LONDON VOLUNTARY HOSPITALS DURING THE CRISIS

Colonel NATHAN said he had asked question after question in the House on what was expected of voluntary hospitals, but no information was forthcoming. He was concerned with two voluntary hospitals. One was a special hospital and the other was a great teaching hospital. Both were within the danger area. The special hospital was the Infants Hospital in Vincent Square, and the teaching hospital was Westminster Hospital, where he was chairman of the committee charged with air raid precautions. For months efforts were made to discover what the hospitals were expected to do with their patients, their staffs, and their buildings; what would be their functions in the case of air raids; and where the expense would fall. To none of these inquiries was any answer forthcoming. Only on the day when the Prime Minister's journey to Berchtesgaden was announced were the first steps taken. A meeting of representatives of the teaching hospitals was suddenly summoned at the Ministry of Health, and the Director-General stated that the hospitals emergency service had just been created. Colonel Nathan interposed the remark that Colonel Hebb, Director-General of this emergency system, assisted in the London area by Dr. Dobbie on the London County Council, from that moment gave unstinted service and was of the utmost help. He said the statement made at the meeting in the Ministry was: "Gentlemen, this emergency hospital service has just been created. You must expect bombs to fall on London at any moment. Do the best you can."

No written instruction was ever issued from beginning to end. They were told they must evacuate their hospitals. When they asked how, they were told that ambulances would be provided but that arrangements had only that day been made for conversion of rolling stock and road transports to take stretcher cases and that the services would not be available for three weeks. They were told to increase the amount of hospital accommodation by 30 or 50 per cent., but not a blanket, mattress, or a bedstead had been ordered. When the Ministry of Health was asked what they were going to do they said they were going to commandeer blankets and bedsteads from Harrods, Selfridges, and elsewhere. It was unforgivable that no steps of any kind had been taken, because every casualty resulting from air raids would have to be treated in some hospital. They were told to provide emergency stores, but at the same time that they were asked as voluntary organizations to do all these things they were told that if there was no war the Government would not pay anything for them. They were to make these arrangements at the expense of charitable funds, and if there was a war some unspecified contribution would be made from Government sources.

The two hospitals for which he spoke were, within a week of the first instructions, to inform the Ministry of Health that they were ready to take emergency cases to an extent greater by 50 per cent. than their ordinary accommodation. They acted upon their own initiative and sought no Treasury consent. They had many difficulties. The Home Office was

unable to provide a sufficiency of gas masks, not only masks for patients but duty masks for the staffs. His interpretation of the Government instructions on gas protection in hospitals was that in a hospital, with the constant traffic of patients in and out, it was impracticable to have complete gas protection. They were advised that special accommodation and gas-proof rooms should be made for cardiac and other chest cases and for the protection of food. They were told that there would be officers from the local mortuary who would deal with the dead. When they asked the local authorities what arrangements they had made for the dead, the reply was that the authorities had no instructions and no information, and no intention, unless instructed, of dealing with the situation. That was an instance of the lack of co-ordination between Government Departments and between the central and local governments.

As regards the special hospital in Vincent Square, originally it was to be a Grade "A" hospital for infants; later, after they were fully equipped to deal with children who might be injured, they were told that this Infants Hospital was to be transformed at once into an adult casualty clearing station. They set about the change, and in a week the hospital was ready to receive, instead of 100 infants, 175 adults. He informed the Ministry of Health that the hospital had operating instruments only for infants and no surgical instruments for adults. He asked where they could get the latter, and how the expense would be borne. The Ministry said it had no instruments and could not help the hospital to get them, and that if the hospital bought them they would not get any grant from the State if there was no war. Thus the hospital was asked to take the whole of the risk, and it took it.

Then there was the question whether men and women should be treated in the same hospital. This was not simple when dealing with casualties resulting from air raids, which would be either gas or surgical casualties. In the ordinary way men went to the men's wards and women to the women's wards, but in a casualty clearing station, with a constant flow of casualties coming in and going out to the base hospitals, that could not be done, and both would have to remain for a time in the out-patient department. The Home Office said that men and women would have to be separated, but he doubted whether this was practicable in the same hospital. Another point was how were casualties to be directed to the various hospitals. It was essential that first-aid stations and hospitals should be under the same general and central direction and administration. It had so far been arranged, on the whole, that no medical officer should be attached to first-aid stations, whereas it was imperative that there should be a medical man in charge of each. It would be impossible for the hospitals to cope with the inrush of casualties unless these had first been sorted into the more and the less serious cases by some responsible person. He hoped to have an opportunity of discussing with the Minister some of the difficulties with which hospitals were confronted.

Mr. Herbert Morrison's motion was defeated by 355 to 130 and an amendment was carried which, while taking note of existing deficiencies in the system of civilian defence, welcomed the decision of the Government to entrust the system to a Minister appointed for that purpose and to complete with the utmost speed the measures necessary to provide for the country's need. This amendment was carried without a division.

Answering, on November 3, questions about air raid precautions, Mr. GEOFFREY LLOYD said contracts for the manufacture of 45,000,000 civilian respirators had been made. Approximately 4,000,000 civilian respirators had been issued to the metropolitan boroughs and the city of London, and had been distributed to the public. The instructions issued by this country about methods of protection against gas remained unaltered.

Undulant Fever in Great Britain

Mr. W. S. LIDDALL asked on November 3 the number of human cases of undulant fever arising in Great Britain attributable to bovine infection through milk or meat in each

of the past ten years, and what measures were taken to reduce the risk of human infection by the group of *Brucella* organisms. Dr. ELLIOT, in reply, said undulant fever was not a generally notifiable disease and statistics of its incidence were not available. Estimates had been made by responsible investigators that there might be some 400 or 500 cases per annum in this country. The importance of all measures to ensure the cleanliness and safety of milk in order to avoid risk from this and other milk-borne diseases had frequently been emphasized by the Ministry of Health. Considerable progress in this matter had been made. He had no information to suggest that meat was a source of human infection with this disease.

On the same day Mr. LIDDALL asked what proportion of tested milch cows in Great Britain showed evidence of *Brucella* infection as manifested by agglutination blood tests. Mr. W. S. MORRISON replied that no statistics were available on the proportion of milch cows submitted to the agglutination test which reacted, but the general view was that about 40 per cent. of dairy cows were infected. Where at a routine clinical inspection of a dairy herd, or at a special inspection made following a report from a local authority that suspicion attached to certain milk, a milch cow was found by a veterinary inspector showing clinical signs of the disease, the sale of the milk of such animal was prohibited by Section 5 of the Milk and Dairies (Consolidation) Act, 1915. The problem of contagious abortion in cattle had been under investigation at a number of institutions under the aegis of a committee of the Agricultural Research Council appointed in consultation with the Medical Research Council.

Insurance Practitioners in England and Wales.—On January 1, 1937, 16,812 medical practitioners in England and Wales were under agreement with insurance committees. The total amount paid them from national health insurance funds in respect of the year 1937 was £8,050,108.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

A. M. Barrett, M.B., B.Ch., of Pembroke College has been appointed University Demonstrator in Pathology for three years from October 1, 1938.

At a Congregation held on November 4 the following medical degrees were conferred:

M.D.—L. Foulds, D. W. C. Gawne, G. Rocyn-Jones.
M.B., B.Chir.—*T. J. Fairbank, *G. H. Baines, *T. L. Barbour,
*R. I. C. Bradford, H. W. Adeney.
M.B.—*G. Williams.

The degree of M.A. was conferred on G. D. Channell and F. W. Smith, University Demonstrators in Anatomy.

* By proxy.

UNIVERSITY OF LONDON

Ian M. Macgregor has qualified to receive the Academic Post-graduate Diploma in Public Health.

The Senate on October 19 awarded the degree of Ph.D. in Hygiene and Public Health (non-clinical) to S. Mukhopadhyay.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN

The following scholarships have been awarded for 1938-9:
Sir Owen Roberts Memorial Scholarship: Miss M. V. Teichmann. *A. M. Bird Postgraduate Scholarship in Pathology*: Miss N. T. F. Crowley. *Mabel Webb and A. M. Bird Research Scholarship*: Miss M. V. Sudds.

Lectures

A course of three lectures on "The Pathogenic Trypanosomes of Africa and the Tsetse Flies (*Glossina*) that Convey Them" will be given at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., by Dr. H. Lyndhurst Duke on Tuesday, Wednesday, and Thursday, November 15, 16, and 17, at 5.30 p.m. At the first lecture

the chair will be taken by Dr. C. M. Wenyon, F.R.S., director-in-chief of the Wellcome Bureau of Scientific Research. The lectures, which will be illustrated, are addressed to students of the University and to others interested in the subject. Admission is free, without ticket.

Studentship

Applications are invited for the Geoffrey E. Duveen Traveling Studentship, of the value of £450, for research in any aspect of oto-rhino-laryngology. The studentship is normally tenable in the first instance for one year, part of which shall be spent in study abroad, in accordance with a scheme to be approved by the Studentship Board, but it may be extended for six months or for one or two years, and during the extended period the student may be allowed to undertake research at the Royal Ear Hospital or some other laboratory approved for the purpose. Full particulars can be obtained from the Academic Registrar, University of London, W.C.1, and prescribed forms of application must reach him not later than December 31.

UNIVERSITY OF LIVERPOOL

At a meeting of the University Council, held on November 1, C. V. Harrison, M.D., first assistant in morbid anatomy at the British Postgraduate Medical School, was appointed Senior Lecturer in Pathology from January 1, 1939, in place of Dr. T. F. Hewer, who has been appointed to the Chair of Pathology in the University of Bristol.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At the quarterly comitia of the Royal College of Physicians of London, held on October 27, with the President, Dr. Robert Hutchison, in the chair, Dr. C. M. Hinds Howell, Dr. A. C. D. Firth, Dr. F. E. Tylecote, and Dr. Bernard Hart were elected councillors.

The following Fellows were elected representatives of the College: Dr. H. L. Tidy on the committee of management of the Conjoint Board; Sir Comyns Berkeley on the council of the Central Midwives Board; Dr. John Hay on the court of governors of the University of Liverpool; Sir Stanley Woodward on the Central Council for District Nursing; Sir Arthur MacNalty on the executive committee of the Imperial Cancer Research Fund; and Dr. R. D. Gillespie at the conference of the National Council for Mental Hygiene, January, 1939.

The President announced that Dr. R. E. Smith had been appointed Milroy Lecturer for 1940, his subject to be "Acute Infectious Diseases at School"; that the Jenks Memorial Scholarship had been awarded to John Vesey Aveling, late of Epom College; and that the first awards of the Linares Scholarships, recently instituted by the College, had been made to G. M. Scott and T. Stapleton, late of King's School, Canterbury.

Membership

The following candidates, having satisfied the Censors' Board, were admitted Members of the College:

Margaret Ball, M.D.Camb., R. Bolton, M.B., W. G. Brander, M.B.Camb., D. G. Freshwater, M.B.Camb., D. M. T. Gardner, B.M.Oxf., M. Gelfand, M.B. Capetown, F. T. Grey, M.B.Sydney, J. D. Hardy, M.D.Belf., B. G. Haynes, M.B.Sydney, H. B. Hunt, M.D.Birm., N. F. Lilawala, M.B.Bomb., J. D. Robertson, M.D. St. And., M. Sarwar, M.B.Punjab, S. R. F. Whitaker, M.B.Camb.

Licences

Licences to practise were conferred upon the following 139 candidates (including twenty-three women) who have passed the final examination in medicine, surgery, and midwifery of the Conjoint Board, and have complied with the necessary by-laws:

D. C. Arnott, Gladys M. Auchinleck, H. B. Austin, J. C. Ballantyne, A. M. Bennett, W. M. Bennett, E. S. Binns, M. W. Bird, A. N. Blades, F. A. Boggiano, T. W. Branch, Mary Brandon-Jones, R. T. Brooks, D. C. Brown, P. A. K. Brownlee, J. F. Buckmaster, J. A. Burnett, K. C. Burrow, A. Caplin, Phoebe Charlton, P. S. Cheshire, M. M. R. Clarke, A. Conachy, W. H. R. Cook, Patricia G. Cooper, C. C. Coplans, A. W. J. Craft, C. McK. Craig, E. J. Davis, W. W. Deane, Ursula M. Dick, B. Donnelly, M. N. S. Duncan, A. R. P. Ellis, C. J. Evans, G. M. Evans, R. W. Evans, Margery Feachem, T. Fenwick, E. L. V. Fitch, D. S. Foster, J. B. Franklin, Beryl M. Gee, R. C. R. Gethen, Janet D. Gimston, T. Griffiths, Hilda B. Grinyer, H. Haggag, N. J. Haggan, N. H. Halper, P. J. Hardie, R. F. E. Harrington, J. W. S. Harvey, R. J. Healey, R. D. Hearn, F. D. Hindmarsh, E. R. Hodgson Todd, R. O. Holland, J. G. S. Holman, Doris I. E. Huband, E. G. Hudson, J. P. W. Hughes, R. D. S. Jack, H. Jackson, Beryl M. Jagger, J. D. James, J. James, D. H. Jones, D. R. M. Jones, D. H. Jones, M. E. Jones, Ruth

Jones, T. R. Jones, W. A. D. Jones-Roberts, J. B. Joyce, H. G. Kattenberg, F. K. Khosrawy, Isabella R. Kratt, G. L. Lambert, L. A. Lavenhall, G. J. Laws, Mary I. Leasor, K. N. Lloyd, S. C. MacPherson, W. M. Maidlow, G. L. Manson, F. J. C. Matthews, R. Maycock, T. Mendelsohn, Caroline Milne, N. E. Monteuuis, Christina O. Moody, G. O. M. Neatby, Sylvia D. Orchard, T. W. B. Osborn, Pearl Pearlman, H. W. Peck, J. F. Perreides, H. C. Perry, Blanche Phillips, R. K. Pilcher, F. Prescott, R. F. Pusey, S. F. Raistrick, A. E. Rampling, H. N. Rees, L. M. Reid, Nora Reid, A. M. O. Richardson, S. Roberts, S. V. Rush, J. Scholesfield, C. A. R. Schulerberg, Ida B. S. Scudder, C. C. Shaw, P. Shemill, L. G. P. Shiers, M. M. Shrinagesh, Margaret E. M. Slater, H. S. C. Smith, E. F. G. Stewart, T. L. Stote, H. Stott, W. J. Street, M. Taylor, K. R. Thomas, M. R. Tomlinson, J. D. Wade, R. T. Warren, E. H. S. Weston, F. B. B. Weston, J. B. Wheelwright, J. Whitehead, Gladys E. Wiese, A. A. Williams, G. H. T. Williams, W. W. Wilson, R. L. Witney, J. Zigmund.

Diplomas

Diplomas were granted, jointly with the Royal College of Surgeons of England, to the following candidates:

DIPLOMA IN PUBLIC HEALTH.—B. Adak, Joan Butterworth, M. A. K. Durani, A. B. R. Finn, Lorna M. A. Goulden-Bach, R. D. Gray, A. B. Guild, F. C. Hilton-Sergeant, C. W. C. Karran, H. D. Palmer, H. R. Rishworth, H. L. Seile, H. K. Shahani.

Diplomas in Child Health were granted to the thirty-four candidates whose names were included in the report of the meeting of the Council of the Royal College of Surgeons of England in the *Journal* of October 22 (p. 870).

Dr. Morley Fletcher left England on October 28 for Australia, where he will act as representative of the Royal College of Physicians of London at the opening of the Royal Australasian College of Physicians. The Royal College of Physicians of London is presenting an illuminated address and a replica of its silver wand or caduceus, which was presented to the College by Caius in 1556.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The annual meeting of Fellows and Members will be held at the College in Lincoln's Inn Fields on Thursday, November 17, at 4 p.m., when a report from the Council will be laid before the meeting. Fellows and Members can obtain copies of the report on application to the secretary, and can have their names placed on the list of those to whom it is sent annually. A copy of the agenda will be issued to any Fellow or Member who may apply for one.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At the quarterly meeting of the Council, held on October 29, with the President, Sir Even Maclean, in the chair, Denis Valentine Morris (Galway) and William Keverall McIntyre (Tasmania) were elected to the Membership of the College.

Thomas Charles Clare (Leicester) was admitted to the Fellowship.

The following were admitted to the Membership:

Arthur Charles Belfield (New Zealand), *Phillip Godfrey Chalewood (India), Johannes Cornelius Coetzee (South Africa), *Gladys Story Cunningham (China), James Bruce Dewar (Edinburgh), *John Edis-Myers (India), Llewelyn Mervin Edwards (London), Arthur Bryant Evans (London), Agnes Jean Herring (Dundee), Donald Forsyth Lawson (Australia), Thomas Emmet Lennon (Liverpool), Charles Rutherford Morison (Harrogate), Henry Anthony Rippiner (Bradford), Dorothy Anderton Sharpe (London), Pittapalayam Veraswami Venkatswami (India), *Harry Silvester Watts (India).

* In absentia.

At the termination of the meeting Mr. G. F. Gibberd assumed the office of honorary secretary and Professor William Fletcher Shaw assumed the office of President. A vote of great appreciation for the services of Sir Even Maclean during the past three years as President and during the whole period since the inception of the College was adopted by the Council.

The following candidates for the diploma of the College have satisfied the examiners:

O. G. Bark, Dorothy M. Brook, Isobell Brown, H. Burton, S. J. Cohen, R. R. Foote, G. R. Griffiths, L. Langmore, J. B. F. McKenzie, Agnes M. Mitchell, G. D. Owen, Constance E. Peaker, R. G. Record, E. R. Rees, H. G. Roberts, Una R. Roy, S. A. Scorer, Marjorie Swain, W. G. Swann, J. F. Swan, J. D. Watt, R. H. Vasey, H. S. Wigfield.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the annual meeting of the Royal Faculty of Physicians and Surgeons of Glasgow the following officers were elected: *President*, Dr. John Henderson; *Visitor*, Dr. J. Souttar

McKendrick; *Honorary Treasurer*, Dr. James H. MacDonald; *Honorary Librarian*, Dr. W. R. Snodgrass; *Representative for the General Medical Council*, Mr. G. H. Edington.

CONJOINT BOARD IN SCOTLAND

The following candidates have been approved at the examination indicated:

DIPLOMA OF L.R.C.P.ED., L.R.C.S.ED., L.R.F.P. AND S.GLAS.—
C. G. Adams, A. C. B. Allan, M. Y. Anthony, S. A. Antonious, R. E. G. Armattoe, S. N. Banerji, G. A. Bell, J. A. Brown, R. A. Brown, P. Chatterjee, B. Crawshaw, S. Edelson, Frieda Ehrlich, W. V. A. Erskine, A. F. A. Fairweather, N. L. Freund, H. S. Friedlander, B. M. Heller, Kate Hermann, B. Hirschson, F. J. Hoenigsberger, R. B. Hollos, J. K. Houston, T. Shih-Do-Hsu, S. Kambourian, F. Kreuter, W. Lubansky, J. C. McGrath, J. L. Markson, S. T. B. A. Mattar, K. Meyerhof, E. Mintz, S. Mirk, A. G. Mohammed, W. Morron, R. D. Oliver, S. Oshinsky, G. Pickar, B. Pribram, I. B. Radow, D. Raeside, P. Rosenbaum, J. Schlosser, J. M. Silverstein, D. Simenoff, R. Sorkin, Marie H. Stevenson, E. S. Sutherland, A. Shapiro, A. Taterka, J. Tolland, A. Waheed, B. J. S. Wessels.

EPIDEMIOLOGICAL NOTES*

Acute Poliomyelitis

For the first time in four weeks there has been a decline in the incidence of poliomyelitis in England and Wales—70, compared with 81 in the previous week; in London there were 4 cases as against 11. In Scotland and Ireland the disease also appears to be on the decrease. The counties chiefly affected in England and Wales were: Leicester 8 (Leicester 1, Melton Mowbray 2, Shipshed 3, Melton and Belvoir 2); Gloucester 6 (Bristol 4, Cirencester 1, Nailsworth 1); Lincoln 6 (Scunthorpe 4, Stamford 1, South Kesteven 1); Essex 5 (Tendring 2, and 1 each in Braintree and Bocking, Harwich, Romford); Glamorgan 5 (Cardiff 4, Neath 1); Southampton 5 (Droxford 2, and 1 each in Winchester City, Winchester Rural, Havant and Waterloo); Kent 4 (Bronley 1, Tunbridge Wells 2, Herne Bay 1); London 4 (1 each in Deptford, Fulham, Hackney, and Lewisham); Oxford 3, all in the City of Oxford. The three cases in Scotland occurred in Aberdeen, Edinburgh, and Paisley.

In Germany during the week ended October 15 the number of cases of poliomyelitis rose from 353 to 364; the chief areas affected were: District of Cologne 42 (27), Düsseldorf 16 (13), Swabia 23 (16), Saxony 39 (27), Baden 26 (16), the Saar 12 (7). In Holland during the week ended October 22 the number recorded, 33, was the same as in the preceding week; of these 13 (10) were in the province of South Holland.

Enteric Fever

Notifications of enteric fever in England and Wales fell from 37 to 19, and in London from 12 to 1. In Scotland, on the other hand, a rise from 4 to 7 was recorded, while in Ireland the figures were identical in both weeks. More than one case was notified in the following counties: Berks 3 (Windsor 2, New Windsor 1); Sussex 3 (Chichester 2, Hastings 1); Salop 2 (1 each in Oswestry and Shrewsbury); Middlesex 2 (1 each in Hendon and Southgate). The London case occurred in the Borough of Hackney. Of the 7 cases reported in Scotland 3 were notified as paratyphoid fever in Lanark County, while 1 case of typhoid fever was notified in Airdrie, Glasgow, and Lanark County. One case of typhoid fever was notified in the County of Midlothian.

Primary and Influenzal Pneumonia

An appreciable increase is noted in the notifications of primary and influenzal pneumonia in England and Wales (578, compared with 534 in the previous week), in which London shared (65, compared with 45). The counties mainly affected were Lancaster 94, of which 32 were in Manchester

and 16 in Liverpool; Yorks (West Riding) 70, 24 in Sheffield and 8 in Bradford; Warwick 45, of which 32 were in Birmingham; Durham 41; Stafford 30. Deaths from influenza in the 126 Great Towns fell from 26 to 22; more than one death was reported in London and in Birmingham, the numbers being 4 and 3 respectively.

Encephalitis Lethargica

The reports furnished to the Health Section of the Secretariat of the League of Nations indicate that there were no major epidemics of encephalitis lethargica in any country in the years 1936-8. During 1936 considerable increases over the mean for the preceding five-year period were observed in Germany and Japan. In the latter country 1,005 deaths from encephalitis lethargica were recorded in 1936. In the United States of America cases rose from 723 in 1936 to 1,068 in 1937; the chief areas affected were: New York State 121; Illinois 104; Missouri 190; Texas 47; California 75.

Diphtheria and Scarlet Fever

Diphtheria continues to spread in England and Wales—1,432 for the week under review, compared with 1,367 in the preceding week—while a fall was noted in London, from 173 to 153. In Scotland and Eire considerable increases were recorded during the week. The chief centres affected were: Liverpool 59 (57), Manchester 28 (32), Bristol 23 (20), South Shields 21 (19), Leicester 15 (23), Newport 15 (8), Lewisham 14 (13), Poplar 13 (6). Of the 27 deaths from diphtheria in the 126 Great Towns 5 were in London and 2 each in Southport, South Shields, Stanley (Durham), and Birmingham. In Scotland increases were noted in Glasgow 101 (78), Dundee 21 (9), Lanark County 19 (11), and decreases in Aberdeen 14 (18) and Edinburgh 13 (14). There were three deaths, all in Glasgow.

In England and Wales notifications of scarlet fever rose from 1,864 to 2,000, and in London from 159 to 192. The chief centres affected were: Manchester 56 (47), Liverpool 50 (50), Wandsworth 26 (11), Camberwell 24 (10), Stoke-on-Trent 31 (30), Bristol 44 (30), South Shields 23 (15), Leicester 22 (14), West Ham 18 (18). There were two deaths, in London and Leeds.

Measles and Whooping-cough

One death from measles (in Birmingham) was recorded in the Great Towns. Of the 22 cases of measles notified in London 4 were in Deptford and 3 each in Stepney and Poplar. In Scotland 8 cases were notified, compared with 18 in the preceding week—Glasgow 6 (9), Edinburgh 2 (1). No deaths were reported from any of the sixteen Great Towns.

Of the five deaths from whooping-cough in the 126 Great Towns of England and Wales 1 each occurred in Dagenham, Tottenham, West Ham, Bradford, and Leicester. In London 146 (131) cases of whooping-cough were notified, chiefly in: Kensington 18 (8), Hackney 17 (21), Stepney 14 (9), and Wandsworth 13 (14). In Scotland cases rose from 163 to 178, notably in Glasgow 147 (134), Paisley 10 (6), and Edinburgh 8 (4). There was one death each in Motherwell, Wishaw, and Glasgow.

Cholera and Plague

During the week under review there were 578 (862) cases of cholera and 282 (433) deaths in the Central Provinces of India, 270 (330) cases and 128 (141) deaths in Bombay Presidency, 218 (223) cases and 97 (104) deaths in the United Provinces. In China 24 (87) cases and 6 (30) deaths were reported in Shanghai and 7 (7) cases and 5 (9) deaths in Hong Kong.

In India during the same week there were 43 (73) cases of plague and 6 (5) deaths in the Central Provinces, 67 (88) cases and 65 (73) deaths in Burma, 11 (25) cases and 8 (11) deaths in Madras Presidency, and 47 (13) cases and 23 (6) deaths in Bombay Presidency.

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 29, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 19 | 2 | 4 | 1 | 2 | 18 | 3 | 4 | — | 1 | | |
| Deaths | — | — | — | — | — | 1 | — | — | — | — | | |
| Diphtheria | 1,432 | 153 | 274 | 81 | 26 | 1,694 | 213 | 255 | 73 | 42 | 1,315 | 213 |
| Deaths | 27 | 5 | 3 | 5 | — | 25 | 3 | 8 | 2 | — | | |
| Dysentery | 39 | 23 | 23 | — | — | 59 | 21 | 20 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Encephalitis lethargica, acute | 2 | — | — | 1 | — | 4 | 2 | — | — | — | | |
| Deaths | — | — | — | — | — | 1 | — | — | — | — | | |
| Enteric (typhoid and paratyphoid) fever | 19 | 1 | 7 | 3 | 3 | 40 | 11 | 1 | 11 | 5 | 40 | |
| Deaths | — | 1 | 1 | — | — | 1 | — | — | — | — | | |
| Erysipelas | — | — | 81 | 3 | 7 | — | — | 75 | 9 | 3 | | |
| Deaths | — | 2 | — | — | — | — | 2 | — | — | — | | |
| Infective enteritis or diarrhoea under 2 years | 45 | 10 | 9 | 11 | 2 | 58 | 12 | 11 | 7 | 2 | | |
| Deaths | — | — | — | — | — | — | — | 133 | — | 3 | | |
| Measles | 1 | — | — | — | — | 11 | — | — | — | 1 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Ophthalmia neonatorum | 87 | 9 | 35 | — | — | 90 | 10 | 29 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Pneumonia, influenza* | 578 | 65 | 11 | 2 | 19 | 819 | 88 | 10 | 2 | 5 | 821 | 86 |
| Deaths (from Influenza) | 22 | 4 | 1 | — | 1 | 36 | 9 | 3 | — | 3 | | |
| Pneumonia, primary | — | — | 229 | 9 | — | — | — | 255 | 11 | — | | |
| Deaths | — | 14 | — | 11 | 6 | — | 17 | — | 5 | 8 | | |
| Polio-encephalitis, acute | 4 | 1 | — | — | — | 2 | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Polio-myelitis, acute | 70 | 4 | 3 | 1 | — | 21 | — | — | — | — | | |
| Deaths | — | 1 | — | — | — | — | — | — | — | — | | |
| Puerperal fever | 3* | 3 | 19 | 2 | — | 4* | 4 | 26 | 2 | 1 | | |
| Deaths | — | 1† | — | — | — | — | 1† | — | — | — | | |
| Puerperal pyrexia | 183 | 17 | 31 | — | — | 18 | 21 | 30 | — | 1 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Relapsing fever | 1 | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Scarlet fever | 2,000 | 192 | 411 | 92 | 93 | 2,601 | 191 | 533 | 77 | 114 | 2,606 | 337 |
| Deaths | 2 | 1 | — | — | — | 1 | — | — | — | — | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Whooping-cough | — | 146 | 178 | — | 9 | — | 47 | — | — | 5 | | |
| Deaths | 5 | — | 2 | — | 1 | 9 | 1 | — | 1 | 1 | | |
| Deaths (0-1 year) | 258 | 35 | 45 | 32 | 13 | 304 | 39 | 68 | 17 | 17 | | |
| Infant mortality rate (per 1,000 live births) | 43 | 29 | — | — | — | 51 | 32 | — | — | — | | |
| Deaths (excluding stillbirths) | 4,226 | 834 | 556 | 178 | 121 | 4,330 | 857 | 570 | 174 | 133 | | |
| Annual death rate (per 1,000 persons living) | 10.4 | 10.6 | 11.3 | 12.1 | 10.7 | 10.7 | 10.8 | 11.7 | 11.9 | 11.8 | | |
| Live births | 6,247 | 1,116 | 828 | 343 | 228 | 5,406 | 1,264 | 771 | 308 | 204 | | |
| Annual rate per 1,000 persons living | 15.3 | 14.2 | 16.9 | 23.2 | 20.2 | 15.8 | 15.9 | 15.8 | 21.0 | 18.1 | | |
| Stillbirths | 250 | 31 | — | — | — | 260 | 41 | — | — | — | | |
| Rate per 1,000 total births (including stillborn) | 38 | 27 | — | — | — | 39 | 31 | — | — | — | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.
† Death from puerperal sepsis.

‡ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Obituary

JOHN MUNRO DUPONT, M.D.

The passing of Dr. John Munro Dupont, who died at his home on October 30, will be greatly regretted in Frome and the surrounding district. He was a son of the late Mr. and Mrs. Dupont of Ampthill, Bedfordshire, and was born in London in 1871. On his father's side he was of French Huguenot extraction: his mother was Scottish. From Bedford College he went to Edinburgh, qualifying in 1901 and taking his M.D. of that University in 1905. Shortly after qualifying he proceeded to South Africa with the R.A.M.C. to take part in the Boer War, and stayed there for nearly two years in the R.A.M.C. after the war was over. He gained the South African medal with four bars. Before starting in general practice he held the appointments of clinical assistant to the Samaritan Hospital for Women, London, resident medical officer to the Royal National Chest Hospital, and resident physician to the City Hospital, Edinburgh. For over thirty years Dr. Dupont practised in Frome, Somerset, where he held the post of honorary medical officer to the Victoria Hospital, an institution in which he took the greatest interest. He was, indeed, the main instigator of the scheme for the extension of the hospital which has since been carried out and was the first chairman of the Extension Committee.

Dr. Dupont joined the British Medical Association in 1904 and was chairman of the Bath Division in 1925, the year in which the Annual Meeting of the Association was held at Bath. He was the first country member to be elected to the Clinical Society of Bath (in 1920). At the outbreak of the great war he was captain in the Germanist's Mounted Brigade Field Ambulance, with cases of pe he served successively on the east coast, at areas affected in Egypt, whence he returned to England, on 16 (13), Swab of the death of his wife. Subsequently he acted Saar 12 (7). I officer in charge of ambulance trains in France, the number with the rank of major in 1919. In addition to week of the Holland. at the Victoria Hospital Dr. Dupont was medical for the Ministry of Pensions, medical officer to office, and medical officer to the Frome Town

Notifications o was twice married, and leaves a widow, from 37 to 19, ad a daughter. He was a strong supporter on the other hand, tive Party and an enthusiastic follower of in Ireland ticket. county cr

The following well-known foreign medical men have recently died: Professor RENÉ DU BOIS-REYMOND, for many years director of the University Physiological Institute of Berlin, like his father, and a pioneer in the science of sport, aged 75; Professor PAUL KRIZG, head of the German Hospital in Peking, aged 70; Dr. ARNO LOEWE, a prominent Dresden orthopaedic surgeon; Professor JOHANNES LANGE, director of the university clinic for nervous diseases at Breslau, aged 47; Dr. GEORGE E. DE SCHWEINITZ, an eminent ophthalmologist of Philadelphia, author of a textbook on diseases of the eyes, which passed through numerous editions, and former president of the American Medical Association, aged 79; Hofrat FERDINAND HUEPPE, emeritus professor of hygiene in the German University at Prague, aged 86; Dr. ERNEST SCHÜLTZE, emeritus professor of psychiatry at Göttingen, aged 73; and Dr. HERMANN GOCHT, for many years professor of orthopaedics at Berlin, aged 69.

CO-ORDINATION OF MEDICAL SERVICES

Deputation to Sir Thomas Inskip

A deputation from the Central Emergency Committee of the British Medical Association, together with representatives of the Royal Colleges of Physicians and Surgeons, was received on November 8 by Sir Thomas Inskip, Minister for Co-ordination of Defence, who was accompanied by officials of the Government Departments concerned. The members of the deputation, introduced by Sir Kaye Le Fleming, Chairman of Council of the British Medical Association, were: Dr. H. Guy Dain (Chairman of the Representative Body), Mr. N. Bishop Harman (Treasurer), Sir Alfred Webb Johnson, Dr. Clark Kennedy, Professor R. M. F. Picken, Sir Charles Wilson, Dr. Letitia Fairfield, with Dr. G. C. Anderson and Dr. C. Hill, Secretary and Deputy Secretary of the Association.

The deputation urged the establishment of machinery for the co-ordination of all medical services for the civilian population under a single body, and the co-ordination of the civilian medical organization with that of the Service departments. It also proposed that this machinery of co-ordination should be closely associated with the Central Emergency Committee of the B.M.A. as being representative of all branches of the medical profession.

In reply, the Minister said that he greatly appreciated the assistance given by the British Medical Association, especially in compiling an exhaustive survey of the profession. He expressed himself in sympathy with the principles put forward, and undertook that they would be examined by the Departments concerned. He assured the deputation of his desire to co-operate fully with the profession and to avail himself of their services.

A fuller report of the proceedings will appear next week.

The Services

The Princess Royal inspected Princess Mary's Royal Air Force Hospital, Halton, on October 29. She opened this hospital eleven years ago, and there were then 204 beds; this number has now been increased to 535. It is one of the most modern of Service hospitals, and has a new x-ray department, an isolation department, several additional wards, and a chapel. Other hospitals for the Royal Air Force are being erected as part of the extension programme. The Royal Air Force Nursing Service was created in June, 1918, and five years later, with the approval of King George V, it was designated "Princess Mary's Royal Air Force Nursing Service." It now includes a matron-in-chief, matrons, senior sisters, sisters, and staff nurses. Foreign service is undertaken in Iraq, Aden, and Palestine. The Princess Royal has previously visited Cranwell Hospital and the R.A.F. hospital at Sarafand in Palestine.

R. F. Schuurmans (*Nederl. Tijdschr. Geneesk.*, 1938, 82, 4799) records two cases of stricture of the vagina. The first was in a nullipara aged 30, who sought advice for sterility and dyspareunia. She showed the condition of cirrhosis sub-hymenalis described by Halban, which consists of a circular stricture situated beneath the hymen. The second case was that of a woman aged 50, who had a vaginal discharge and certain psychical disturbances connected with the climacteric. Examination revealed the condition described by Labhar as kraurosis fornicis vaginae. According to Schuurmans the cause of both these conditions is the same—namely, deficient secretion of follicular hormone associated with chronic trauma.

Medical News

The twenty-third Guthrie Lecture will be given before the Physical Society by Professor A. V. Hill, Sc.D., F.R.S., to-day, Friday, November 11, at 5.15 p.m., in the Physics Department of the Imperial College, Imperial Institute Road, S.W. The subject of the lecture is "The Transformations of Energy and the Mechanical Work of Muscles."

The Church Union Association has arranged an exhibition under the title of "The Family—To-day and To-morrow" at Caxton Hall, Westminster, S.W., from November 14 to 17. On Wednesday, November 16, at 3 p.m., there will be an address by Mr. F. J. McCann on "The Falling Birth Rate," with Dr. Halliday Sutherland in the chair.

A reception will be held at the Incorporated Liverpool School of Tropical Medicine, Pembroke Place, on Wednesday, November 23, at 8.30 p.m., when the Mary Kingsley medal will be presented to Dr. M. A. Barber, Professor E. Brumpt, Emeritus Professor W. S. Patton, and Professor W. Schulemann. Lady Danson is an honorary recipient.

The Congress of Rheumatism organized by the French League against Rheumatism which was to have been held in Paris on October 8 has been postponed to December 3, when discussions will be held on the clinical forms of rheumatism, medical treatment, physical treatment, surgical and orthopaedic treatment. The subscription for French and foreign doctors is 120 francs, and for members of the League 80 francs. Further information may be had from the Secrétariat de la Ligue Française contre le Rhumatisme, 23, Rue du Cherche-Midi, Paris, 6e.

The twelfth annual Radiological Congress and Exhibition will be held on December 7, 8, and 9 at the Central Hall, Westminster, S.W. Additional accommodation has been reserved, and the exhibition will be considerably larger than in the past. The nineteenth Mackenzie-Davidson Memorial Lecture will be given by Dr. G. Shearer, and the twenty-first Silvanus Thompson Memorial Lecture by Dr. R. Ledoux-Lebard. The annual dinner will be held on Friday, December 9, at Claridge's Hotel.

The Sir Frederick Hobday Presentation Fund has now reached its first £1,000, contributed by about 850 subscribers. This response has encouraged the committee to carry on in order to obtain the amount necessary for the object which Sir Frederick Hobday has in view—namely, the endowment of a chair of comparative medicine. The subscription list is still open, and contributions may be sent to the honorary secretary, Mr. E. T. Cox, 3, St. John's Avenue, Putney, S.W.15.

Professor G. Roussy and Dr. C. Oberling have presented to the French Academy of Medicine a report entitled, "Can the Tarring of Roads be considered as one of the Causes of the Recrudescence of Cancer of the Lungs?" Their answer is in the negative in so far as observations hitherto published are concerned.

The Stirling Branch of the British Medical Association celebrates its jubilee this year. The minutes show that preliminary meetings were held in 1888 and that the Branch was formally constituted in 1889. The occasion will be particularly celebrated at the annual dinner of the Branch to be held at Stirling on November 30.

The President and Council of the Royal Society have awarded the Davy Medal to Professor George Barger, F.R.S., in recognition of his distinguished researches on alkaloids and other natural products; and the Darwin Medal to Professor F. O. Bower, F.R.S., in recognition of his work in the field in which Darwin himself laboured.

Dr. O. H. Mavor has been appointed a member of the committee to advise the Home Office and the Scottish Office on matters connected with the administration of the Cinematograph Act, 1909.

Of 25,361 books published in Germany in 1937, 990 (3 per cent.) were medical works of which the average cost was 9.20 marks as compared with the average cost of 3.99 marks for all books.

According to official statistics the total number of births in 1937 was 630,000 in France, 892,000 in Poland, 955,000 in Italy, 1,279,000 in Germany, and 2,190,000 in Japan.

Some cases of tularaemia have recently been notified in Finland as well as in Soviet Russia and Sweden.

Dr. Tiffeneau, professor of pharmacology and materia medica, has been elected dean of the Paris Faculty of Medicine.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS.—All communications should be addressed to the Advertisement Manager (office hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are

EDITOR OF THE BRITISH MEDICAL JOURNAL. *Antilog*, Westcent, London.

SECRETARY, *Medisecra* Westcent, London.

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*, telephone 24361 Edinburgh), and of the Office of the Cumann Doctuirí na h-Eireann (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone 62550 Dublin).

QUERIES AND ANSWERS

Protection of Eczematous Face

DR. D. BRAHAM writes: I wonder if any reader could inform me of a preparation that could be used to protect the face of a patient with chronic eczema from the effects of the sun in the spring and summer. The preparation would have to be almost invisible, and in the form of a cream. Perhaps workers with ultra-violet ray apparatus could assist with suggestions, which would be gratefully acknowledged.

Cattle Ringworm in Man

DR. STEWART (Banbury) writes: I should be grateful if any reader would suggest a cure for cattle ringworm occurring in the human subject. My practice is in an agricultural district, and I have tried various remedies for this condition without success.

Treatment of Pruritus Ani

DR. R. E. M. TAUNTON (Hanwell, W.) writes: I would like to add a further note with reference to the recent contributions on the treatment of pruritus ani. Several years ago I read in your columns the suggestion that ung. metallorum should be used. This I have prescribed until recently. Now I prescribe "tar dermatant," a solution of coal tar in an analgesic resinous base put up by Parke, Davis and Co., and have found it the most valuable of all remedies. Wash the anus at bedtime with cold water (without soap), and apply the paint with a brush that is supplied with the bottle. Though I do not pretend that this is a permanent cure it is at least a temporary one, and it acts like a charm. It gives instant and lasting relief. In severe cases the paint can be applied twice daily, but once every few nights will usually be enough.

Treatment of Superficial Glossitis

Mr. S. RUSSELL (Gold Coast) writes in reply to the query by "O. M. N." with regard to the treatment of superficial glossitis in the *Journal* of September 10 (p. 604): May I suggest the administration of marmite. In this country, where the condition is common, marmite acts as a specific.

Medical Apparatus in 1816

Dr. J. N. COLLINS (Peterborough) writes: At the establishment of the Peterborough Public Dispensary in 1816 the physician was authorized to obtain (1) an electrical machine, and (2) an apparatus for recovery from suspended animation. Can anyone suggest what these were? Induced currents were not known until 1831, so the electrical machine was probably a frictional machine, but how was it used and for what purpose? But the second item is a puzzle.

Income Tax

Life Assurance Relief: Educational Policy

"ABBEY" took out a small education policy for his son in 1930. The amount assured is payable in annual instalments after he attains 14, or can be converted by him into an endowment policy. The inspector of taxes states that no relief is due in respect of the policy.

** If the policy provides for educational benefits if the child lives, irrespective of the life of the parent, then no relief would be due.

LETTERS, NOTES, ETC.

Educational Function of Tonsils

Dr. F. C. EVE (Hull) writes: The thoughtful paper by Mr. P. W. Leathart on the biological function of the tonsils in the *Journal* of October 22 (p. 835) prompts me to add an interpretation which I have long believed in but have withheld for lack of proof—namely, that the function of the tonsils is educational. Everywhere the body is protected against the entrance of invading organisms by epithelium. But the crypts of the tonsils are narrow crevices—unprotected by epithelium—penetrating deeply into a spongework crowded with lymphocytes. Mr. Leathart tells us that these crypts always contain living micro-organisms. These facts suggest strongly that each crypt acts like a turnstile or grid to admit germs to the fortress one by one so that the defending lymphocytes can become acquainted without risk with the "taste" of hostile germs prevalent in the outer world, of which otherwise they would remain in ignorance. Thus they are educated to prepare antibodies against future invaders of the same "taste." Indeed, in diphtheria the education may be too drastic. Each dividing lymphocyte must then pass on its education to its two daughter cells—in the tonsils or wherever else they wander in the lymph stream or blood. For an educational function of this sort the situation of the tonsils and adenoids is highly strategic—just where organisms from the teeth, from the nostrils, and from the food impinge. Peyer's patches, in the same way, are educated against varying organisms prevalent in the small intestine; we know that Peyer's patches swell in typhoid. The crypt-like appendix—richly supplied with lymphoid follicles—learns in more leisurely fashion how to produce antibodies against different and anaerobic organisms—nowadays a dangerous task. This interpretation—so reasonably suggested by structure and site—is supported by the fact that tonsils, adenoids, and appendix may be removed without detriment, for already the education of their "immortal" lymphocytes has been accomplished. (True, the tonsil may be useful as a filter, though not when it has become septic and harmful.) If all three organs were removed at birth their loss might well be serious, and the experiment should be tried with regard to the subsequent immunity of a newborn animal. Again, the mysterious thymus gland, containing as it does a reserve army of millions of uneducated lymphocytes, gradually removes itself when lymphocytes have been sufficiently educated elsewhere. So, too, do the tonsils. I have not referred to polymorphonuclear leucocytes, partly because I could quote a natural experiment (chronic pyuria with bacilluria, with and without haematuria) which showed clearly that polymorphonuclear leucocytes do not phagocyte organisms unless they have previously been opsonized—that is, the poly-

morphonuclear leucocytes are not educated to recognize hostile germs: the germs have first to be labelled dangerous before they can be devoured. What do pathologists say to these suggestions?

Distribution of Cancer

Dr. W. DALGLISH (Witney, Oxon) writes: The findings of W. E. Snell and H. A. Bathurst in the *Supplement* to the *British Medical Journal* of September 3 (p. 178) and of G. B. Leyton and H. G. Leyton in the *Journal* of August 21, 1937 (p. 378) with regard to the regional distribution of cancer, though seemingly contradictory, cannot be regarded as incompatible in view of the fact that Leyton and Leyton can demonstrate in microphotographs the presence in cancer tissue and the absence in normal tissue of a mycelium which is also found on certain trees and in some edible products imported from rural districts. Their presumption that this is the causative element in cancer seems to have some justification in view of results, observed by myself, of recent treatment by Dr. Nevil Leyton of cases of cancer, based on this hypothesis.

A Rare Complication of Labour

Dr. I. GORDON CAMERON (Kuala Lumpur, F.M.S.) writes: I recently attended a confinement which proceeded rapidly and normally till the child's head was born. I then found that the cord was tightly coiled twice round the child's neck. It was too tight to be released by the usual method of drawing loops over the head, so it had to be divided between forceps. On attempting to unwind it, I found that the cord was actually knotted, and a third pair of forceps had to be used to untie the knot. The child was then delivered rapidly and, to my relief, it breathed shortly afterwards. I have had one case with a short cord wound twice round the neck causing premature separation of the placenta, with concealed ante-partum haemorrhage, resulting in the death of the child, but I have never before come across a cord coiled twice round the neck and knotted. I wonder if a similar case has ever been reported in the medical literature.

The Occipito-posterior Case

Dr. ROBERT A. WELSH (Felton) writes: Bethel Solomons, in his *Epitome of Obstetrical Diagnosis*, says, "These [occipito-posterior presentations] are the bane of the practitioner outside Ireland. In Ireland patience is found to be the best treatment, and rotation usually occurs; this principle should apply also to other countries." He then goes on to say: "If spontaneous delivery does not occur some advise manual rotation, others forceps rotation, others manual rotation followed by forceps. We do none of these unless the head is low and rotates easily with the hand. If rotation is difficult we deliver as a persistent occipito-posterior with forceps."

The House of Dent

The publishing firm of J. M. Dent celebrated its jubilee two weeks ago with a dinner at Stationers' Hall, when Mr. Hugh R. Dent, son of the founder of the firm, presided. Those present were given a handsomely bound memorial volume entitled *The House of Dent*, which is a reissue of the *Memoirs of J. M. Dent* to which have been added four chapters bringing up to date the publishing activities of this well-known house during the past twelve years. It is a volume which can be warmly recommended to those who are interested in the writing and the making of books.

M & B 693.

We have received from Messrs. May and Baker, Limited, a copy of their booklet entitled *M & B 693: Biological and Biochemical Data*. We have previously referred in these columns to the results obtained from this product in the treatment of pneumococcal infection, and those who would like a copy of the booklet just issued, as well as a pamphlet on the use of M & B 693 in the treatment of pneumococcal infections, will receive them on application to the firm at Dagenham, England.

Disclaimer

Dr. S. LEVY writes: I should be glad if you would allow me to disclaim any responsibility for certain reports relating to the treatment of a patient in Tilbury Hospital which appeared in the daily Press. Neither this report, nor other reports concerning myself, were inspired by me, directly or indirectly.

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Deutsche Medizinische Wochenschrift

Berlin vol. 64 August 26, 1938

- Reflections on Indications for Radiological Examination. G. F. Haensch.—p. 1241.
New Aspects of Treatment of Disturbances of Circulatory System. C. Dienst.—p. 1247.
*Therapeutic Action of Anti-syphilitic Hyperthermia Induced by Physical Means. A. Beyersmans.—p. 1250.
Pupillotonia: Hereditary-degenerative Syndrome? G. Voss.—p. 1251.
In Search of Foreign Bodies. R. Paschke.—p. 1253.
Insulin Shock in Bronchial Asthma. H. Bartelheimer.—p. 1254.
Therapeutic Action of Radon Juice. W. Golder.—p. 1255.
Chaulmoogra Oil and Some of its Derivatives. A. Derner.—p. 1257.
Questions of Principle in Estimates of Internal Diseases. W. v. Drizahl.—p. 1258.

Physical Hyperthermia.—The conclusion drawn is that the high temperature artificially induced in the modern treatment of syphilis is itself the most important factor in the patient's recovery.

Irish Journal of Medical Science

Dublin vol. 6 September, 1938

- Clinical Diagnosis of Congenital Heart Disease. P. T. O'Tarrell.—p. 197.
Tuberculosis of Male Genital Tract. E. D'Arcy McCrea.—p. 614.
*Analeptics and Bragg-Paul Pulsator. R. H. Micks.—p. 629.

Analeptics and Bragg-Paul Pulsator.—The author discusses the mode of action of such analeptics as strychnine, coramine, camphor, cardiazol, and lobeline, and points out that the object of treatment with such drugs in cases of respiratory depression is the restoration of normal respiratory rhythm. In his opinion this can best be achieved by the use of an effective apparatus for performing artificial respiration; in the absence of a pulsator he regards stimulation by the inhalation of carbon dioxide as being more effective than the injection of any analeptic drug.

Journal of the American Medical Association

Chicago vol. 3 August 27, 1938

- Undergraduate Teaching of Obstetrics. E. Plass.—p. 761.
Health of the Migrant. W. Dickie.—p. 763.
Experimental Study of Behaviour of Sulphanilamide. F. Adair, H. Hestelune, and L. Hae.—p. 766.
Therapeutic Effectiveness and Toxicity of Sulphanilamide. E. Barnick, A. Brown, and F. Foster.—p. 770.
Vitamin A Deficiency and Dark Adaptation. B. Isaacs, F. Jung, and A. Ivy.—p. 777.
Duration of Small-pox Immunity. D. Loy and M. Husband.—p. 780.
Medical Education in United States and Canada.—p. 785.

Journal of the Royal Army Medical Corps

London vol. 71 September, 1938

- *Organization of Medical Services in Air Raid Precautions. E. M. Cowell.—p. 145.
Alienist's Point of View. G. W. Will.—p. 177.
Note on Typhoid and Paratyphoid Fever in Gallipoli Campaign (1915). A. Patrick.—p. 182.
Case of Leprosy in British Soldier. G. F. Harrison.—p. 194.
Neisseria catarrhalis Isolated from Blood Stream of Case of Benign Tertian Malaria. W. M. E. Anderson.—p. 199.

Medical Services in A.R.P.—This article is a comprehensive survey of the subject, and concludes by pointing out that the organization which will be required will involve a personnel of 1 in 30 of the total population of the country, of which personnel 1 in 50 should be fully trained medical men. Points which are discussed in particular detail concern an estimation of the casualties which are to be expected, the early issue of record cards to the population, and the first-aid treatment of casualties.

London vol. 71 October, 1938

- Effects of Mechanization on Evacuation. T. B. Nicholls.—p. 217.
War Neuroses. H. A. Sandford.—p. 222.
*Some Observations on *Salmonella* Flagellar Antigens. G. T. L. Archer.—p. 231.
Account of Six Solid Tumours of Jaws. S. H. Woods.—p. 224.
Transjordan Frontier Force. J. T. Tobiesen.—p. 255.
Case of Subcutaneous Rupture of Pancreas. G. Meulien.—p. 266.
Interesting Abnormality. K. Fletcher-Barrett.—p. 272.

***Salmonella* Flagellar Antigens.**—It has been shown that certain specific "H" *Salmonella* antigens may be "dominant" or "recessive" in culture. Evidence is also brought forward suggesting that in certain cultures one or more of the normal antigenic components of the group phase of the organisms present may be absent or greatly deficient. In view of these findings a modified method of classification is suggested.

Klinische Wochenschrift

Berlin vol. 17 August 27, 1938

- Information gained from Ergometry and Ergography in Cardiac, Vascular, and Pulmonary Affections. H. W. Knappig.—p. 1209.
Photo-electric Plethysmograms. K. Matthies and W. Haus.—p. 1211.
Disturbances of Cardiac Rhythm of Extracardiac Origin. L. v. Zorday.—p. 1213.
Behaviour of Uteron and of its Derivatives in Human Body and its Excretion in Urine. W. W. Kühnau.—p. 1215.
Idiopathic Hypochromic Anaemia: III. W. Thiele and H. Kühl.—p. 1219.
Tests of Operability. H. Dietel and J. Hermannsen.—p. 1221.
Erythrocytometry by Bock's Haemocrit. E. Kirk.—p. 1222.
New Apparatus for Extraction of Barely Soluble Substances. H. A. Heinen.—p. 1225.
Conditions under which Physical Exertion predisposes to Epidemic Poliomyelitis. F. Welter.—p. 1226.
Content of Vitamin C in Thrombocytes. G. v. Ludany and K. v. Mesary.—p. 1228.
Conservation of Vitamin C in Material for Laboratory Investigation. H. Peter.—p. 1229.
Intravenous Anaesthesia with Eumareon and Evipan. F. Hollenbach.—p. 1230.

Medical Journal of Australia

Sydney vol. 2 July 23, 1938

- Radiology. Past and Future. H. Hewlett.—p. 109.
Radiological Examination of Heart. L. Rothstadt.—p. 116.
Cystic Tumours of Third Ventricle. L. London.—p. 122.
Ether Anaesthesia and Analgesia in Midwifery. T. Small.—p. 124.
Geitler's Test in Drowning. A. Palmer.—p. 129.
Preliminary Observations on Virus Responsible for Victorian and Tasmanian Epidemics of Poliomyelitis, 1937. F. Burnett and E. Keogh.—p. 130.

Medizinische Klinik

Berlin vol. 34 August 26, 1938

- Prevention of Dental Caries. F. Hamburger and H. Goll.—p. 1115.
Calcium Requirements in Infancy and Childhood. K. Klink.—p. 1117.
Splenectomy in Diseases of Blood (concluded). E. Lauda, V. Schilling, and T. Naegeli.—p. 1121.
Clinical Manifestations of Diseases of Respiratory Tract. R. Schmidt.—p. 1122.
Prevention of Boxing Injuries, particularly in Youngs. W. Knoll.—p. 1125.
*Treatment of Gastric and Duodenal Ulcer and Gastritis with Insulin. M. Rötter.—p. 1129.
Social Legislation and Medical Representation in U.S.A. K. Brandenburg.—p. 1131.
Biological Medicine. H. Winckelmann.—p. 1132.

Insulin in Peptic Ulcer.—Very good results have been obtained from the administration of insulin in seven cases of gastric ulcer, eight cases of duodenal ulcer, and fourteen cases of chronic gastritis. The patients had an ordinary mixed diet during the course of treatment.

Münchener Medizinische Wochenschrift

Munich vol. 85 August 26, 1938

- Diagnosis and Treatment of Prostatic Hypertrophy: J. E. Thiermann.—p. 1297.
 Primary Hypochromic Anaemia. O. Boden and H. Heyredt.—p. 1306
 Prevention of Infection in Fresh Wounds caused by Accidents. W. Ehalt.—p. 1309.
 Hormone Therapy in Practice. S. Mallow.—p. 1313.
 Adoption of Children of Syphilitic Mothers. F. Bering.—p. 1315.
 Epidemics in Great War. J. Kaup.—p. 1316.
 Historical Note on Differentiation between Shock and Collapse. K. Heinemann.—p. 1319.

Munich vol. 85 September 2, 1938

- Migraine due to Ocular Disturbances in Childhood and Adolescence. K. Grunert.—p. 1337.
 Recognition of Precancerous State. J. Kretz.—p. 1341.
 Is Quinine an Abortifacient? Koopmann.—p. 1344.
 Irradiated Fresh Milk as Permanent Food. K. Scheer.—p. 1346.
 Diagnosis and Treatment of Prostatic Hypertrophy: H. E. Thiermann.—p. 1347.

Nature

London vol. 142 August 27, 1938

- Pleistocene Anthropoid Apes of South Africa. R. Broom.—p. 377.
 Mode of Action of Visual Purple. R. Granit, T. Holmberg, and M. Zewi.—p. 397.
 Synthesis of Growth Factors by *Rhizobium trifolii*. P. M. West and P. W. Wilson.—p. 397.
 Inhibition of Adventitious Bud Initiation in Hypocotyls of Flax by Indole-3-acetic Acid and Flax Extract. G. K. K. Link and V. Eggers.—p. 398.
 Simple Conversion of *trans*-Dehydro-androsterone into Pregnane Derivatives. L. Ruzicka and H. F. Meidahl.—p. 399.
 Use of Amino-acids containing Deuterium to follow Protein Production in the Organism. H. H. Ussing.—p. 399

New England Journal of Medicine

Boston vol. 219 August 25, 1938

- Congenital Webbing of Neck. D. W. MacCollum.—p. 251.
 Problem of Congenital Syphilis in Boston. J. Davies and M. Walter.—p. 255.
 *Accidental Injury to Heart by Needle Puncture. W. Bean.—p. 257.
 Dangers of Tuberculosis in Childhood. C. A. Smith.—p. 260.
 Imopagus. J. B. Vernaglla.—p. 266.
 Use of Prostaglandin as Preparation for Abdominal Roentgenography. M. J. Farrell.—p. 270.

Accidental Injury to Heart.—Bean reports four cases of severe injury to the heart resulting from attempts at therapy, two being cases of pericardial effusion where paracentesis was attempted and two cases of heart stoppage during anaesthesia in which an attempt was made to administer adrenaline intracardially. In the two former cases no attempt was made to remove the fluid from behind, where the danger to the heart is minimal. Both procedures are fraught with considerable risk unless adequate precautions are taken.

Boston vol. 219 September 1, 1938

- Diagnosis of Causes of Heart Failure. L. Hamman.—p. 289.
 Nailing Fractured Neck of Femur with Aid of Fluoroscope. N. C. Browder.—p. 296
 Anal Fissure. G. S. Speare and R. E. Mabrey.—p. 302.
 Spivack Gastroscopy. F. H. Baehr and S. Treilung.—p. 305.

Nordisk Medicinsk Tidskrift

Stockholm vol. 15 August 27, 1938

- Neuropathological Communications. L. Sahlgren and H. Marcus.—p. 1335.
 *Aspiration Biopsy. P. A. Blinkenberg.—p. 1343
 Early Diagnosis of Schizophrenia. E. Goldkuhl.—p. 1346

Aspiration Biopsy.—Observation of 157 cases examined at the radium centres in Copenhagen and Odense has convinced Blinkenberg that aspiration biopsy is an easy method for obtaining tissues for microscopical examination. Positive results, without any complications, were obtained in about two-thirds of the punctures, the traumatic effect of which was negligible

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Policlinico

Rome vol. 45 August 29, 1938 (Sez. Prat.)

- Special Peptic Syndrome of Upper Abdomen (Acute Pancreatic Necrosis, Gastro-duodenal Ulcers, and Biliary Peritonitis). D. Sibilia.—p. 1594
 *Essential Angiospasmolytic Treatment in Infants. A. Andreoli and A. Cavallotti.—p. 1597.
 Avoidance of Gastro-intestinal Disturbances after Cholecystography. F. Cheva.—p. 1603.
 Arthropathic Psoriasis. G. Lionetti.—p. 1606.

Epilepsy in Children.—The authors discuss the evidence suggesting that cerebral ischaemia is one of the causes of "essential" epilepsy. They report eighteen cases, in children aged from 3 to 13, treated with considerable success by the protracted administration of extract of muscle, and they recommend combination of this with luminal therapy.

Rome vol. 45 September 5, 1938 (Sez. Prat.)

- *Treatment of Testicular Pain. G. Pieri.—p. 1629.
 Axillary Pulmonitis and Traumatic Factors in its Pathogenesis. F. De'Victoris-Medori.—p. 1636.

Testicular Pain.—Good results followed paravertebral injection of percaïne at the level of the second lumbar root in six acute cases of diverse causation. Three cases of chronic testicular pain were relieved by resection of the second lumbar ramus communicans.

Presse Médicale

Paris vol. 46 August 24, 1938

- *Lungs and Microbes. L. Binet and Ch. Jaulmes.—p. 1281.

Lungs and Microbes.—The authors have investigated the effect of adding various micro-organisms to the blood used in perfusing the aseptically isolated and rhythmically ventilated lungs of a dog. The organisms used included: *Strep. haemolyticus*, *Staph. aureus*, *B. erysipelatos suis*, *B. anthracis*, *B. pyocyaneus*, and enterococci. They found that the organisms gradually disappear from the circulating blood, whereas they remain or even increase in blood kept in an incubator. The addition of a suspension of carbon or Indian ink to the perfusing blood retards or inhibits the disappearance of the organisms.

Paris vol. 46 August 27, 1938

- *Classification of Nephritis. H. Chabanier and C. Lobo-Onell.—p. 1289.
 *Are the Polypeptides resulting from Tissue Proteolysis Toxic? P. Etienne-Martin.—p. 1292.

Classification of Nephritis.—As a result of eight years' work involving the investigation of close on 200 cases of kidney conditions of various kinds, the authors conclude that the most satisfactory classification up to date is that of Volhard and Fahr.

Toxicity of Polypeptides?—The author has been investigating the behaviour of the polypeptides resulting from the proteolysis of the tissues since 1930. He comes to the conclusion that they are only slightly toxic (if at all), and are probably not the cause of untoward occurrences attributed to them. Some diseases may give rise to polypeptidaemia, but polypeptidaemia does not give rise to disease.

Science

New York vol. 88 August 26, 1938

- Isolation of Filterable, Transmissible Agent with "Neurolytic" Properties from Toxoplasma-infected Tissues. A. B. Sabin.—p. 189.
 Intercellular Wound Hormones Produced by Heteroauxin. J. R. Looftgoot and C. M. Dwyer.—p. 191.

South African Medical Journal

Capetown vol. 12 August 13, 1938

- Prognosis in Heart Disease. H. F. B. Walker.—p. 527.
 Treatment and Prophylaxis of Eclampsia. K. de Snoo.—p. 536.
 Puerperal Sepsis at Home and in Hospital. P. Keen.—p. 542.
 Modern Treatment of Pernicious Anaemia and Associated Macrocytic Anaemia. J. A. Bell.—p. 547.
 Healthy Child Who "Won't Eat." M. Witkin.—p. 551.

Ugeskrift for Læger

Copenhagen vol. 100 August 25, 1938

- *Pneumonia Studies. N. I. Nissen—p. 954.
Certain Experiences with Serum Treatment of Croupous Pneumonia.
W. Thune Andersen—p. 946.
Severe Relapsing Proctitis of Rectum. C. C. Henschel-Hansen—p. 949.
Autopsy of Skull as Link in Neurological Examination. T. Dalegaard-Nielsen—p. 971.
Progress of Treated Syphilis. F. Lomholt—p. 975.
Employment of Potassium Sodium Bicarbonate Solution in Treatment of Diabetic Coma. F. Kirk—p. 977.
Allergy and Gastric Ulcer. O. Sanders-Olesen—p. 978.

Pneumonia Studies.—This paper from the Danish State Serum Institute and the Sundby Hospital deals with patients treated between October, 1935, and May, 1938. Since November, 1937, the pneumococcal serum used has been derived almost exclusively from the rabbit. Such importance is attached to the type determination and serum treatment of pneumonia that Nissen recommends hospital treatment for as many as possible of such cases.

Wiener Klinische Wochenschrift

Vienna vol. 51 August 26, 1938

- Constitution and Tuberculosis. H. Kutscher-Archberger—p. 893.
Physiology, Clinical Findings, and Surgery of Sympathetic Nervous System in Female Pelvis. G. Holter—p. 894.
Treatment of Male Impotence. K. Tsunakawa—p. 895.
Obesity in Childhood. O. A. Chari—p. 920.
Biological Significance of Psycho-physical Infantism. A. Feldner—p. 904.
Treatment of Progressive Peritonitis following Rupture of Appendix. E. Demanz—p. 906.

Vienna vol. 51 September 2, 1938

- Functional Retrogression following Organic Disturbances of Brain. A. Auersteiner—p. 917.
Surgery of Bile Ducts and its Metabolic Problems. H. Steindl—p. 920.
Casualty Surgery in United States. W. Ehalt—p. 928.

Wiener Medizinische Wochenschrift

Vienna vol. 88 August 27, 1938

- Clinical Forms of Toxæmia. F. Dubitscher—p. 915.
"Second Illness" in Some Infectious Diseases. R. Celada—p. 920.
Contribution to Knowledge of Pelmomyxus Epizootica. B. Rumber—p. 922.

SPECIAL JOURNALS

American Heart Journal

St. Louis vol. 16 August, 1938

- *Reelectrocardiographic Diagnosis of Coronary Disease. G. Levine, R. M. Lowman, and L. G. Wesing—p. 133.
Influence of Certain Glucosides of *Digitalis lanata* on Coronary Blood Flow and Blood Pressure in Trained Dog. H. E. Exley, J. F. Hertick, and M. B. Vivcher—p. 143.
Action of Digitalis on Isolated Heart. L. N. Katz, M. Mendlowitz, and H. A. Kaplan with K. Jochim and E. Linderer—p. 149.
Gradual Occlusion of Coronary Artery. L. Blum, G. Schauer, and B. Catef—p. 159.
Electrocardiogram in which Main Initial Ventricular Deflections are Directed Downward in Standard Leads. J. Burstein and L. Ellenbogen—p. 165.
Erythema (Erythromelalgia) of Extremities. L. A. Smith and E. V. Allen—p. 175.
Studies of Circulation in Pericardial Effusion. H. I. Stewart, N. F. Crane, and J. E. Dietrick—p. 199.
Absorption from Pericardial Cavity in Man. H. I. Stewart, N. F. Crane, and J. E. Dietrick—p. 198.
Aneurysm of Heart. D. Ball—p. 203.
Electrocardiographic Findings in Forty-four Cases of Trichinosis. C. H. Beecher and E. L. Amidon—p. 219.
Cardiac Syncope due to Paroxysms of Ventricular Flutter, Fibrillation, and A-systole in Patient with Varying Degrees of A-V Block and Intraventricular Block. G. Gertz, H. A. Kaplan, L. Kaplan, and W. Weinstein—p. 225.

Diagnosis of Coronary Disease.—It is suggested that the diagnosis of myocardial infarction by x rays is possible in a high proportion of cases. Both the shape of the heart and the amplitude of the pulsation—the latter judged by fluoroscopy and kymography—are altered in the presence of infarction. The x-ray diagnosis was confirmed by the electrocardiogram in 75 per cent. of 140 patients studied, and of twelve cases which came to necropsy there was confirmation in ten. In one case necropsy revealed pulmonary thrombosis, the heart being normal. In this instance cardiac infarction had been suggested by the electrocardiogram but not by the x-ray findings.

American Journal of Digestive Diseases

Huntington, Ind. vol. 5 September, 1938

- Vitamins in Relation to Gastro-intestinal Diseases. M. G. Vorhaus—p. 405.
Studies on Parallel Action of Vitamin C and Calcium. S. L. Ruskin—p. 408.
Passage of Gall-stones through Sphincter of Oddi. M. Ortmeier and M. Austin—p. 411.
Infra-red Photography of Abdominal Wall in Portal Cirrhosis of Liver. I. R. Jankelson and H. Baker—p. 414.
Efficiency of Several Germicides and Antiseptics on Oral Mucosa. E. Meyer and L. Arnold—p. 418.
Primary Carcinoma of Liver. A. Levitt and D. S. Levy—p. 420.
Use of Hydrated Magnesium Trisilicate in Peptic Ulcer. M. Kraemer—p. 422.

American Journal of the Medical Sciences

Philadelphia vol. 193 August, 1938

- United States Army's War in Air against Mosquito-borne Diseases. I. S. Simmons—p. 153.
Statistical Study of Acute Haemorrhagic Pancreatitis (Haemorrhagic Necrosis of Pancreas). H. A. Wiener and R. Tennant—p. 167.
Nature and Mechanism of Staining of Erythrocytic Retikulum. S. Nitky—p. 177.
Acute Haemolytic Anaemia. H. M. Greenwald—p. 179.
Observations on Acidity of Totamias of Pregnancy. V. Actiological Relationship between Water Retention and Arterial Hypertension. M. B. Strauss—p. 188.
*Observations on Referred Pain of Cardiac Origin. S. Robertson and L. N. Katz—p. 199.
Paradoxical Embolism. D. W. Ingham—p. 201.
Radiological Measurements of Apico-basal Relaxation of Lung during Artificial Pneumoperitoneum Treatment. A. L. Banyai—p. 207.
Diabetic Coma Requiring Unprecedented Amount of Insulin: Case Manifesting Extreme Insulin Resistance. H. J. Wiener—p. 211.
Hypertension and Pregnancy: Case Report. E. B. LeWinn—p. 217.
*Uveo-parotid Fever (Heerfordt's Syndrome): Neurological Manifestations. Two Cases. D. Arbuse and M. Madonick—p. 222.
Regeneration of Adrenal Gland following Enucleation. D. J. Ingle and G. M. Higgins—p. 232.
Effects of Prestor Substance obtained from Kidneys on Renal Circulation of Rats and Dogs. A. Merrill, R. H. Williams, and T. R. Harrison—p. 240.
Typhus Fever in Pennsylvania. H. F. Flippin—p. 246.
Disease and the Negro. G. Walsh and R. M. Pool—p. 252.
Relationship of Orthopaedic Surgery to Internal Medicine. H. T. Hyman—p. 261.
Effect of Prontosil and Related Compounds upon Chemotaxis of Leucocytes. D. R. Cernan—p. 273.

Referred Pain of Cardiac Origin.—A new method for the diagnosis of angina pectoris was developed by the use of the "cuff test." The method consisted of producing ischaemia in the left arm for five minutes by raising the pressure in a blood-pressure cuff on the arm to 50 mm. Hg above the usual systolic pressure. In three cases in which the pain was referred to the right arm the result was positive with this arm but not with the left arm. The method proved to be successful in producing an anginal attack in nineteen out of twenty-four patients with angina pectoris. In eleven of these nitroglycerin, 1/150 grain, was given because of the severity of the pre-

Deaths during Week ended July 30, 1938: Deaths in Group of Large Cities in United States; Death Claims reported by Insurance Companies.—p. 1531.

Infectious Disease Returns: United States, Foreign, and Insular.—p. 1532.

Chronic Brucellosis.—In continuation of previous studies the authors give a critical account of the value of the usual tests for chronic brucellosis—namely, recovery of the organism from the patient, agglutination (1:40 being considered the minimum), the skin reaction, and the opsono-cytophagic reaction—with a view to ascertaining which should be considered conclusive and which confirmatory, taking into account the availability and technique of the different tests.

Washington vol. 53 September 2, 1938

Prevalence of Communicable Diseases in United States; July 17 to August 13, 1938.—p. 1559.

Frequency of Disabling Illness among Industrial Employees during 1932-7 and First Quarter of 1938. W. M. Gafaler and E. S. Fraser.—p. 1562.

*Changes in Types of Visual Refractive Errors of Children A. Ciocco.—p. 1571

Deaths during Week ended August 13, 1938: Deaths in Group of Large Cities in United States; Death Claims reported by Insurance Companies.—p. 1579.

Infectious Disease Returns: United States, Foreign, and Insular.—p. 1580.

Refractive Errors in Children.—This study was undertaken to determine the frequency of the changes in refractive errors in children and the relation between the degree of error, visual acuity, and the changes due to age, with a view to formulating a programme for the conservation of eyesight in children. At an early age hyperopia is the more frequent error, but in older children myopia and corneal astigmatism are more common. On re-examination, after an interval of two and a half years, the frequency of simple hyperopia was reduced by 20 per cent., but the incidence of astigmatism was increased by 40 per cent. and of simple myopia by 70 per cent. In over 75 per cent. of those originally presenting refractive errors no change in type took place, and the chances of a change in type decreased as the child grew older. The trend of the changes noted was from simple myopia and hyperopia to astigmatism, and from astigmatism back to simple refractive error.

Washington vol. 53 September 9, 1938

*Percentage of Illnesses treated Surgically among 9,000 Families, based on Nation-wide Periodic Censuses, 1928-31. S. D. Collins.—p. 1593.

Two New Species of Ticks (*Ixodes*) from California. R. A. Cooley and G. M. Kohls.—p. 1616.

Miami Health Officer Acts to Prevent Introduction of Yellow Fever.—p. 1621.

Deaths during Week ended August 20, 1938: Deaths in Group of Large Cities in United States; Death Claims reported by Insurance Companies.—p. 1622.

Infectious Disease Returns: United States, Foreign, and Insular.—p. 1623.

Surgical Treatment in Families.—This contribution follows up a previous one (*Publ. Hlth. Rep., U.S.A., 53, 587*) dealing with surgical operations per 1,000 of population. In the present instance the surgical histories of nearly 9,000 families of various social orders were studied over a period of twelve consecutive months, and the results tabulated. It appears that the proportion of cases treated surgically increases with the family income, and there is more "surgery" in cities than in the rural areas; peak incidence occurs at ages 5 to 9 years, and again at 25 to 34 years. The frequency of different kinds of operation ran in the following order: non-venereal diseases of the male genitals (chiefly circumcision), 84 per cent.; mastoid diseases, 77 per cent.; cysts and tumours of the female genitals, 72 per cent.; other benign tumours, 63 per cent.; appendicitis, 58 per cent., salpingitis, 53 per cent. Considering the group as a whole, 7.6 per cent. of all cases were treated surgically; of those coming under the care of a doctor 10 per cent. were so treated; and of those referred to a hospital 60 per cent.

Revue de Médecine

Paris vol. 55 July, 1938

Hypercalcaemia in Connection with Diabetes, Prognosis and Treatment of Diabetes. H. Wahrenbourg.—p. 333

Experiments on Transfusion of Leucocytes. J. Hanaušek.—p. 365

*Actions of Different Salts of Calcium on Leucocyte Response of Organism. G. Walthard.—p. 374

Pharmacology of Biphosphates. Neret-Cauchy.—p. 382

Actions of Calcium Salts.—By the injection of different preparations of calcium the author has induced in rabbits the appearance of a leucopenia with a relative lymphocytosis comparable with that which is seen in man in the early stages of typhoid fever and other infectious conditions. The most effective salts of calcium in this respect seem to be the chloride and the lactate; the least effective is calcium iodate.

Paris vol. 55 October, 1938

New Trends in Treatment of Pulmonary Embolism. M. Villaret, L. Justin-Besançon, and P. Bardin.—p. 393.

Pathological and Experimental Ideas on Cerebral Embolism. M. Villaret and R. Cachera.—p. 420.

*Treatment of Peripheral Arterial Embolism. M. P. Funck-Brentano.—p. 431.

Peripheral Arterial Embolism.—This is a critical review of the present methods of treatment of embolism of the limb arteries. The author concludes that if the patient is seen within ten hours of the embolism the treatment of choice is by embolectomy under local anaesthesia; after ten hours arteriectomy is indicated.

Zeitschrift für Krebsforschung

Berlin vol. 48 September, 1938

Cultivation of Some Human Malignant Tumours *in vitro*. G. Weizmann.—p. 1.

Examination of Koster's Cancer Reaction. F. Sanides.—p. 21.

Tryptophane Content of Tumours. A. Lang.—p. 29.

Attempted Cancer Prophylaxis by Treatment with Carcinogenic Polycyclic Hydrocarbons. H. Alapy.—p. 32.

Transmission of Ehrlich Mouse Ascites Carcinoma by Metastasis-free Organs of Tumour-bearing Animals. A. Wagner.—p. 40.

Histogenesis of Rous Sarcoma No. 1. G. Maurer.—p. 58.

Zeitschrift für Tuberkulose

Leipzig vol. 80 August, 1938 Heft 5

*Relations between Diabetes Mellitus and Pulmonary Tuberculosis, and particularly Intestinal Tuberculosis. E. M. Müller.—p. 281.

*Bovine Infection in Pulmonary Tuberculosis and Possibility of Cultivation of Bovine Tubercle Bacillus. Maria Nuss.—p. 306.

Diabetes Mellitus and Tuberculosis.—This study is based on 125 patients suffering from diabetes and tuberculosis who were admitted to a tuberculosis hospital in Berlin between 1932 and 1937. They formed 1.7 per cent. of all the admissions. As in Berlin the proportion of diabetes is between 0.13 and 0.23 per cent., and that of people with active tuberculosis 0.3 per cent., it is clear that even in this era of insulin therapy the diabetic shows a raised susceptibility to the development of tuberculosis. Of these patients 61.6 per cent. are known to be dead, and on half of these (thirty-nine) a necropsy was performed. The predisposition to tuberculosis is less in the mildly diabetic and is greater in one not properly treated. Once tuberculosis develops the severity of the diabetes has little influence on the course of the tuberculous condition. The author could not confirm, either radiologically or at necropsy, the presence of a special form of "diabetic tuberculosis." The morbid anatomical studies support the author's previous finding that in diabetes suffering from pulmonary tuberculosis there is a notably lessened incidence of intestinal tuberculosis.

Pulmonary Tuberculosis of Bovine Origin.—Among 118 cases examined the author found two (1.7 per cent.) due to the bovine bacillus. The best culture medium was found to be that of Petragiani without glycerin.

Leipzig vol. 80 September, 1938 Heft 6

Chemotherapeutic Attempts to Influence Experimental Pulmonary Tuberculosis. K. W. Jöten and H. Reploh.—p. 345.

Resorption Atelectasis and Pneumothorax. L. Hantschmann.—p. 350.

Contribution to Study of Accessory Lobe of Lung (Azygos Lobe). C. Bazzani.—p. 355.

Contribution to Question of Infectiousness of Active Tuberculosis of Bronchial Glands. K. Dietzel.—p. 359.

Additional Disinfecting Apparatus for Vacuum Cleaners (after C. Petragiani). A. Kairies and G. Mittag.—p. 375.



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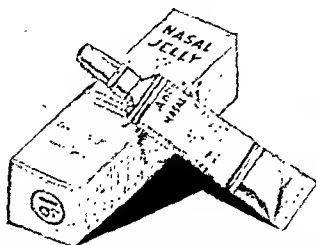
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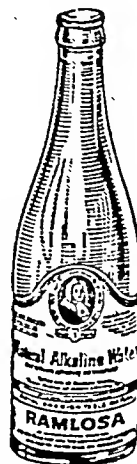
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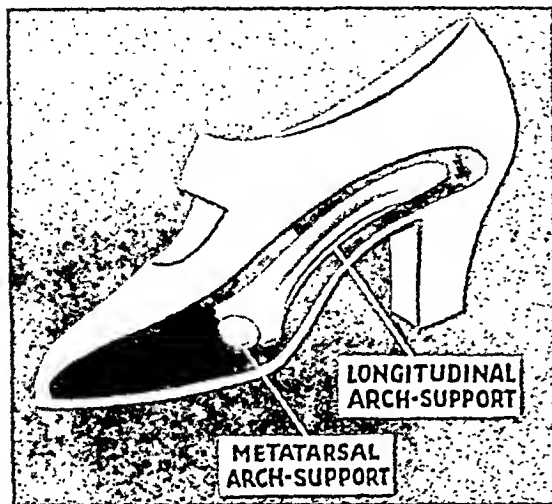
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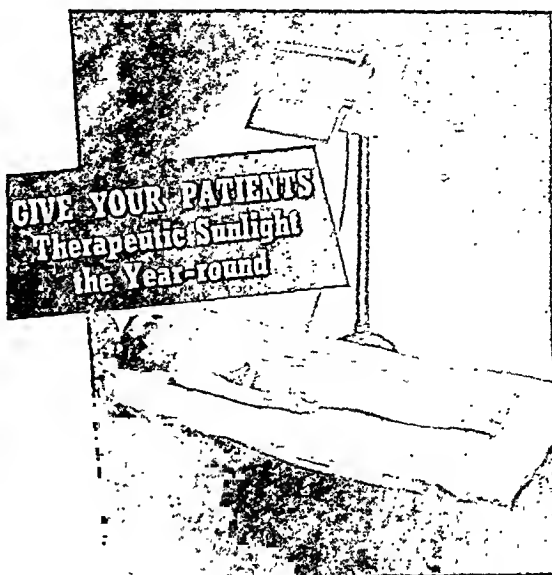
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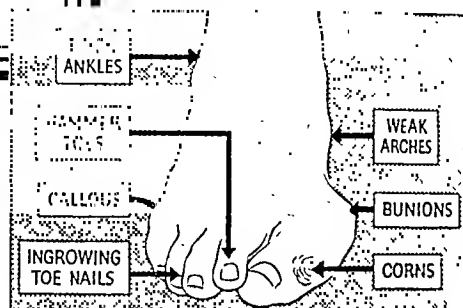
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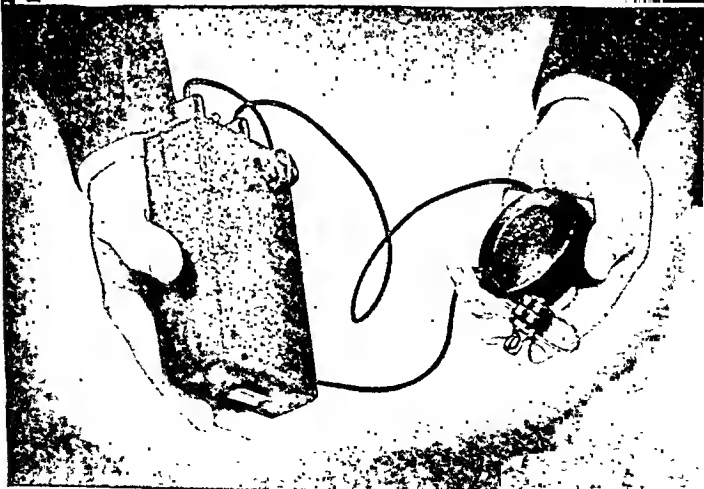


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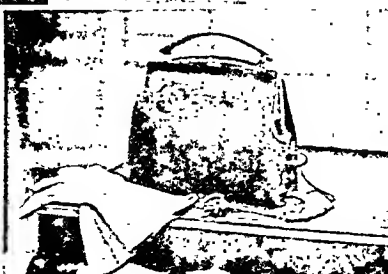
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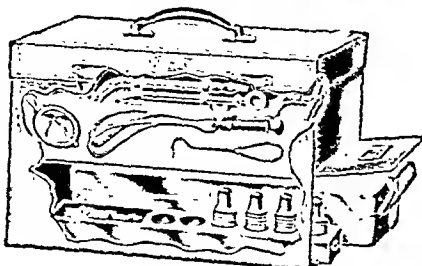


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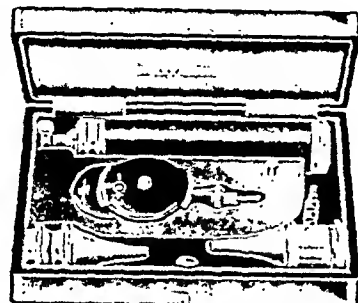
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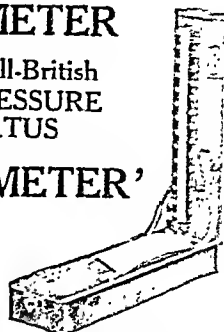
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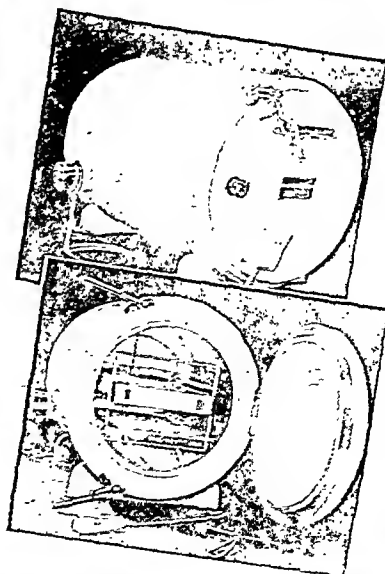
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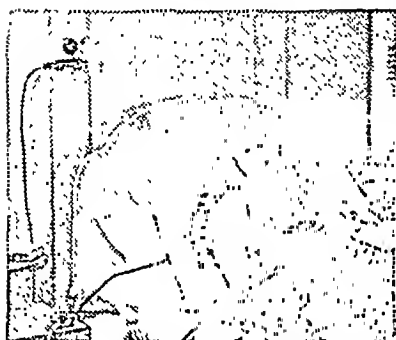
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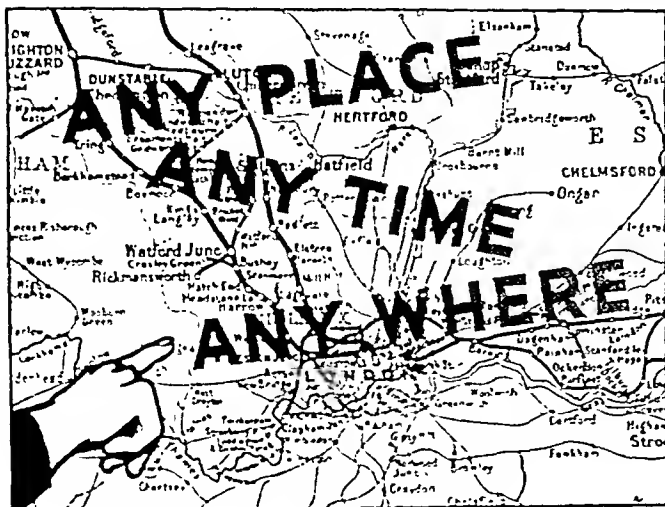
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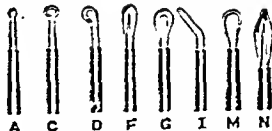
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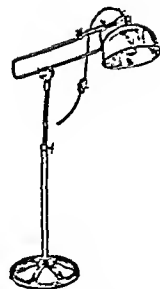


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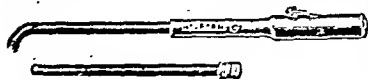
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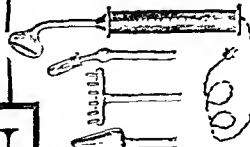
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BRITISH POSTGRADUATE MEDICAL SCHOOL

(UNIVERSITY OF LONDON)

KETTLE MEMORIAL LECTURE

The Kettle Memorial Lecture will be delivered at the London School of Hygiene and Tropical Medicine at 5 p.m. on
Thursday, November 24th, 1938, by Professor W. W. C. TOPLEY, M.D., M.Sc., F.R.C.P., F.R.S., on "THE PLACE OF
PATHOLOGY AMONG THE MEDICAL SCIENCES." The Chair will be taken by Sir John Caulcutt, K.C.M.G. (Chairman
of the Governing Body of the British Postgraduate Medical School). Members of the Profession are cordially invited.

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Street, Gower Street, W.C.1), on NOVEMBER
15th, 16th and 17th, at 5.30 p.m. At the first
Lecture the Chair will be taken by Mr. C. M.
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DEPARTMENT OF PATHOLOGY

A Course of Three Lectures on THE MUCOUS SECRETION OF THE GASTRO-INTESTINAL CANAL

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Professor H. W. FLOREY, M.A., Ph.D.

on

NOVEMBER 16th, 23rd, 30th, 1938, at 4.30 p.m.

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THE 27th LONG FOX MEMORIAL LECTURE will be delivered on TUESDAY, NOVEMBER 15th, at 8.30 p.m., in the large Lecture Theatre of the Walls Physics Building, Bristol University (Bristol 10th), by Prof. Tyndall, F.R.S. Subject: *As an a Conductor of Electricity.*

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Instruction in Anatomy will comprise lectures, demonstrations, practical dissection and oral examination. Special Courses with practical work will be given in Histology one half day each week throughout the Course. Each week papers will be set, corrected and discussed. Members of the class are invited to use the facilities of the Dissecting Room, the Anatomical Museum, the Radiographic Department and the Reading Room of the Medical Sciences Library.

Instruction in Physiology includes Biochemistry and is made up of lectures, demonstrations and *in vivo* classes held from Monday to Thursday at 9.30 a.m., Friday at 10.15 a.m. (not Saturday) beginning on February 14th.

Full particulars may be obtained on application to:—

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Applications are invited for the GEOFFREY I. DUVEEN TRAVELLING STUDENTSHIP in OTO-RHINO-LARYNGOLOGY, value £450 a year. Candidates must be registered as medical practitioners by the General Medical Council which, it had previous education and experience which, in the opinion of the University, qualifies them to undertake research in the subject of Oto-Rhino-Laryngology or in any part thereof. Applicants should reach the University on or before December 31st, 1938, and must be made on the prescribed form which may be obtained, together with further particulars, from the Academic Registrar, Senate House, University of London, W.C.1.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Professor J. B. S. HALDANE, F.R.S., will deliver the LLOYD ROBERTS LECTURE on Thursday, November 17th, at 5 o'clock, at the College, 11, Mall East, S.W.1.

Subject: "Some Problems at Human Control Disease."

Any Member of the Medical Profession admitted on presentation of card

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H. M. BAELOW,
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MIDDLEBROUGH EDUCATION COMMITTEE.

APPOINTMENT OF SENIOR ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly qualified men, who have had experience of School Medical work, for the post of Senior Assistant School Medical Officer in connection with the Medical Inspection and Treatment of School Children, and such other duties as may be required by the Education Committee. The person appointed will be responsible to the School Medical Officer.

Commencing salary £200 per annum, rising by annual increments of £25 to £250 per annum, there by the annual increments of £50 to a maximum salary of £300 per annum.

The successful candidate will be required to devote his whole time to the duties of the office. The appointment will be subject to two calendar months' notice on either side, such notice during the last day of any calendar month. Candidates who must have had experience in the work of the School Medical Service, and preference will be given to candidates who have had experience of Refraction work and who are recognized by the Board of Education in connection with certification under the Mental Deficiency and Other Acts.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the successful candidate passing satisfactorily a medical examination.

Forms of application may be obtained from the Director of Education on receipt of a stamped addressed foolscap envelope and these should be returned to the Director of Education, Education Office, Middlebrough, not later than Saturday, November 26th, 1938.

Canvassing in any form will be disqualifying. Town Clerk's Office, Preston Kitchen, Middlebrough, Town Clerk. November 7th, 1938.

COUNTY OF BRECON ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of Assistant (male or female) Medical Officer for the County of Brecon, at a commencing salary of £500 per annum, rising by annual increments of £50 to a maximum of £600 per annum, with travelling and subsistence allowances according to the County Scale.

Applicants must be registered Medical Practitioners with at least three years' practical experience in their profession, competent to assist the County Medical Officer in the general administration of his Department, particularly in Ante-natal Clinic, Refraction work, examination of Blind Persons under the Blind Persons Acts, School Medical Inspection and Maternity and Child Welfare work, and must either possess special experience of practical midwifery and ante-natal work, or have, prior to April 1930, held the appointment of Medical Officer of an Ante-natal Clinic with the approval of the Minister of Health.

Knowledge of Welsh desirable, and ability to drive a car essential.

The person appointed must be prepared to reside in or near to Brecon, and to be under the direction of the County Medical Officer of Health, will be required to perform such duties as the Council may direct, and to devote the whole of his or her time to the duties.

The appointment will be terminable by three calendar months' notice on either side. Canvassing members of the Council, either directly or indirectly, will be a disqualification.

The post is designated as an established post under the Local Government and Other Officers' Superannuation Act, 1922.

Applications must be made on forms which can be obtained from the undersigned accompanied by three copies of three recent testimonials, and must be received by me not later than November 25th, 1938.

W. F. W. BETENSON, County Medical Officer of Health, County Health Offices, The Watton, Brecon, October 29th, 1938.

CORPORATION OF DUNDEE PUBLIC HEALTH DEPARTMENT. OBSTETRICIAN AND GYNAECOLOGIST

Applications are invited from registered Medical Practitioners for the appointment of Obstetrician and Gynaecologist (part-time) to the Public Health Department (Maryfield Hospital, etc.). Salary £450 per annum.

A statement outlining the conditions of appointment and the nature of the duties may be had on application to the Medical Officer of Health, Central Public Health Office, 9, West Bell Street, Dundee. A copy of this statement should be obtained by intending applicants.

Applications, giving full particulars regarding qualifications and experience, must reach the undersigned on or before Tuesday, November 22nd, 1938. City Chambers, Dundee, DAVID LATTO, Town Clerk, October 28th, 1938.

LIVERPOOL COUNTY BOROUGH. LOCAL EDUCATION AUTHORITY. ASSISTANT SCHOOL MEDICAL OFFICER (Male)

Applications are invited for a male Assistant School Medical Officer to the Department of the Medical Officer to the Local Education Authority, at a salary of £500 per annum, rising by annual increments of £25 to £600 per annum.

Where the successful candidate holds a similar appointment under another Local Education Authority, and receives a salary in excess of the advertised minimum, a commensurate salary of not less than the salary which the candidate is receiving under his existing appointment, not exceeding the maximum under the Liverpool Scale, may be paid.

Candidates must be registered medical practitioners, and must have had at least three years' experience.

The Officer appointed will be required to reside within the city, and devote whole-time service to the Local Education Authority under the direction of the Medical Officer to the Local Education Authority, and will not be allowed to undertake any private practice.

The appointment will be subject to the Standing Orders of the City Council and to the Local Government Superannuation Act, 1937.

Form of application, which may be obtained by forwarding a stamped addressed foolscap envelope, should be returned, together with copies of three recent testimonials, to the undersigned not later than November 24th, 1938, and endorsed "Assistant School Medical Officer".

The canvassing of Members of the Education Committee or of the City Council is strictly prohibited, and will be considered a disqualification. Municipal Buildings, Liverpool, 2, Town Clerk and Clerk to the Local Education Authority, November 11th, 1938.

SURREY COUNTY COUNCIL ASSISTANT MEDICAL OFFICERS

Applications are invited for the appointment of Assistant Medical Officers. Applicants must possess a qualification in Public Health. The main duties will be in connection with the School Medical and Maternity and Child Welfare Services, but the officers appointed will be required to undertake such other Public Health duties as may be allocated to them. They will be on the staff of the County Medical Officer of Health, must reside in the County of Surrey, and devote their whole time to the work.

Salary £600 per annum, rising by annual increments of £20 to £700 per annum. Travelling expenses in accordance with the Council's scale will be allowed.

The appointments will be subject to the approval of the Ministry of Health and the Board of Education. To the successful candidates passing a medical examination, to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the Standing Regulations of the Council which provide, *inter alia*, that appointment may be determined at any time by three months' notice.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should be made on the prescribed form and sent to the County Medical Officer of Health, County Hall, Kingston-upon-Thames, from whom copies of the application form may be obtained and to whom any inquiries relating to the appointment should be addressed.

Last day for receipt of application, Wednesday November 16th, 1938.

Canvassing, directly or indirectly will be disqualifying. DUDLEY AUKLAND, Clerk of the County Council.

County Hall Kingston-upon-Thames, November 1st, 1938.

COUNTY BOROUGH OF HUDDERSFIELD APPOINTMENT OF ASSISTANT MEDICAL OFFICER OF HEALTH

Applications are invited from registered Medical Practitioners (Males) who have had special experience of ante-natal work and in the care of infants. Salary £500-£25-£700 initial salary according to experience. The doctor appointed will be required to reside in the Municipal Maternity Home where the extensions in progress at present have been completed. A deduction will then be made from the salary for board, etc.

The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination before being appointed to the position.

Applications, stating age, full particulars regarding training, qualifications, and appointments held since qualification, should be forwarded to the Medical Officer of Health, Public Health Department, Huddersfield, along with copies of two recent testimonials, as at or before Thursday, November 17th, 1938.

Application forms are not provided. SAMUEL PROCTER, Town Clerk, Town Hall, Huddersfield, November, 1938.

COUNTY BOROUGH OF BLACKBURN. PUBLIC ASSISTANCE DEPARTMENT. RESIDENT JUNIOR ASSISTANT MEDICAL OFFICER

Applications are invited from Medical Practitioners (male) for the appointment of a Resident Junior Assistant Medical Officer at Queen's Park Hospital and Institution.

The Staff consists of a Resident Medical Officer, a Resident Assistant Medical Officer, a Consulting Surgeon, a Laboratory Assistant, and an X-ray Attendant.

There is a separate Infirmary, a separate Maternity Block, and a separate Hospital for children, and there is opportunity for experience in all departments including Medical, Surgical, and Midwifery cases. An X-ray apparatus is installed.

The person appointed will be required to devote his whole time to the duties, and also to act as may be directed by the Resident Medical Officer. The appointment will be limited to a term not exceeding one year. Salary at the rate of £200 per annum, together with board, apartments and attendance.

Applications, stating age, qualifications and experience, accompanied by copies of not more than three recent testimonials, must be sent to the Public Assistance Officer, Public Assistance Office, Cardwell Place, Blackburn.

Town Hall, Blackburn, CHAS. S. ROBINSON, Town Clerk, October 31st, 1938.

GENERAL POST OFFICE. HEADQUARTERS MEDICAL BRANCH (Male Staff)

There is a vacancy for a MALE ASSISTANT MEDICAL OFFICER in the Headquarters Medical Branch. The appointment is pensionable and carries a salary which commences at £500 a year, and rises by annual increments of £25 to a maximum of £600 a year. The rates of salary are liable to review.

Each candidate must be a fully qualified medical practitioner, a natural-born British subject, and the child of a person who is, or was at the time of death, a British subject. Preference will be given to candidates under 30 who have held one or more Hospital appointments. The successful candidate will not be allowed to engage in private practice in his official duties.

Applications, stating qualifications, age, etc., with copies of any recent testimonials, should be sent to the Chief Medical Officer, General Post Office, London, E.C.1, not later than December 3rd, 1938. Political influence should not be sought in support of applications. It would prejudice rather than assist the candidate.

The Male Medical Staff at Headquarters consists at present of a Chief Medical Officer, a Second Medical Officer, and four Assistant Medical Officers. Information as to the duties can be obtained from the Chief Medical Officer.

Candidates may be required to attend for personal interviews in London at their own expense.

CITY OF MANCHESTER CRUMPSALL HOSPITAL (1543 Beds) (Recognized under Regulation for the F.R.C.S.)

The Public Health Committee invites applications from registered medical men for the post of RESIDENT ASSISTANT MEDICAL OFFICER at the above-named Hospital.

The salary for the appointment is £200 per annum, with board, residence and laundry in addition, subject to the Manchester Corporation conditions of service.

The appointment will be made in the first instance for a period of six months, renewable for a further six months, but not renewable thereafter.

Full information and forms of application may be obtained from the Medical Officer of Health, Town Hall, Manchester, 2, and applications for the post must be received by him not later than November 16th, 1938.

Town Hall, Manchester, 2, R. H. ADCOCK, Town Clerk, October 31st, 1938.

MIDDLESEX COUNTY COUNCIL WEST MIDDLESEX COUNTY HOSPITAL Twickenham Road, Isleworth

Additional VISITING OPHTHALMIC SURGEON required—must be F.R.C.S. (Ed.) or recognized University Ophthalmology Diploma and registered Medical Practitioner practising ophthalmology.

Fee three guineas per session. One session per week. Non-pensionable post, subject to three months' notice.

Written application, giving details of age, qualifications and experience, should be sent to the undersigned in envelope endorsed "O.P.—Ophthalmology" by November 19th, 1938.

C. W. RADCLIFFE, Clerk of the County Council, Guildhall, Westminster, S.W.1, October 29th, 1938.

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in January, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list, and periods of unemployed or half pay are very rare. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than November 21st, 1938.

ROYAL NAVAL DENTAL SERVICE

Applications are invited for appointment to commissions as DENTAL OFFICERS in the ROYAL NAVY.

Candidates who must be British subjects below the age of 28 years, must hold the degree or diploma of a British University or College of Surgeons and be registered under the Dentists Acts or Medical Acts. Unmarried candidates are preferred. No examination in professional subjects will be held but candidates will be required to attend at the Admiralty for interview, and for physical examination as to their fitness for service in any part of the world.

Successful candidates will be appointed to short service commissions as Surgeon Lieutenants (D) and will receive a grant of £50 towards the cost of providing the necessary uniform on entry. Vacancies in the permanent list will be filled by selection from among officers holding short service commissions who desire to make the Royal Naval Dental Service their permanent career. Officers not transferred to the Permanent List will, on the termination of their short service engagement after six years' service, be eligible for a gratuity of £1,000.

Opportunities are available for officers on the permanent list for postgraduate study. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances. Naval Dental Officers are included in the Scheme for Marriage Allowance under the same conditions as for other Naval Officers.

Application forms and copies of the regulations for entry and conditions of service, rates of pay and allowances, etc., may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of Dental Schools.

BOROUGH OF LUDMORDEN.

MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER

Applications are invited for the position of Medical Officer of Health and Superintendent of Infectious Diseases Hospital. Salary £100 per annum, and maximum allowance of £70 per annum. The appointment is subject to the Local Government and other Officers' Superannuation Act, 1922.

Applicants should send age, qualifications, and experience with copies of not more than three recent testimonials to reach me on or before November 21st, 1938, in envelopes endorsed "Medical Officer."

Medical Officer, HERB GARRATT, Town Clerk.

THE ARMY DENTAL CORPS.

Applications are invited from DENTAL SURGEONS for appointment to commissions in the ARMY DENTAL CORPS.

Candidates, who should not be over 28 years of age, will for the present be selected for commissions without competitive examination, but will be required to present themselves in London for interview and physical examination. They must hold the degree or diploma of a British University or College of Surgeons, and be registered under the Dentists' Acts or Medical Acts.

Successful candidates will, in the first instance, be given short service commissions for six years, at the end of which period they will retire with a gratuity of £1,000, unless they have been granted permanent commissions. Permanent commissions will be given to officers selected from among those who wish to make the Army their permanent career.

Particulars, including Regulations for Admission, pay and allowances, and forms of application may be obtained on request, either in writing or in person, to the Director, Army Dental Service, The War Office, London, S.W.1.

METROPOLITAN BOROUGH OF LAMBETH.

DEPUTY MEDICAL OFFICER OF HEALTH.

The Lambeth Borough Council invite applications from fully qualified medical practitioners for the appointment of Deputy Medical Officer of Health for the Borough at an inclusive salary of £840 per annum, rising by annual increments of £40 to a maximum of £960 per annum.

Candidates must not be more than forty years of age on November 17th, 1938, and must possess the qualifications prescribed by the Public Health (London) Act, 1936, and the Sanitary Officers Order, 1926. The gentleman appointed will be required to devote the whole of his time to the duties of the office, to contribute to the Council's Superannuation Fund, and to submit himself to the Council's Doctor for examination, the appointment being subject to such Doctor's report being satisfactory. The appointment will also be subject to the approval of the Minister of Health.

Applications, on forms to be obtained from the undersigned, endorsed "Deputy Medical Officer" accompanied by copies of three testimonials of recent date, are to be delivered by post on Monday, November 21st, 1938.

Canvassing either directly or indirectly, will disqualify a candidate.

Lambeth Town Hall, Brixton Hill S.W.2
October 25th, 1938.

O. L. ROBERTS,
Town Clerk

EAST SUSSEX COUNTY COUNCIL.

SOUTHLANDS HOSPITAL, SHOREHAM-BY-SEA.

ASSISTANT RESIDENT MEDICAL OFFICER

Applications are invited from fully qualified male registered Medical Practitioners (unmarried) for the post of Assistant Resident Medical Officer at Southlands Hospital, Shoreham-by-Sea, near Brighton. The appointment is for one year. Salary £300 per annum, with board, residence, and laundry. Preference will be given to candidates who have had special experience in Obstetrics and Gynaecology. The Hospital (350 beds) is a general hospital, under the administration of the East Sussex County Council. The duties of the post are mainly concerned with obstetrical care (forty maternity beds), but there are general duties in addition.

Application should be made on a form obtainable from the undersigned at the County Hall, Lewes, and must be returned to him by Saturday, November 19th. It is desired that the selected applicant shall commence duty on January 1st, 1939.

County Hall, W. R. EDWARDS,
Lewes, Deputy Clerk of the County Council
October 28th, 1938.

ROWLEY REGIS BOROUGH COUNCIL.

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER (Female).

The Council of the Borough of Rowley Regis invite applications for the above whole-time appointment from duly qualified registered Medical Practitioners. It is essential that the Officer appointed should have had experience in Maternity and Child Welfare work. The salary will be £500 and will rise, subject to satisfactory service, by annual increments of £25 to £700 per annum, travelling expenses, in accordance with the Council's scale, will be allowed. The appointment is subject to the Local Government Officers' Superannuation Act, 1922.

Candidates must apply on the prescribed form which can be obtained from Dr. FRANK AKER, Medical Officer of Health, Haden Hill Park (Off. 2), Old Hill, Staffs.

Applications, together with copies of not more than three testimonials, must be received by the undersigned not later than Saturday, November 26th, 1938.

Council House, C. DUCKLEY,
Old Hill, Staffs. Town Clerk

INDIAN MEDICAL SERVICE

RECRUITMENT OF EUROPEAN OFFICERS

Applications are invited from Medical Men for Permanent Commissions in His Majesty's Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or of £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

British subjects of pure European descent who are under 32 years of age who are registered under the Medical Acts in force in Great Britain and Northern Ireland are eligible to apply.

CAREERS.

The Indian Medical Service offers a permanent career with wide opportunities of medical experience, including clinical, preventive, specialist and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after one year's Indian Service to have his name registered for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of Civil Officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

RATES OF PAY.

| Years of Service | Rank | Basic Pay Rs. per month | Overseas Pay, £ per month | Total £ per annum |
|------------------|------------|-------------------------------|---------------------------------|-------------------------|
| 1 | Lieutenant | 450 | 15 | 585 |
| 2 | Captain | 500 | 25 | 750 |
| 3 | " | 550 | 25 | 795 |
| 4 | " | 550 | 25 | 795 |
| 5 | " | 600 | 25 | 840 |
| 6 | " | 600 | 30 | 900 |
| 7 | " | 700 | 30 | 990 |
| 8 | " | 700 | 35 | 1050 |
| 9 | " | 700 | 35 | 1050 |
| 10 | " | 800 | 35 | 1140 |
| 11 | Major | 800 | 40 | 1200 |
| 12 | " | 800 | 40 | 1200 |
| 13 | " | 800 | 40 | 1200 |
| 14 | " | 800 | 40 | 1200 |
| 15 | " | 800 | 40 | 1200 |
| 16 | " | 950 | 40 | 1335 |
| 17 | " | 950 | 40 | 1335 |
| 18 | " | 950 | 40 | 1335 |
| 19 | " | 1100 | 40 | 1470 |
| 20 | " | 1100 | 40 | 1470 |
| 21 | Lieut. Col | 1350 | 40 | 1695 |
| 22 | " | 1350 | 40 | 1695 |
| 23 | " | 1350 | 40 | 1695 |
| 24 | " | 1500 | 40 | 1830 |
| 25 | " | 1500 | 40 | 1830 |

Note.—(1) The rupee is at present stabilized at a rate equivalent to 1s. 6d.

(2) An officer promoted to the rank of Lieut.-Colonel before completion of 20 years' service will receive pay at the rate of Rs. 1219 per mensem (basic) plus £40 per month overseas pay.

Extras—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

· ANTEDATES IN COMMISSION.

Candidates possessing certain higher medical qualifications or holding the Diploma in Public Health may be granted an antedate in their commissions. Past service in certain hospital appointments may also render candidates eligible for an antedate. Persons holding or about to hold resident posts at recognized

hospitals may be seconded in those posts for a period. The maximum period of antedate, secondment, or antedate and secondment combined, admissible under this paragraph, is limited to 18 months.

OUTFIT ALLOWANCE.

Officers on appointment will receive an allowance of £75 towards the cost of outfit.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice so long as it does not interfere with their proper duties.

LEAVE

Leave can be taken at reasonable intervals, and adequate rates of leave pay are provided. Extra leave (known as study leave), which may not exceed twelve months in all during an officer's service, may be granted to officers desirous of pursuing special courses of study of a postgraduate nature. During such leave, study allowance, at present fixed at the rate of 12s. a day in the United Kingdom, £1 a day on the Continent of Europe, and £1 10s. a day in the United States of America and Canada, is granted to an officer in addition to ordinary rates of leave pay.

PENSIONS.

The rates of pensions are as follows:— Per annum.

| After 17 years' service for pension ... | ... | £372 | 0s. |
|---|-----|------|------|
| 18 | 18 | £400 | 0s. |
| 19 | 19 | £428 | 0s. |
| 20 | 20 | £465 | 0s. |
| 21 | 21 | £502 | 0s. |
| 22 | 22 | £539 | 10s. |
| 23 | 23 | £576 | 10s. |
| 24 | 24 | £614 | 0s. |
| 25 | 25 | £651 | 0s. |
| 26 | 26 | £697 | 10s. |
| 27 | 27 | £744 | 0s. |

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with free passage to India. The families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of prevailing charges. Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately three months, prior to their embarkation for India on first appointment. Information as to the rates of pay admissible during this period and subsequently up to arrival in India is contained in the memorandum referred to below.

A memorandum giving full details regarding these appointments and forms of application may be obtained from the UNDER-SECRETARY OF STATE FOR INDIA, MILITARY DEPARTMENT, INDIA OFFICE, LONDON, S.W. 1. The Selection Committee will meet at the India Office on 6th December, 1938, and the selected candidates, unless seconded for hospital appointment, will be required to join a course of instruction commencing on 1st January, 1939, prior to sailing for India in April, 1939.

Applications should reach the India Office as soon as possible.
INDIA OFFICE. NOVEMBER, 1938.

BOROUGH OF WIMBLEDON

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER (Male)

Applications are invited for the above appointment from qualified and registered medical practitioners under 35 years of age having at least three years' experience since qualification. Applicants should possess the D.P.H., and experience of School Medical work and general public health work is necessary.

The Officer appointed will be required to reside in the Borough, to devote his whole time to his official duties and to work under the direction of the Council's Medical Officer of Health.

The commencing salary is £600, rising by annual increments of £25 to a maximum of £700 per annum. The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the passing of a medical examination.

Application forms can be obtained from the Medical Officer of Health, Town Hall, Wimbledon, to whom they must be returned, with copies of three recent testimonials, not later than last post on Monday, November 21st.

HERBERT EMERSON SMITH, LL.B.,
Town Hall, Wimbledon S.W.19 Town Clerk
November 1st, 1938

CITY OF BIRMINGHAM

ASSISTANT MEDICAL OFFICER OF HEALTH

The Public Health and Maternity and Child Welfare Committee invite applications for the post of whole-time Assistant Medical Officer of Health for general, and mainly administrative, public health duties. Candidates must be qualified medical practitioners and hold a Diploma in Public Health.

The successful candidate will be required to pass an approved medical examination, to contribute to the superannuation scheme, established under the Local Government and Other Officers' Superannuation Act, 1922, as amended by Section 82 of the Birmingham Corporation Act, 1915—Annuities for Widows—and, if under 30 years of age, to join the Birmingham Municipal Officers' Widows and Orphans' Pensions Scheme.

The appointment will be terminable by one month's notice on either side. Salary £600 per annum, rising by £25 annually to £600.

Applications, endorsed "Assistant Medical Officer of Health" and accompanied by copies of three recent testimonials, to be made on a form to be obtained from the Medical Officer of Health, The Council House, Birmingham, 3, and returned to him by Saturday, November 26th, 1938.

Conveying, directly or indirectly, is prohibited and will result in disqualification.
F. H. C. WILTSHIRE,
Town Clerk

BURY AND DISTRICT JOINT HOSPITAL BOARD

RESIDENT ASSISTANT TO THE MEDICAL SUPERINTENDENT.

Wanted, an Assistant to the Medical Superintendent of the Institutions of the Joint Board. These consist of a Fever Hospital (100 beds), a Sanatorium (70 beds), and a Small-pox Hospital. Candidates must be registered medical practitioners. The appointment is a whole-time one, and the person appointed will assist the Medical Superintendent generally and as he requires. Preference will be given to male unmarried candidates with hospital experience and special experience in pulmonary tuberculosis.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Commencing salary £400 per annum, with £25 increase at the end of the first year and a further £25 increase at the end of the second year, with board, washing and lodging.

Applications, stating age, qualifications and experience, together with testimonials, to be sent to me on or before November 15th, 1938.

Horoby Buildings, F. A. BRADLEY,
The Rock Clerk to the Board
Bury, Lancashire

GLAMORGAN COUNTY COUNCIL.

APPOINTMENT OF TEMPORARY MEDICAL OFFICERS.

TWO ASSISTANT MEDICAL OFFICERS (one man, one woman) are required for temporary service in the Public Health Department of the Glamorgan County Council. Preference will be given to those who have held resident appointments. Salary at the rate of £500 per annum, with travelling expenses and allowances on the County Scale.

Applications for the appointments, stating age and qualifications, and accompanied by copies of not more than three recent testimonials, should be sent immediately to the County Medical Officer, Dr. E. COLSTON WILLIAMS, Glamorgan County Hall Cardiff.

HENRY ROWLAND,
Clerk of the County Council,
Glamorgan County Hall,
Cardiff, November 7th, 1938.

COUNTY BOROUGH OF BARROW-IN-FURNESS

Applications are invited for the appointment of MEDICAL OFFICER OF HEALTH and PORT MEDICAL OFFICER of the Borough, subject to the provisions of the Sanitary Officers' Order, 1926, and the Local Government Act, 1933.

Candidates must not be more than 42 years of age.

The person appointed will be required to perform all the duties of a Medical Officer of Health under relevant Acts and Orders, to act as School Medical Officer for the Borough, Administrative, Infectious Diseases Officer, and Superintendent of the work of the Maternity and Child Welfare Service. He will also be required to act as Medical Superintendent of the Devonshire Road Isolation and Infectious Hospital.

The person appointed must reside within the Borough, devote his whole time to the duties of the office, and not engage in private practice.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922. The successful candidate will be required to pass a medical examination.

The salary to cover all duties will commence at the rate of £700 per annum, rising, subject to satisfactory service, by annual increments of £50 to a maximum of £1,050 per annum. A motor car allowance of £50 per annum will be granted.

Applications, endorsed "Medical Officer of Health," stating age, qualifications and experience, and accompanied by copies of not more than three recent testimonials, should reach the undersigned not later than Wednesday, November 23rd, 1938.

Conveying, directly or indirectly, is prohibited and will result in disqualification.
Town Hall W. LAWRENCE ALLEN,
Barrow-in-Furness Town Clerk

WIRRAL JOINT HOSPITAL BOARD

CHATHAMBRIDGE ISOLATION HOSPITAL (100 Beds)

The Wirral Joint Hospital Board invite applications from registered practitioners for the post of RESIDENT ASSISTANT MEDICAL OFFICER at the above-named Hospital.

Preference will be given to applicants who have had experience in bacteriology.

The Hospital is situated within easy distance of the Liverpool Medical School, and time will be allowed, when the work of the Hospital permits, for attendance at D.P.H. or other higher qualification classes.

The appointment is for one year only and is not renewable.
Salary £200 per annum, with board, residence, and laundry.

Duties to begin February 1st, 1939.
Application, stating age, qualifications, etc., and accompanied by copies of recent testimonials, to be made not later than December 15th, 1938, to
DAVID HUNTING,
Clerk to the Joint Hospital Board
61, Hamilton Square,
Liverpool

HERTFORDSHIRE COUNTY COUNCIL.

WARE PARK SANATORIUM.

ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of a male Assistant Medical Officer at the County Sanatorium, Ware Park, near Ware. Age not less than 25 and not more than 40 years. Applicants must not be married men, and should be qualified medical practitioners with hospital experience, and preference will be given to those who have had experience of the institutional treatment of tuberculosis. The appointment is for one year. Salary £300 per annum, with furnished rooms rent free, together with board, washing, light, fuel, and service.

Forms of application, with particulars, can be obtained from the Clerk of the County Council, Clerk of the Peace Office, Hertford, and must be returned daily completed before November 30th, 1938.

ELTON LONGMORE,
Clerk of the County Council,
Clerk of the Peace Office,
Hertford, November, 1938

COUNTY OF LINCOLN—PARTS OF LINDEY.

PUBLIC HEALTH DEPARTMENT.

COUNTY INFIRMARY, Louth (200 Beds).

Applications are invited from fully qualified unmarried men for the post of RESIDENT MEDICAL OFFICER at the above-named Hospital. The appointment is for six months, terminable by one month's notice on either side. Salary at the rate of £200 per annum, with modern quarters, board, laundry, etc., valued at the rate of £100 per annum. Candidates must have held a previous Postgraduate appointment to a Voluntary or Local Government Hospital.

Applications, with copies of three recent testimonials and photograph, should be received by the Medical Superintendent, County Infirmary, Louth, Lines, not later than November 28th, 1938.

THE KING EDWARD VII WELSH NATIONAL MEMORIAL ASSOCIATION.

Applications are invited from duly registered Medical Practitioners (male) for the following post at the Glam. Ty. Infirmary & Hospital, Llanwrar, Cardiff (100 beds for pulmonary and non-pulmonary tuberculosis in adults and children).

SENIOR ASSISTANT MEDICAL OFFICER.
Salary £100 per annum, rising by annual increments of £25 to £150 per annum, less emoluments in the case of an unmarried man of £100 per annum. A married man will be expected to live near the Hospital.

Preferable candidates should have had six months' recent experience in a special institution (Hospital or Sanatorium) for the treatment of pulmonary or non-pulmonary tuberculosis, with eighteen months' experience in general clinical work, of which six months should have been spent in a hospital not confined to the treatment of tuberculosis.

It is a post subject to the provisions of the Association's Superannuation Scheme. Applicants must be under 40 years of age and the successful candidate must undergo a medical examination.

Applications, stating age, qualifications, and previous experience, together with copies of three recent testimonials, should reach the undersigned not later than November 22, 1938.

D. A. POWELL,
Medical Officer, Principal Medical Officer,
Cathays Park, Cardiff.

MIDDESEX COUNTY COUNCIL

REDFHILL COUNTY HOSPITAL, Redhill, Middlesex

Required JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER, registered Medical Practitioner, with previous general hospital resident service. Duties mainly physical and anaesthetic. Local appointment, recognised qualification for M.C.O.G. and D.C.O.G.

Salary £250 p.a. with board, lodging, and laundry valued at £100 p.a.

Whole-time appointment, subject to medical examination, is for six months, with possibility of six months' extension, when contribution to superannuation fund may be required.

Written application to be lodged in envelope endorsed "A.M.O. Redhill-2," giving details, age, experience and qualifications and enclosing copies of two or three recent testimonials.

C. W. RADCHITT,
Clerk of the County Council,
Guildhall Westminster, S.W.1.

CITY OF LEICESTER.

RESIDENT MEDICAL OFFICER.

Resident Medical Officer (male) required for the City Isolation Hospital and Sanatorium, Groby Road.

Appointment for a period of six months, renewable if service is satisfactory for a further period of six months.

Salary at the rate of £200 per annum, with the usual residential emoluments. The officer appointed may be required to assist with Infant Welfare work.

Applications, on forms to be supplied, to be sent to the undersigned not later than November 23rd, 1938.

Health Officers, E. K. MACDONALD,
Grey Friars, Medical Officer of Health
Leicester, November, 1938.

KENT COUNTY COUNCIL.

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Junior Resident Assistant Medical Officer at the County Hospital, Chatham (600 beds).

The salary for the appointment is £250 a year with residential emoluments which are valued at £120 a year.

The appointment is a whole-time one and will be for a period of one year only, and not renewable.

Forms of application can be obtained from the Public Assistance Officer, Tonbridge Road, Maidstone, to whom applications must be sent by 10 a.m. on Tuesday, November 22nd, 1938.

Sessions House, W. L. PLATTIS,
Maidstone, Clerk of the County Council,
November 7th, 1938.

LEICESTER PUBLIC MEDICAL SERVICE.

Applications are invited by November 26th for the post of EAR, NOSE AND THROAT SURGEON to the above Service. Details of duties and remuneration may be obtained from the Manager, 38A, East Bond Street, Leicester. An application has been received from a local consultant.

T. W. LAWRENCE,
Manager.

RICHARD MURRAY HOSPITAL, Blackhill, Co. Durham **HOUSE SURGEON.**

Applications are invited for the post of **HOUSE SURGEON** at the above Hospital, which has accommodation for sixteen surgical cases and sixteen maternity cases. The salary offered is £200 per annum with board, apartments, and laundry in addition.

Applicants will require to have had previous experience as a House Surgeon in a General Hospital, and preference will be given to those with special experience in a Maternity Hospital.

The appointment is for the period commencing January 1st, 1939, and terminating on December 31st, 1939, and is not renewable.

The Hospital is served by a Visiting and Consultant Surgeon and a Visiting and Consultant Obstetrician.

As far as the Maternity Unit is concerned, the person appointed will be subject to the administrative control of the County Medical Officer of Health.

The duties will include the medical supervision of an adjacent small Convalescent Home for mothers and young children.

Applications, stating age, qualifications, and experience, and accompanied by copies of not more than three recent testimonials, must be received by the undersigned not later than Monday, November 21st, 1938.

T. W. ADDISON,
Shire Hall, Secretary to the Richard Murray
Durham Hospital Board
October 31st, 1938

ROYAL SUSSEX COUNTY HOSPITAL, Brighton (272 Beds.)

Required at the end of December:

ONE HOUSE PHYSICIAN,
ONE HOUSE SURGEON,
ONE CASUALTY HOUSE SURGEON.

Salaries respectively £150, £150, and £120 per annum, with board, residence, and laundry. Candidates must hold Medical and Surgical qualifications of the British Empire and be duly registered under the Medical Acts.

They must be unmarried and when elected under 30 years of age.

Applications, with copies of recent testimonials, should be sent to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Superintendent

ROYAL SUSSEX COUNTY HOSPITAL, Brighton.

Applications are invited for the offices of **HONORARY MEDICAL REGISTRAR** and **HONORARY SURGICAL** from gentlemen who hold a Medical and Surgical qualification of the British Empire and who are duly registered under the Medical Acts.

The appointments will be for a term of three years, the successful candidates being eligible for re-election at the end of that period.

Applications must reach the undersigned at the Hospital before 12 noon on November 26th, 1938.

L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

EAR AND THROAT HOSPITAL, Birmingham, 3

THIRD HOUSE SURGEON wanted (non-resident). Must be qualified and with clinical experience. Salary at the rate of £150 per annum, with lunch on six weekdays and an allowance of £50 per annum in lieu of board and lodging.

Appointment for six months, to commence as soon as possible.

Candidates are eligible for election to senior posts. Facilities for training for D.L.O.

Applications and testimonials to be forwarded to the undersigned immediately.

W. H. LOMAS,
Secretary.

ROYAL WEST SUSSEX HOSPITAL, CHICHESTER.

(114 Beds, including 12 in the Private Patients' Block. Two Residents.)

The Board of Management invite applications for the post of **HONORARY OPHTHALMIC SURGEON** from Practitioners in Ophthalmology only.

Applications, giving details of special training, and accompanied by copies of three testimonials, should be sent to the Secretary before November 18th, 1938.

J. COXON INCE,
Secretary.

ROYAL CORNWALL INFIRMARY, TRURO (84 Beds.)

HOUSE SURGEON (male) required with experience of Anaesthetics, to commence duties on December 1st next. Salary £170 per annum, rooms, board, and washing. Apply, with copies of three recent testimonials, to the Secretary, of whom further particulars may be obtained.

W. E. GREENFELL,
Truro Hon. Secretary.
November 8th, 1938

THE BOLTON ROYAL INFIRMARY, (318 Beds, including Two Auxiliary Hospitals.)

Applications are invited for the following posts: **RESIDENT SURGICAL OFFICER** (permanent). Resident staff comprises Assistant R.S.O., House Physician, and three House Surgeons. R.S.O. appointment is recommended by the Royal College of Surgeons of England for the Final Fellowship Examination.

Salary £250 per annum, with board, residence, attendance, and laundry.

ASSISTANT RESIDENT SURGICAL OFFICER (permanent).

The duties of the Assistant R.S.O. comprise responsibility for the whole of the Casualty and Orthopaedic Departments and to deputise for the R.S.O. in his absence.

The post is recommended by the Royal College of Surgeons of England for the Final Fellowship Examination.

Salary £200 per annum, with board, residence, attendance, and laundry.

THREE HOUSE SURGEONS (ladies or gentlemen).

Salary £150 per annum, with board, residence, attendance, and laundry.

Applications for the posts, stating age, nationality, and experience, together with copies of testimonials, should be forwarded to the undersigned not later than the first post Monday, November 21st.

Duty in each case will commence on January 1st, 1939, with the exception of one House Surgeon, who will be required to commence December 6th.

H. CORLESS,
Secretary

SAINT MARY'S HOSPITAL SAINT MARY'S MUNICIPAL HOSPITAL (1,050 Beds.)

Applications are invited for the appointment of a **JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER**. Applicants must be single gentlemen, duly qualified and registered, not exceeding 30 years, and must have had at least one year's experience of hospital work.

Experience in anaesthetics will be an additional qualification. The appointment is limited to a term of one year, and the salary will be £250 per annum, with residential emoluments valued at £125 per annum.

The appointment includes service at any institution belonging to the City Council, and will be subject to termination by one month's notice on either side.

Resident Medical Superintendent is in attendance.

Application forms may be obtained from and must be returned to the Medical Officer of Health, The Guildhall, Portsmouth, not later than Monday, November 21st, 1938.

Canvassing will be a disqualification.

F. J. SPARKS, Town Clerk
The Guildhall, Portsmouth.
October 29th, 1938

THE ROYAL PORTSMOUTH HOSPITAL, PORTSMOUTH. (Six Resident Medical Officers.)

Applications are invited for the post of **SENIOR HOUSE SURGEON** (male). Salary at the rate of £175 per annum, with board, etc. Candidates must have held an appointment as House Surgeon at a General Hospital and had considerable experience, as the post is a very responsible one.

To commence December 12th, 1938. Six months' appointment, and eligible on completion of term for extension.

Applications, stating age, nationality, and full details, with copies of three testimonials, to be sent to the undersigned not later than November 30th, 1938, from whom all particulars can be obtained.

B. WAGSTAFF,
Secretary.

THE ROYAL PORTSMOUTH HOSPITAL, PORTSMOUTH. (Six Resident Medical Officers.)

Applications are invited for the post of **CASUALTY OFFICER** (male), qualified. Salary at the rate of £150 per annum, with board, etc. To commence December 1st, 1938.

Six months' appointment. Eligible on completion of term for extension or other resident posts.

Applications, stating age, nationality, etc., and copies of three recent testimonials, to be sent to the undersigned on or before November 16th, 1938, from whom all particulars can be obtained.

B. WAGSTAFF,
Secretary.

SWINDON AND NORTH WILTS VICTORIA HOSPITAL, SWINDON, WILTS.

Wanted immediately, **HOUSE PHYSICIAN**, male, British or Irish, unmarried. Salary £125 per annum, appointment for six months, renewable.

There are two residents. The hospital is fully equipped for general work and the specialities. Private beds, no obstetrics. The post is suitable for a recently qualified man and there is time for reading.

Apply, stating age and experience, with copies of recent testimonials to **K. N. Knapp,** Secretary

BIRMINGHAM GENERAL DISPENSARY **RESIDENT MEDICAL OFFICER.** Salary £450-£600 p.a.

Applications are invited for the post of Resident Medical Officer at one of the ten Branches of the above Institution. Candidates should be male British subjects, single, and have a University Degree in Medicine and Surgery, with some experience of private practice. Commencing salary of £450 per annum, rising by annual increments of £25 to £550 per annum (£50 higher for candidates with M.D.) with furnished quarters and attendance, but not board. No midwifery or private practice. Pension and provident fund schemes in preparation.

Applications, stating age, qualifications and experience, together with copies of at least three but not more than five recent testimonials, should be sent to the undersigned as soon as possible.

By Order of the Committee
ERIC W. HOOK, A.C.A.,
Secretary

Birmingham General Dispensary,
Steelhouse Lane, Birmingham, 4

LIVERPOOL MATERNITY HOSPITAL, Oxford Street

HOUSE SURGEON required for the six months commencing January 1st next. Salary at the rate of £200 per annum, with board, residence and laundry. Previous experience as House Surgeon essential. Membership of a Medical Defence Society is a condition of appointment.

Applications, stating age, qualifications and experience, together with copies of testimonials, to be sent to the Honorary Secretary of the Medical Board on or before Friday, November 25th.

NEW SUSSEX HOSPITAL FOR WOMEN Windleham Road, Brighton

Applications are invited from qualified Medical Women for the post of **HONORARY CLINICAL ASSISTANT IN THE EYE DEPARTMENT** also for the post of **HONORARY CLINICAL ASSISTANT TO GYNAECOLOGICAL OUTPATIENTS.**

Applications, together with copies of three recent testimonials, to be sent to Mr Percy F. Spooner, Secretary.

November 7th, 1938.

HERTFORD COUNTY HOSPITAL (171 Beds.)

Applications are invited for the post of **HOUSE SURGEON** (male) (three Residents). Salary £200 per annum, with board, residence and laundry. The appointment is for six months in the first instance.

Applications, with three recent testimonials, should be sent to the undersigned not later than Tuesday, November 22nd.

PERCY G. BROOKS, Secretary

KING EDWARD VII HOSPITAL, WINDSOR. (200 Beds.)

CASUALTY OFFICER required beginning December. Applicant must be fully qualified men of women and unmarried.

Salary at the rate of £120 per annum, together with board, residence and laundry.

Applications, stating age, qualifications and experience, accompanied by testimonials, should be sent to the undersigned not later than November 16th.

A. E. CHURCHER, Secretary.

BOSTON GENERAL HOSPITAL. (70 Beds.)

RESIDENT MEDICAL OFFICER required to commence duty as soon as possible. Salary £150 per annum, with board, residence, and laundry.

The appointment is for six months and is renewable.

Applications, stating age, qualifications, and previous experience together with copies of three recent testimonials, should be addressed to the undersigned.

GORDON EASTO,
Secretary.

CAERNARVONSHIRE AND ANGLESEY INFIRMARY, BANGOR. (General Hospital.)

JUNIOR HOUSE SURGEON wanted. Salary £120 per annum, with residence, board, and laundry. Duties to commence December 10th.

Applications, stating age, qualifications, and nationality, with two testimonials, should reach the Secretary by November 25th.

Good opportunity for Medical and Surgical experience.

BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN

HOUSE SURGEON (man or woman) wanted for six months from January 1st, 1939. Salary to be at the rate of £100 per annum.

Applications, with full particulars and copies of testimonials, to be sent not later than December 2nd to **HUGH C. ASTON,** 45, Newhall Street, Birmingham 3.

PRINCESS ELIZABETH OF YORK HOSPITAL
FOR CHILDREN.

(Formerly East London Hospital for Children;
115 Beds.)

An OUT-PATIENT MEDICAL OFFICER is required on January 1st, 1939 by the above Hospital. The appointment is for six months and renewable for another six months subject to agreement on both sides. The holder of this post will be official deputy for the Resident Medical Officer. Salary at the rate of £175 p.a. and board.

Card dates who must be properly registered in this country, are invited to send in their applications addressed to the Secretary not later than

first post on Tuesday, November 12nd, with copies of not more than three recent testimonials, and evidence of having had a responsible hospital appointment. Forms of application and copies of the rules may be obtained from the Secretary-Superintendent.

PRINCESS ELIZABETH OF YORK HOSPITAL
FOR CHILDREN.

Stadwell, London E1
(Formerly East London Hospital for Children)
(135 Beds)

A HOUSE SURGEON is required on January 1st, 1919, by the above Hospital. Candidates are invited to send in their applications addressed to the Secretary not later than first post on Tuesday, November 22nd accompanied by copies of not more than three recent testimonials and evidence of having held a responsible hospital appointment. The appointment is for six months. Salary at the rate of £125 p.a. with board, residence and laundry. Candidates must be properly registered.

Forms of application and copies of the rules may be obtained from the Secretary-Superintendent.

PRINCESS ELIZABETH OF YORK HOSPITAL
FOR CHILDREN.

Shadwell, London, E.1
(Formerly East London Hospital for Children)
(135 Beds and 20 Convalescent Beds at Bognor)

A RESIDENT MEDICAL OFFICER is required on January 1st 1939. Generalists are invited to send in their applications addressed to the Secretary not later than first post on Tuesday, November 14th, with a curriculum vitae, and three testimonials, with evidence of having held a responsible hospital appointment. The appointment is for one year. Salary at the rate of £200 p.a. with board, residence, and laundry. Candidates must be properly registered in this country.

Forms of application and copies of the rules may be obtained from the Secretary-Superintendent.

EVELINA HOSPITAL FOR SICK CHILDREN
Southwark, S.E.1.

Applications are invited for the post of HOUSE

SURGEON (male) for six months from December 12th (first two months in the Casualty and Out-patients' Department). Salary at the rate of £120 per annum, with board and residence.

Applications, with copies of three recent testimonials, should be sent to the undersigned, from whom particulars can be obtained not later than first post on Tuesday, November 22nd.

W. H. SIMS

W. H. STEVENS,
House Governor.

THE INFANTS HOSPITAL
Vincent Square, Westminster

Applications are invited for the post of HOUSE PHYSICIAN (either sex). Salary at the rate of £100 per annum, with board, residence and laundry. The hospital is reorganized for the DCH. The appointment is for six months from January 1st, 1959.

Applications, with copies of testimonials, to be forwarded to the undersigned not later than November 30th.

ARNOLD TUNSTALL, Secretary

THE INFANTS HOSPITAL
Vincennes Square, Westminster.

Applications are invited from qualified Medical Practitioners for appointment as CLINICAL ASSISTANTS (Honorary, and for D.C.H. candidates).

Applications, stating previous experience, must be delivered not later than November 16th to the Secretary, from whom further information may be obtained.

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HOSPITAL (Incorporated).
London, W 2.

Applications are invited for the appointment of
HONORARY PHYSICIAN to the **SKIN**
DEPARTMENT Candidates must be Members
of the Royal College of Physicians, London.

Applications, stating age and qualifications accompanied by copies of three testimonials, should reach the undersigned as soon as possible.

JAMES A. HAMLIN, Secretary.

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NORTH MIDLANDS.—Old-established mixed Panel and Private PRACTICE in Country district near large town. Average cash receipts £1,067 p.a. Panel 970 and transferable appointments £200 p.a. Excellent detached house, 2 reception, 6 bedrooms, Professional rooms, garage and large garden. Price £1,250. Premium—11 years' purchase—No. 1117.

MANCHESTER.—Long-established PRACTICE in suburbs. Cash receipts last year £2,650. Panel 2,217. Scope. Detached house, 2 reception, 5 bedrooms, 3 Professional rooms, garage and large garden. Premium—11 years' purchase, or near offer—No. 1186.

LANCS TOWN.—Very old-established mixed Panel and Private PRACTICE. Cash receipts last year £1,372. Panel 1,925. Scope. Good house, 2 reception, 4 bedrooms, 3 Professional rooms (separate entrance). Premium—Practice and house—best offer—No. 1193.

HULL.—Well-established mixed Panel and Private PRACTICE. Ample scope for an energetic man. Cash receipts about £720 p.a. Panel 940. Nice semi-detached house, with ample accommodation, garage and large garden. Premium—Practice and house—best offer—No. 1193.

NORTH STAFFS.—Old-established mixed Panel and Private PRACTICE. Cash receipts over £3,000 p.a. Panel 4,000. Large detached house, with good accommodation and garage, for sale. Premium—Practice—best offer—No. 1166.

EAST COAST.—SEAPORT TOWN.—Well-established PRACTICE, offering ample scope for a young and energetic man. Average cash receipts about £800 p.a. Panel 731. Detached house, 2 reception, 6 bedrooms, 3 Professional rooms, garage and good garden. Premium—Practice and House—best offer—No. 1194.

LANCS TOWN.—Sound middle- and working-class PRACTICE in large town. Suitable for man whose wife is also qualified, or may be conducted with a lady assistant. Cash receipts between £3,700 and £3,800 p.a. Panel 3,100. Two semi-detached houses (adapted for the Practice), reception, 6 bedrooms, 3 Professional rooms, garage and small garden. Price £1,000. Premium—16,000 (to include collectors' debts averaging £30 per week)—Vendor retiring—No. 1179.

SOUTH MIDLANDS.—Very old-established middle- and working-class PRACTICE, suitable for a doctor interested in X-ray and electrical work. Cash receipts 1937, £1,694. Panel 1,600. Good house, 2 reception, 5 bedrooms, 3 Professional rooms, garage and small garden. Premium—best offer—No. 1182.

LANCS TOWN.—PARTNERSHIP in middle- and better working-class Practice. Cash receipts about £3,900 p.a. Panel 1,800 and appointments £350 p.a. Detached house, 2 reception, 4 bedrooms. Premium—1 share—2 years' purchase, or near offer—No. 1183.

LANCS.—YORKSHIRE BORDER.—Old-established PRACTICE in manufacturing town. Cash receipts last year £1,451. Panel 1,350. Detached house, 2 reception, 4 bed. and maid's rooms, 3 Profess. rooms, gar. and good garden. Prem.—goodwill, house, book debts, fittings and drugs—£3,500—No. 1188.

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MIDLAND SPA.—PARTNERSHIP in old-established PRACTICE. Cash receipts last year £2,500. Panel 1,200. Possible Hospital appointment. Excellent house available with garage and garden. Premium—1 share—2 years' purchase—No. 1124.

NORTH STAFFS.—Very old-established better working- and middle-class PRACTICE. Cash receipts last year £2,431. Panel 1,225. Scope, as district developing. Excellent house, 2 reception, 4 bedrooms, maid's room, separate surgery premises, garage and garden. For sale, freehold. Premium—Practice—11 years' purchase, or near offer—No. 1120.

LEEDS.—DEATH VACANCY.—Old-established Private PRACTICE. Cash receipts last year £1,171. No Panel. Good house, with ample accommodation, to let on lease. Premium—best offer—No. 1175.

HULL.—Very old-established mixed Panel and Private PRACTICE. Cash receipts last year £2,020. Panel about 1,900. Good house with ample living and Professional accommodation; garage and small garden. To rent on long lease. Premium—11 years' purchase—No. 1170.

CHESHIRE.—Old-established PRACTICE in small Country town near to sea. Cash receipts about £500 p.a. Good scope. Panel 730. Nice house, 2 reception, 6 bedrooms, garage and good garden. Premium—best offer—No. 1185.

YORKSHIRE (W.R.).—Old-established mixed Panel and Private PRACTICE. Cash receipts about £1,200 p.a. Panel 900. Scope. Excellent detached house, 2 reception, 4 bedrooms, garage and garden. Premium—11 years' purchase, or near offer—No. 1125.

NEAR MANCHESTER.—Very old-established middle- and better working-class PRACTICE. Cash receipts over £2,600 p.a. Panel 1,450. Excellent detached house, 2 receptions, 6 bedrooms, garage and garden, with tennis court. Price £1,800. Premium—11 years' purchase—No. 1108.

NORTH-WEST LANCS.—PARTNERSHIP in old-established middle- and better working-class Practice in pleasant town near Coast, owing to retirement of senior partner. Cash receipts last year £6,037. Panel 3,600 and appointments £450 p.a. Suitable for well-qualified physician, or one holding diploma in ophthalmology. Possible Hospital appointment. Purchaser may choose own residence. Premium—1/4th or 1/2 share—2 years' purchase (to include drugs, book debts, etc.)—No. 1159.

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3. MIDLANDS ATTRACTIVE COUNTRY DISTRICT WITHIN EASY REACH OF PRACTICE.—Old-established middle-class Practice averaging for last 15 months about £2,350. Panel of 1,850. Several appointments (probably transferable). Fees from 3/6 to 10/6. Good house (ample accommodation). Electric light. Nice garden, garage, &c. Premium 2 years' purchase. Sports of all kinds. Educational facilities. Vendor retiring.
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6. EASTERN COUNTIES.—Very old-established mixed-class PRACTICE averaging about £1,000 p.a. About £1,000 from Panel. Fees from 3/6. Good house in own grounds with ample accommodation. Large garden. Rent £160 p.a. Premium £3,000.
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8. MIDDLESEX.—DEVELOPING AREA.—Rapidly increasing PRACTICE. Receipts for 1938 estimated about £1,400. Panel about 1,150. Specially built freehold house, ample accommodation, all modern conveniences. Premium £2,700. Vendor going abroad.
9. LONDON, S.E.—Old-established middle- and working-class PRACTICE in populous area. Income £2,000 p.a. Panel of 3,000. No midwifery. Double fronted house in excellent main road position. Rent £100 p.a. Premium 2 years' purchase.
10. NORTHERN DUTSKIRTS.—Better-class non-dispensing PRACTICE, with scope. Producing over £2,000 p.a. Small Panel. Excellent house with ample accommodation. Premium 2 years' purchase.
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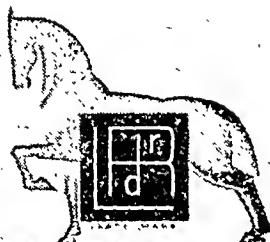
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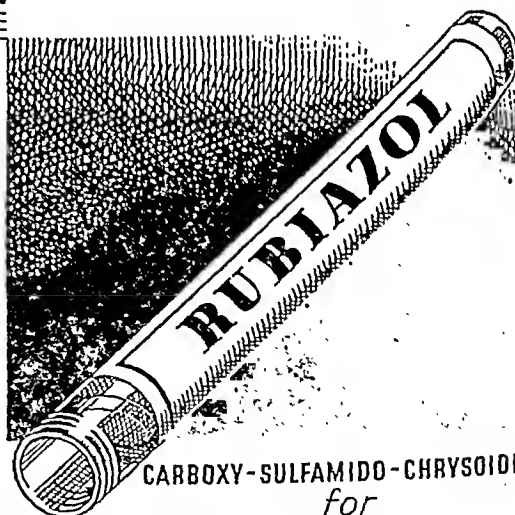
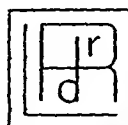
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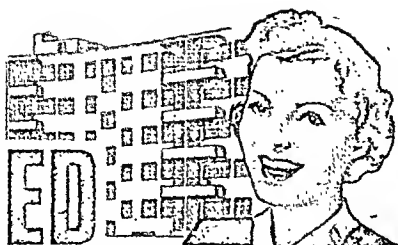
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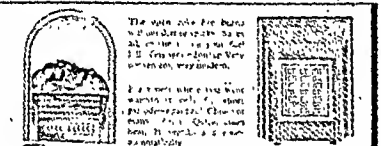
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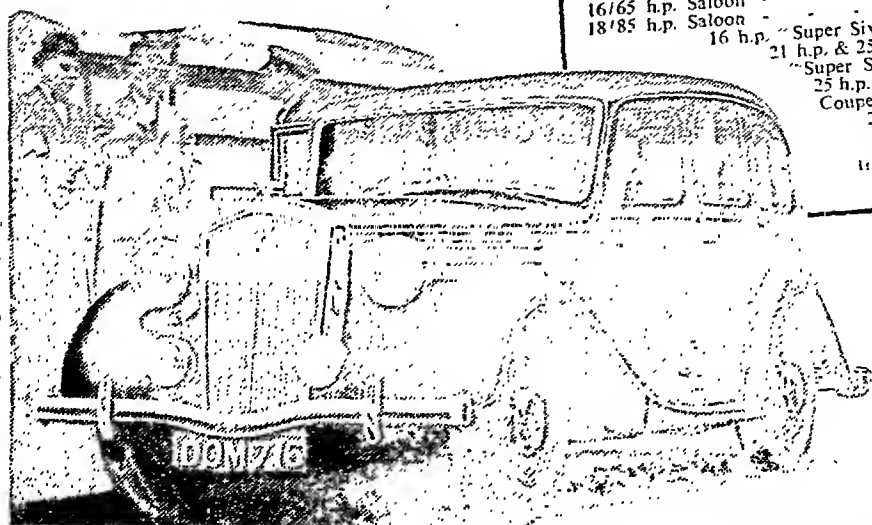
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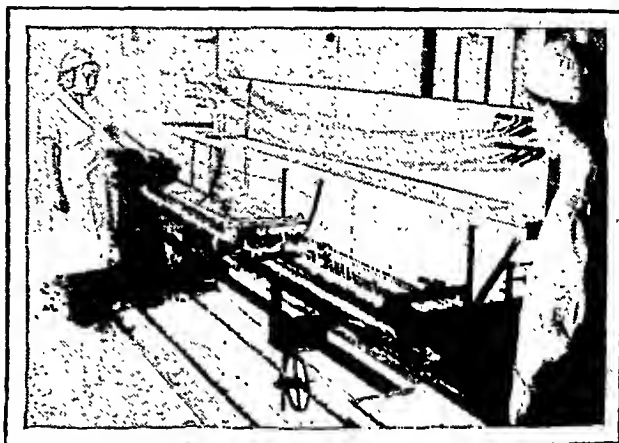
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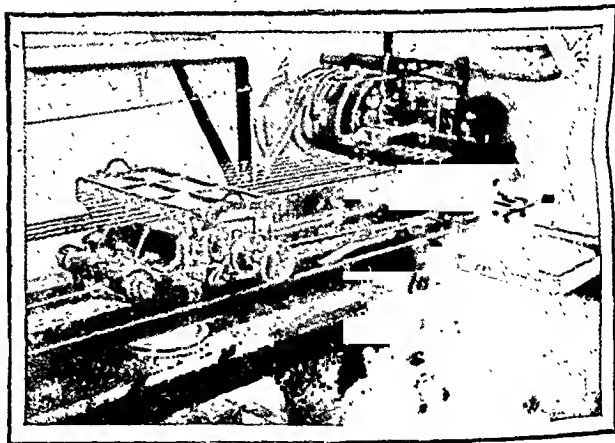
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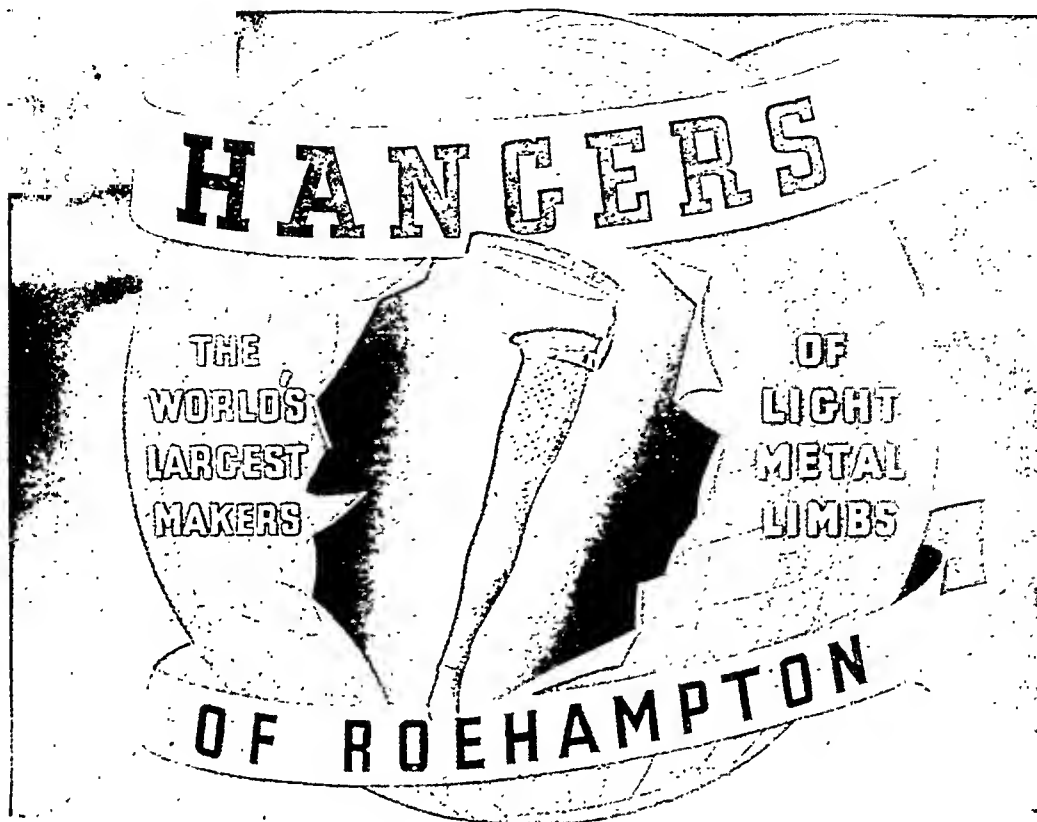
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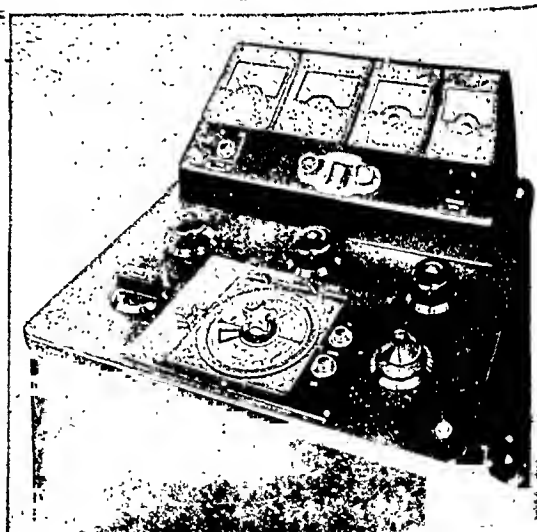
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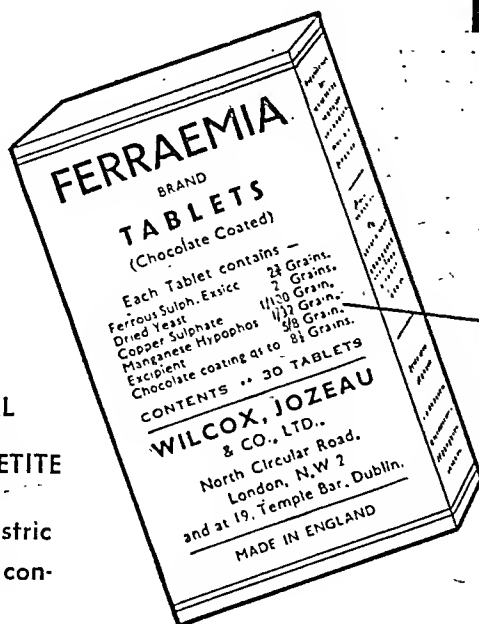
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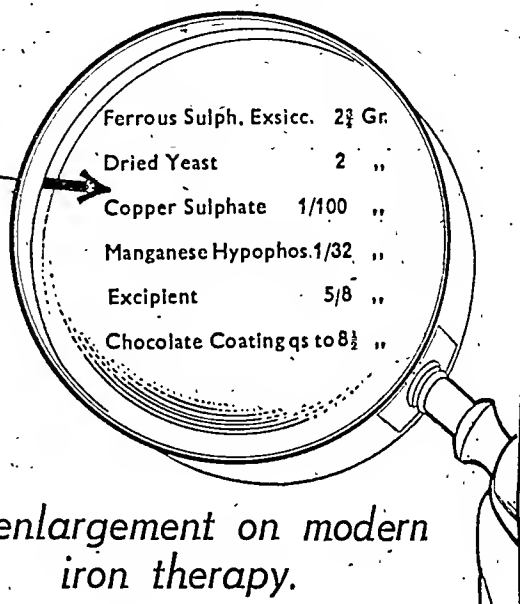


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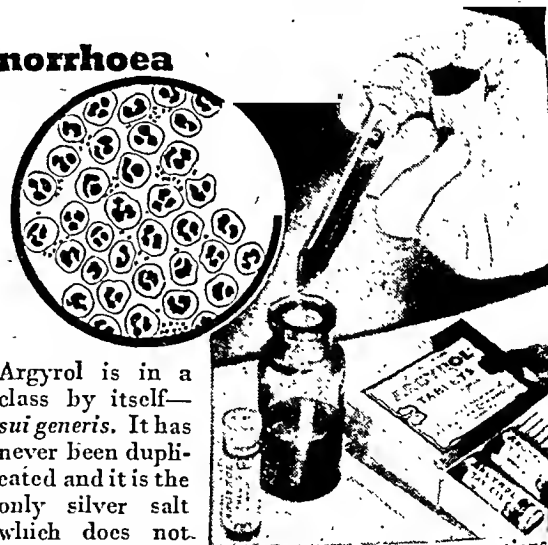
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* Urol. and Cutan. Review, Vol. XXXIX, Nov. 9, 1935.

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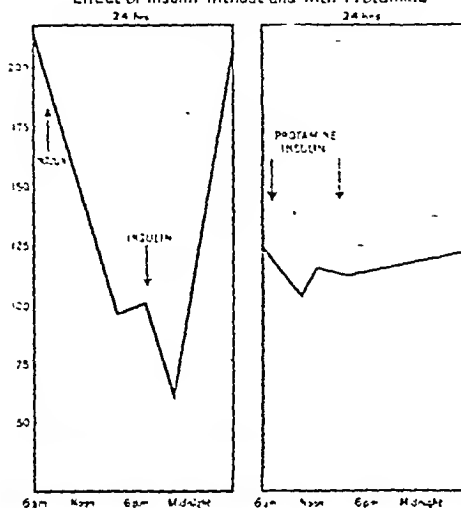
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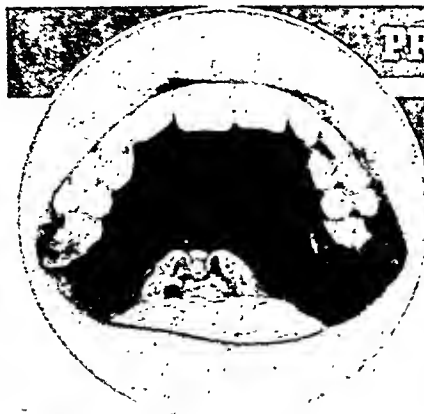
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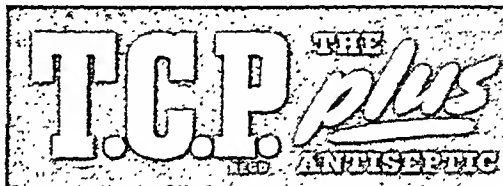


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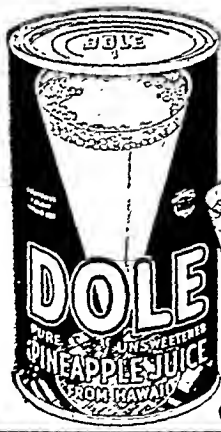
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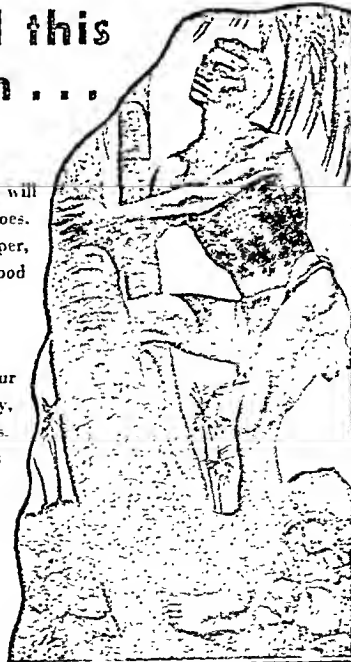
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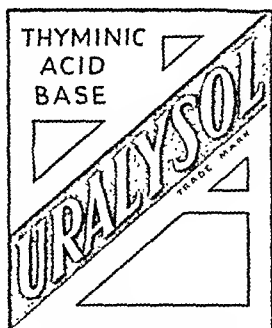
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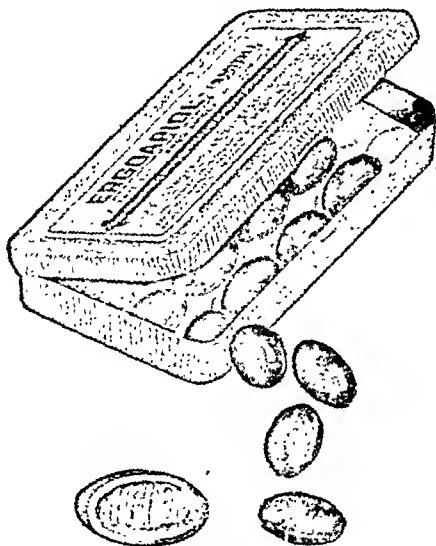
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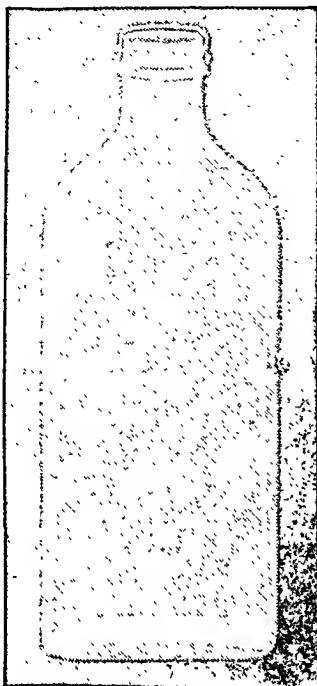
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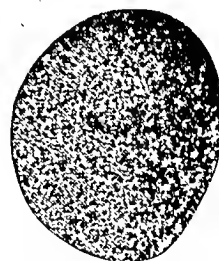


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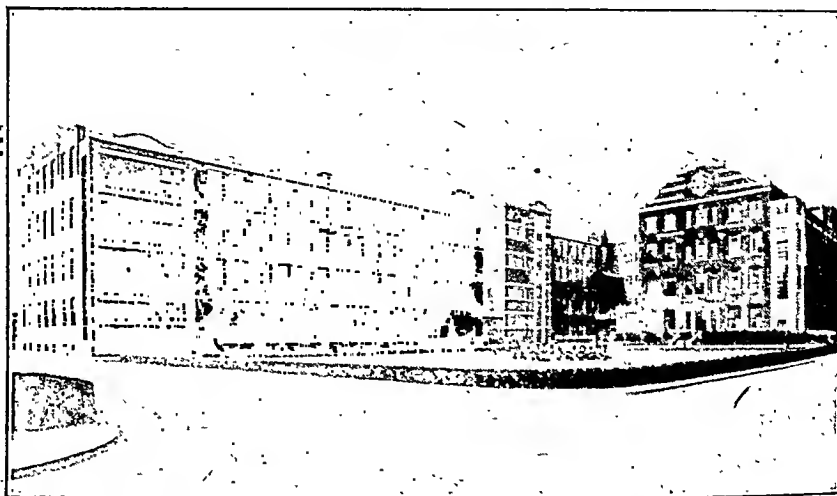
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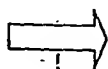
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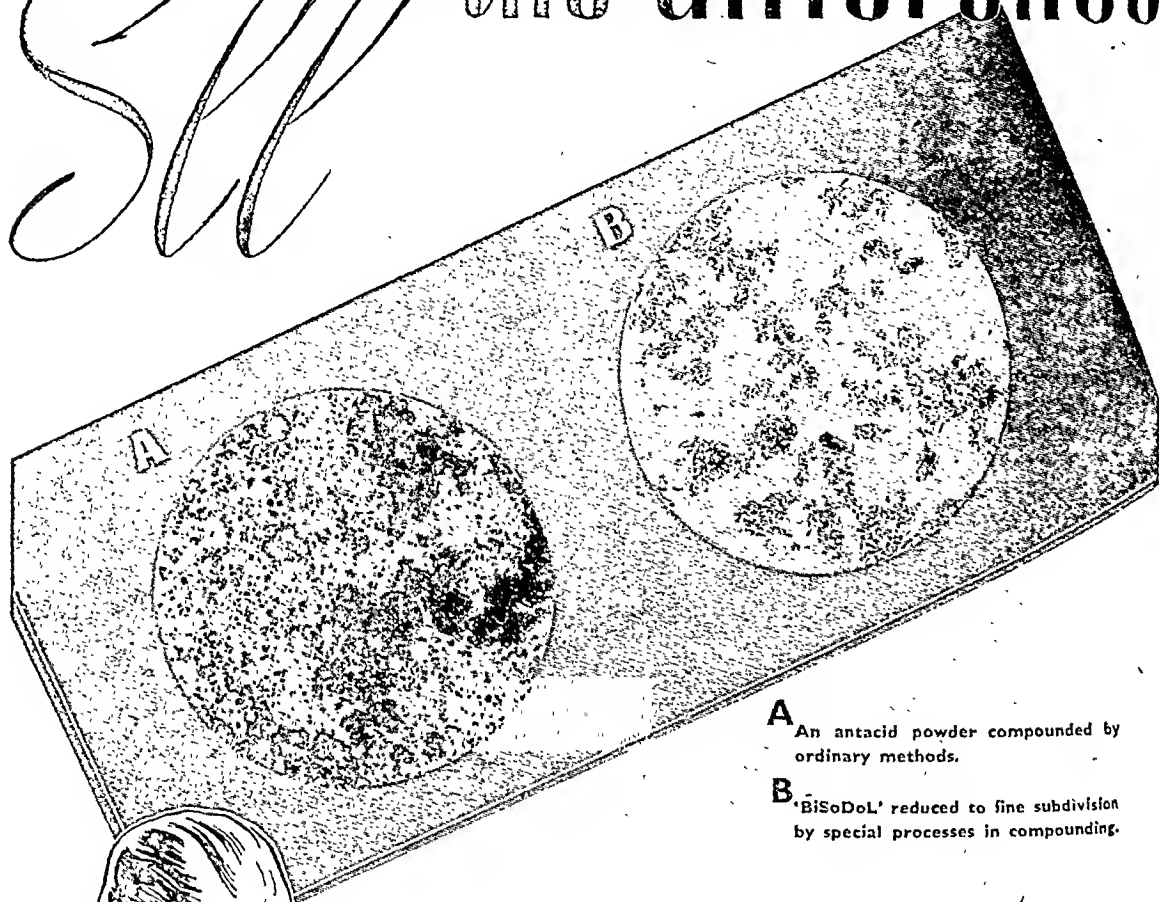
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ASPECTS OF THE HISTORY OF ANAESTHETICS*

BY

A. J. CLARK, M.D., F.R.C.P., F.R.S.

Professor of Pharmacology, University of Edinburgh

I feel that since I am neither a medical historian nor an anaesthetist I owe an explanation to this Section for my choice of subject. The history of the discovery of anaesthesia has been worked over with meticulous care, partly because of the dramatic suddenness with which it occurred, and partly because of the unhappy controversies which marred much of the history of this remarkable advance in human knowledge. The subject, therefore, is not merely well-trodden ground, but, as regards the pitfalls and entanglements with which it abounds, is as uninviting as some abandoned battle area. None the less I venture upon this dangerous field because the whole subject has great interest for the pharmacologist.

Pharmacology is one of the youngest of the medical sciences; it is, indeed, a growth chiefly of the twentieth century, and in consequence has very little history. Only three discoveries of major importance to pharmacology were made in the nineteenth century—namely, anaesthetics, antiseptics, and endocrine therapy—and of these only the first is favourable for historical survey.

Endocrine therapy was initiated by the discovery of the action of thyroid, which constituted the beginning of a new branch of science, but this subject is still developing at great speed; it obviously is not yet approaching maturity, and hence is at present unsuited for historical treatment. Antiseptics suddenly assumed a dominant importance in surgery, but the development of aseptic technique caused their importance to decline as rapidly as it had grown and their history is too irregular to be of general interest.

The discovery of anaesthetics is the only pharmacological advance of major importance made in the nineteenth century that has reached mature development and therefore can suitably be treated from the historical aspect.

The importance of this discovery for the history of pharmacology is further increased by the fact that this was the first occasion on which the synthetic products of the organic chemist were used to produce a therapeutic effect of major importance. Since then the use of such compounds has developed steadily, and to-day they form the chief basis of therapeutics. Modern pharmacology may therefore be said to have begun with the introduction of anaesthetics, and indeed the only later events of comparable importance in the history of the science are the introduction of thyroid therapy and the discovery of

salvarsan, which respectively initiated the sciences of endocrinology and of chemotherapy.

These are adequate reasons for a pharmacologist taking a special interest in the history of anaesthesia, and a general survey reveals outstanding facts that are of great importance in relation to the problem of how a profession reacts to the impact of new ideas and a new technique. It is, moreover, of interest to study the course of discovery and to note the points at which progress was rapid and those at which halts occurred, since such a study gives hints regarding the factors which influence the advance of scientific knowledge.

Sudden Discovery of Surgical Anaesthesia

A casual survey of the discovery of anaesthesia suggests that it took place with almost explosive rapidity. In 1844 Wells produced surgical anaesthesia with nitrous oxide, in 1846 Morton did the same with ether, and in 1847 Simpson introduced chloroform. In September, 1846, the possibility of surgical anaesthesia was not generally recognized; by the end of November, 1847, chloroform and ether were in widespread use, and both nitrous oxide and ethyl chloride were known to be possible anaesthetics. In 1846 the only mention of anaesthesia in the *Lancet* was a short note on the new use of ether in the last number, while less than four months later (April 10, 1847) the editor referred to ether as "a remedy which has already produced such an unparalleled influence on the practice of surgery in this country," and mentioned that the number of operations had doubled. Throughout 1847 the *Lancet* maintained a special column describing "operations without pain."

The essentials of modern anaesthetic practice were therefore mastered almost within a year. Many advances have been made since then, but it will be generally agreed that ether, nitrous oxide, and chloroform are together more important than all other known agents. An anaesthetist could manage better if confined to the three agents mentioned than he could if deprived of these three and allowed his choice of all others.

This period of remarkable advance was followed by a long period of quiescence, and it is only during the last fifteen years that a really active search for new agents has begun again.

More detailed examination of the development of knowledge shows that it was not quite so abrupt as suggested above, but none the less the suddenness of the initial advance is the outstanding feature in the history of anaesthesia, and the factors that caused this phenomenon are of obvious interest.

* Presidential address to the Section of Pharmacology, Therapeutics, and Anaesthetics at the Annual Meeting of the British Medical Association, Plymouth, 1938.

Factors Leading to the Discovery

The advance was essentially the mastery of a successful technique. There are two easily recognizable types of advance in knowledge. In one case something new is discovered the existence of which had previously been unsuspected; for example, the discoveries of x rays and of radium. The other case is when the aim is obvious but the means of attainment are lacking, and the advance consists in finding the right technique. The discovery of anaesthesia was of this latter kind, for the alleviation of the pain of operations was an obvious aim indicated by ordinary motives of humanity, and since classical times medicine had been acquainted with the stupefying power of many drugs. Sir J. Y. Simpson (1871) pointed out that there was evidence of the regular use of stupefying agents such as opium and mandragora in both classical and mediaeval surgery. Curiously enough, this knowledge appears to have been lost at about the Renaissance period.

The essential importance of establishing an efficient technique will, I think, explain the history of the oldest of the anaesthetics—namely, nitrous oxide—though at first sight this history is very surprising.

Nitrous Oxide

The discovery of the pharmacological actions of nitrous oxide is of special local interest, since it is closely associated with the West of England. Sir Humphry Davy, who was born and bred near Penzance, began studying for medicine by being apprenticed to a surgeon apothecary in Penzance, but in 1798, when 20 years old, he went to work under Dr. Thomas Beddoes at the Medical Pneumatic Institution in Bristol. After two years of work (1800) he published his *Researches, Chemical and Philosophical, chiefly concerning Nitrous Oxide*. This volume is a model of a pharmacological research complete in all its stages. It starts with a masterly investigation of the chemical properties of nitrous oxide, proceeds through a series of well-planned pharmacological researches upon a wide variety of animals, continues with an investigation into the actions of the gas on man, and concludes with a brilliant deduction regarding its therapeutic value. On the last point Davy's actual words were (p. 556):

"As nitrous oxide in its extensive operation appears capable of destroying physical pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place."

The only criticism to be made of these experiments is that Davy took somewhat extreme risks with his own life since he repeatedly inhaled nitrous oxide to the point of unconsciousness and proved that the gas "could be respired without danger by a human animal for a much longer time than that required for the death of smaller quadrupeds in it." Among his many discoveries was the demonstration that pure nitrous oxide produced death in animals, but that unconsciousness, with subsequent revival, could be produced by nitrous oxide mixed with a little oxygen or ordinary air.

Davy's brilliant researches bore no immediate fruit. Hickman (Wellcome Museum, 1930), a country practitioner in Shropshire, made a series of attempts in 1824 to produce surgical anaesthesia by inhalation of gases. He published a pamphlet showing that dogs could be rendered unconscious with carbon dioxide, could be operated on in this condition, and afterwards recovered. In a memorial to Charles X (1828) he stated that anaesthesia could be produced by certain gases. The memorial was referred to a commission of the Académie Royale de Médecine, but the only member interested was the famous Baron Larrey. Nineteen years later the rapporteur of this commission (Gérardin) stated that nitrous oxide was one of the gases mentioned by Hickman. The latter died in 1829, aged 29, having received no encouragement either in England or in France. He certainly demon-

strated the possibility of producing surgical anaesthesia by the inhalation of carbon dioxide, but the extent to which he investigated nitrous oxide is doubtful.

Neglect of Davy's Work on N_2O

The use made of Davy's brilliant researches does not increase one's respect for human intelligence, since the suggestion about anaesthesia was almost completely ignored for forty years, while the fact that nitrous oxide produced a ludicrous form of intoxication was eagerly seized upon and exploited. Progress, however, occurs through unexpected and unpromising paths, and these silly demonstrations proved of ultimate value. Horace Wells, the surgeon dentist of Hartford, Connecticut, saw one of these displays of laughing-gas, and on December 11, 1844, arranged for the gas to be used upon himself, and achieved the painless extraction of a tooth under anaesthesia. Apparently he had never heard of Davy's suggestion. Wells tried to demonstrate the use of gas at Massachusetts General Hospital, but the demonstration was a failure, and the sensation attending the discovery of ether anaesthesia two years later caused nitrous oxide to be neglected and forgotten. In 1863 Colton in New York popularized the use of pure nitrous oxide in dental operations, and in 1868 Edmund Andrews of Chicago showed the advantages of using nitrous oxide with 10 per cent. of oxygen—a method that Davy had investigated on animals nearly seventy years previously. Nitrous oxide was established in general use in Great Britain about 1870.

In view of the present importance of nitrous oxide this history is very extraordinary. It would appear that Davy established the possibility of anaesthesia with gas and oxygen, that this invaluable discovery was completely neglected for forty years and its true value not established for seventy years, while in the intervening period the gas maintained a steady popularity in virtue of its power to produce a ridiculous intoxication.

Before judging such apparent stupidity too harshly it is well, however, to consider the probable limitations imposed by imperfections of technique. The genius of Davy was unique, and although he could produce nitrous oxide pure enough to permit him to inhale it repeatedly to the verge of unconsciousness, yet it is probable that few others had a similar skill. For example, in 1847 Orfila gave the following account of his experiments with nitrous oxide (Hickman, 1930):

"J'ai répété leurs [Davy et al.] expériences, et j'en ai éprouvé de si vive douleur dans la poitrine et une telle suffocation, que je suis resté convaincu que si j'eusse continué l'expérience, je n'en serais pas revenu."

Nunneley in 1849 came to a similar negative conclusion, for he experimented on some 300 cats with a wide range of possible anaesthetics, and concluded that his experiments were "quite sufficient to show that nitrous oxide never could be employed as an anaesthetic and that the inhalation of it is not altogether so harmless as is generally stated."

It must have been very difficult indeed to produce a satisfactory nitrous oxide anaesthesia when the gas available was of doubtful purity and the most portable form of container was a balloon. There are therefore circumstances palliating the failure of the medical profession to utilize the gift which Davy offered them, but, even so, one cannot claim that the history of nitrous oxide redounds to the credit of anyone except Davy and Wells. Indeed, an enemy of our profession might claim that it showed extreme slowness and conservatism in accepting the gift offered by science.

Ether Anaesthesia

The history of ether contrasts sharply with that of nitrous oxide. Ether was one of the earliest known of the synthetic organic drugs, and its synthesis was

described by Valerius Cordus in 1546. In 1794 Dr. R. Pearson used it in the treatment of phthisis (Gardner, 1847) and suggested its investigation to Beddoes. After a few trials at the Pneumatic Institute it was found to be serviceable as an anodyne. Apparently its intoxicating powers soon became fairly common knowledge. Dr. Graham, of "celestial bed" fame, was accustomed about 1802 to inhale ether several times a day (Lee, 1847). In 1818 a note believed to have been written by Michael Faraday was published which pointed out that ether had intoxicant effects similar to those of nitrous oxide.

The medical profession was therefore fairly well acquainted with the intoxicant action of ether, and many persons probably knew that excess of ether might lead to unconsciousness. In 1844 Jackson and Morton witnessed Wells's abortive demonstration with nitrous oxide, and in 1846 Morton used ether for the painless extraction of teeth. On October 16 he administered ether for a surgical operation in Massachusetts General Hospital. Morton was more fortunate than Wells; his public demonstration was a complete success, and the speed with which its fame spread round the world is truly remarkable.

On December 19, 1846, a tooth was extracted under ether in London, and two days later the drug was used for two operations performed by Liston at University College Hospital; within a few days the fame of ether had spread to Edinburgh and to Paris. Sir J. Y. Simpson (1847a) immediately (January 19, 1847) used ether to relieve the pain of childbirth, and within three months it had revolutionized surgical practice in Great Britain.

Reception of the Discovery

The manner of the reception of the news of the discovery of anaesthesia in Great Britain is thus described by a contemporary (Miller, 1848):

"It fell on no dull or idle ears. It was taken up, tried, and speedily re-echoed; and in a few days it filled the island. The profession were surprised, excited, charmed in the mass; and more especially those on the sunny side of the grand climacteric. The elderly gentlemen had their preconceived and heretofore settled notions sadly jolted and disturbed; not a few grew irritable, and resented the interference, but the thing was too fast, the first impulse too strong, and the promoters too numerous and nimble to be so obstructed."

In the case of nitrous oxide it was necessary to explain and palliate the inertia of our profession, but the history of the reception of the discovery of ether is wholly creditable, for its use appears to have sped round the world as fast as the posts could carry the news.

The contrast between the fate of the two drugs suggests a kind of all-or-none effect where a discovery depends on the attainment of an adequate technique. In such a case if the results are immediately convincing and obvious, and the introduction is attended with reasonable good fortune, the discovery attains a momentum that sweeps away opposition. If, on the other hand, there are hitches owing to imperfect technique or mere bad luck, then a discovery of comparable importance may peter out and be forgotten for a generation.

The introduction of ether as an anaesthetic was attended by many unfortunate circumstances on which it is unnecessary to dwell. There was a quarrel between Jackson and Morton, an attempt at secrecy and a patent. All who are condemned to survey modern medical literature will sympathize with the bad luck of Crawford W. Long, a rural practitioner in Georgia who in 1842 used ether to produce anaesthesia in several operations. He had been so impressed by the injunctions of his professors not to swell medical literature by premature publication of incompletely verified work that he did not publish his results until 1853. Hence the most laudable of motives caused him to miss much well-deserved fame.

Incidentally the attempt to take out a patent was eagerly seized upon as a pretext for opposition to a new idea. The following was the reaction of the *Philadelphia Medical Examiner* to anaesthesia in December, 1846 (Hoff, 1937): "We are persuaded that the surgeons of Philadelphia will not be seduced from the high professional path of duty into the quagmire of quackery by this will-o'-the-wisp." After a passing reference to the ethics of using a patent medicine and a lament for the decadence of Boston, the editor concluded that "physicians and quacks will soon form one fraternity."

The credit for the discovery of ether was a subject of prolonged inquiry and controversy, but the matter was well summed up by Jacob Bigelow in 1870 in a letter to Simpson (1871): "As far as we know, he [Morton] is the only man, without whom anaesthetic inhalation might have remained unknown to the present day." I feel that this is the final criterion in apportioning credit for an advance. Discoveries are scarcely ever the sole work of one person. All research workers stand on the shoulders of their predecessors, and if current knowledge is adequate to suggest a possible advance to one person, it is nearly certain that the same idea will have occurred to many others. There is, however, a world of difference between a bright idea and a successful achievement, and the main credit must always go to the man who possessed the energy and determination and skill to demonstrate the possibility of progress along some new path.

Chloroform

The discovery of chloroform was the third outstanding event in the discovery of anaesthesia. The trial of chloroform by J. Y. Simpson and his friends, and its successful use as an anaesthetic for major operations at the Royal Infirmary of Edinburgh on November 15, 1847, are celebrated historical events. The first operation was performed by Professor Miller, and was witnessed by Dumas the chemist and by Christison. There has been debate on the extent to which Simpson was helped or even anticipated by others, and since this is a matter of special interest to Edinburgh, I feel justified in digressing briefly to discuss this point.

Christison (1886) in 1868 wrote the following account of his colleague's achievement:

"In 1832 Soubeiran in Paris and Liebig in Germany simultaneously discovered chloroform. In 1835 Dumas ascertained its leading physical and chemical properties and its correct elementary constitution. In 1838 Dr. Forby of Liverpool first used it as a medicine inwardly as a soothing antispasmodic. In 1842 Dr. Mortimer Glover, a young Edinburgh graduate, discovered by experiment that it is a powerful narcotic poison, and that one of its effects as such is to produce insensibility."

Gilmour (1908) states that Dr. Black of Bolton used chloroform as a medicine in 1833. It is said that Glover tried chloroform on human subjects (Davidson, 1908). Furnell, working under John Bell and Co., London, is said to have experimented on himself in the summer of 1847. Christison states that in March, 1847, the French physiologist Flourens proved that the inhalation of chloroform causes in animals precisely the temporary anaesthesia caused by the inhalation of ether.

Events Leading to its Use

Christison also made the following statement in 1870:

"On asking Dr. Matthews Duncan to repeat a remarkable statement he made to me a few months ago, relative to his concern with the discovery of the anaesthetic virtues of chloroform, he gave it to me thus. One day when Sir James Simpson and he were in Dr. Gregory's laboratory at the College, he (Dr. Duncan) got possession of every liquid in the laboratory which he imagined 'would breathe.' Four or five bottles were thus carried off, and chloroform was one. At this time the correspondence with Mr. Waldie about anaesthesia and the suggestion by that gentleman to try chloroform had not been heard of by Dr. Duncan. One forenoon Dr. Duncan made trial of the chloroform. He had previously

experimented on himself with various substances, but found none suitable. On trying chloroform, he was convinced that the article sought for was found. The same or next evening the trial was repeated by Dr. Keith, Sir James, and himself. This was the trial which is now a matter of history; but the previous trial has never been noticed.*

Dr. Duncan was at that time assistant to Sir James Simpson in his scientific work, and undertook this special inquiry under his general guidance. With regard to the earlier trials noted above, it may be mentioned that the only commercial form in which chloroform was available was a weak alcoholic solution termed "chloric ether," and this was used in most cases.

The David Waldie mentioned above, who was chemist to the Apothecaries' Company in Liverpool, devised a method of separating pure chloroform from chloric ether. On November 29, 1847, he gave the following account at Liverpool of the manner in which he suggested the use of chloroform to Simpson:

"The vapour of the so-called chloric ether seems to have been tried as a substitute for sulphuric ether in February or March last,* but without very satisfactory results, which indeed could scarcely be expected, unless the vapour of alcohol possessed the same properties, it being composed principally of alcohol. When in Scotland, in October last, Dr. Simpson introduced the subject to me, inquiring if I knew of anything likely to answer. Chloric ether was mentioned during the conversation, and being well acquainted with its composition and with the volatility, agreeable flavour, and medicinal properties of chloroform, I recommended him to try it, promising to prepare some after my return to Liverpool, and send it to him. Other engagements and various impediments† prevented me from doing this so soon as I should have wished, and in the meantime Dr. Simpson, having procured some in Edinburgh, obtained the results which he communicated to the Medico-Chirurgical Society of Edinburgh on the 10th of November, and which he published in a pamphlet entitled: 'Notice of a New Anaesthetic Agent as a Substitute for Sulphuric Ether in Surgery and Midwifery.'"

Simpson wrote in a footnote to the pamphlet mentioned that Mr. Waldie had named chloroform to him as worthy among others of a trial. Waldie emphasized the fact that he had played only a small part in the discovery of the anaesthetic properties of chloroform, but thought that Simpson might have been more generous in his recognition of this help, since he had recommended the trial of pure chloroform, which at that date was not known as a commercial article.

These accounts suggest that Simpson was, as Waldie complained, somewhat economical in his recognition of the help he received both from Waldie and from Matthews Duncan. Nevertheless the popular tradition that associates Simpson's name alone with the introduction of chloroform would appear to be substantially correct. The discovery of surgical anaesthesia was not a revolution in ideas, but the attainment of a goal which others had striven for without success. After the establishment of ether many persons up and down the country were trying out all likely volatile fluids. The essential advance was not the idea of trying chloroform but the provision of proof that not only did it produce anaesthesia but that in some respects it appeared to be superior to ether.

Simpson also seems to have the honour of being the first to use anaesthesia in labour, but this advance was almost inevitable after the discovery of anaesthesia, and the question who was first is not important. It is indeed probable that the witch-cult were the real pioneers in the production of "painless labour." They appear to have retained the knowledge of the use of narcotics to produce coma which was common in mediaeval times and lost at a later date. The descriptions of the composition and the use of their "flying ointment" establish this point fairly clearly. They appear also to have used such drugs to relieve the pains of childbirth. Unfortunately the accounts of the witch trials are such a medley of

fact and fiction that one cannot draw from them any certain conclusions. For example, Agnes Sampson of North Berwick was accused of having taken away the "natural and kindly pains of labour" from Euphemia MacCalyan of Edinburgh, and this suggests the use of narcotics; but the account proceeds to state that the pains were cast upon "the wanton cat of the house," which vanished. At the time of the trial the evidence was deemed completely convincing, and both women were burnt alive in 1591, but to-day it is obviously difficult to decide how much, if any, of the tale was true.

Chloroform attained immediate popularity, but it is of interest to note that it narrowly escaped an initial disaster, which might have prevented its employment for decades.

Immediate Success of Chloroform

Chloroform was first used for an operation at the Royal Infirmary, Edinburgh, on November 15, 1847. A test had been arranged two days previously, but Simpson could not attend, and therefore chloroform was not given on this occasion. The operation was for hernia, and the patient died when the first incision was made through the skin (Simpson, 1852). It is very probable that the same tragedy would have occurred if chloroform had been used, when it would certainly have borne the whole blame, and the incident shows how much the initiation of a new therapeutic measure may depend upon good fortune.

Chloroform made such an easy success that at first it seemed that there would be no scope for Simpson's zest and talent for controversy. This, however, was provided for him by the action of certain ministers and medical men who claimed that relief of the pains of childbirth was contrary to the Scriptures. Possibly these ministers hoped to revive some of their old triumphs of the seventeenth century, when the number of midwives they caused to be burnt as witches must have formed a considerable proportion of those practising this profession. Times had changed, however, and it is only fair to the churches in Scotland to record that Dr. Chalmers gave the opinion that if some "small theologians" really took such an improper view they were too foolish to merit serious attention. Simpson, however, plunged with delight into the controversy; he fought his opponents on their own ground—namely, the interpretation of the biblical texts—and scored a fairly easy triumph.

Far longer and more serious was the controversy between Boston and Great Britain over the relative merits of ether and chloroform. This controversy practically ended in 1871, when the *British Medical Journal* threw its great influence on the side of ether.

Investigations of Deaths from Chloroform

Deaths from chloroform soon occurred, and the first case (January 28, 1847) happened to be typical. A girl of 15 had had one great toe successfully removed under ether, and two months later chloroform was given for the removal of the other one. The patient died suddenly within two minutes of the beginning of anaesthesia. The occasional occurrence of sudden and wholly unexpected deaths of this type under chloroform naturally attracted much attention. The history of the investigations made upon this subject in the ensuing sixty years provides chastening reading for laboratory workers, because the early clinical observers at once divined the nature of the phenomenon, while the laboratory workers in later years were persistently at fault.

In 1848 Sibson analysed the first four deaths from chloroform, and concluded: "In all the four cases it is manifest that the immediate cause of the instantaneous death lay in the heart." In February, 1849, it was noted in a case of chloroform death that the blood ceased to flow before the respiration stopped (Nunneley, 1849). Snow (1858) made a masterly analysis of fifty cases of death from chloroform, and showed that in at least forty of these cases death was due to cardiac syncope and not to overaction of chloroform on the brain or medulla.

* Presumably the experiments referred to by Christison.

† 11. Laborants were burnt down.

Deaths under chloroform attracted so much attention that committee after committee was appointed to investigate their cause, but the reports chiefly serve to provide a striking proof of the fact that committees are not an effective mechanism for the solution of scientific problems.

A commission which reported to the Society of Emulation of Paris in 1855 concluded that in all instances in which animals were killed by chloroform the action of the heart survived the respiration (Senn, 1858). The Hyderabad Commissions (1888, 1889) concluded that there was no such thing as chloroform syncope and that the heart was the last organ to give in under the action of chloroform (Lawrie, 1891). The *Lancet* (1889) pointed out, however, that this conclusion was opposed to those arrived at by the previous commissions appointed by the Royal Medical and Chirurgial Society and by the British Medical Association. A later commission set up by the B.M.A. (1903) nevertheless directed all its attention to the question of overdosage of chloroform.

In 1908 the Commission on Anaesthesia of the American Medical Association concluded that "all of the accidents of chloroform are due to overdosage" (Haggard, 1908). These commissions included many distinguished physiologists. Their conclusions were perfectly correct as regards the subject they studied—namely, the effect of gross overdosage of chloroform—but unfortunately this has no relation to death in the early stages of chloroform anaesthesia. It is difficult to believe that any of these commissions could have studied Snow's excellent treatise. In this he describes fully the manner in which overdosage of chloroform kills an animal, and then remarks:

"In examining the recorded cases of fatal inhalation of chloroform, we shall find, however, that they have none of them taken place in this gradual manner; but that in all cases the fatal symptoms, if not the actual death, have come on very suddenly."

This history illustrates clearly an essential limitation of laboratory methods; like most methods of exact analysis, they yield peculiarly ridiculous results unless they are directed to the correct object. The prolonged failure recorded above has since been redeemed, and to-day it is possible to produce cardiac syncope with chloroform as a laboratory demonstration.

Other Anaesthetic Agents

The discovery of ether and chloroform stimulated intensive research into the properties of other gases and volatile liquids. As already mentioned, Flourens in 1847 described the anaesthetic action of ethyl chloride as well as chloroform. In 1848 Nunneley investigated on cats the anaesthetic action of numerous substances, and incidentally described the effects produced by a mixture of ether and an alcoholic solution of chloroform (A.C.E. mixture). Workers such as Nunneley, Snow, and Richardson examined the anaesthetic properties of a wide variety of gases and volatile liquids. Some of these, such as ethylene, afterwards became established. The general rule that "the good is the enemy of the best" came, however, into operation; nothing was found which showed a clear superiority over chloroform or ether, and in consequence research died down. The generation that had witnessed the revolutionary advance continued to work in the hope of discovering something new and better, but when these died out the younger generations who had been trained with chloroform and ether accepted these and their imperfections as established institutions and scarcely thought of the possibility of major advances.

Continual minor improvements in technique were made, but there was extraordinarily little change until about 1923. Since that date new volatile anaesthetics such as ethylene and cyclopropane have been introduced, intravenous anaesthesia with sodium evipan has achieved great popularity, and a wide variety of methods of basal narcosis has been investigated.

With regard to methods of basal narcosis, it is interesting to note that the use of such substances as urethane and paraldehyde for this purpose was established as a routine method in physiological laboratories by the end of the nineteenth century. The long delay in applying these routine laboratory methods to anaesthetic practice is remarkable.

Points on the Progress of Therapeutic Knowledge

This brief summary of the history of anaesthesia reveals some interesting points concerning the progress of therapeutic knowledge. The problem of anaesthesia is the discovery of the optimum technique for producing a certain well-defined effect. This effect is not an end in itself, but is for the purpose of facilitating surgical procedures. The history of the introduction of anaesthetics shows that that advance tended to be an all-or-none process and that the result was largely dependent on good luck. The whole history of anaesthesia might have been different if Wells had chanced upon a good subject and Morton upon a refractory patient for their first demonstrations of nitrous oxide and ether respectively, while in the case of chloroform it is highly probable that its career would have been arrested by a dramatic tragedy if Simpson had not fortunately been forced to postpone his first public trial of the drug.

The speed with which ether and chloroform were adopted is highly creditable to the medical profession. The process was probably assisted by the fact that at that period medical ideas were in a state of flux. The lethal traditions of the "heroic" era were rapidly being discarded; patients with pneumonia were no longer being bled to death, and quinine was replacing calomel in the treatment of malaria.

The history of anaesthesia after 1847 shows clearly one of the major difficulties attending therapeutic advance. The outstanding fact is that thorough familiarity with a technique is equivalent at least to a 30 per cent. difference in efficiency. If a person has mastered a technique it is not worth his while changing to a new and unfamiliar one unless the change promises some big advantage.

It is obvious that after a technique has become fairly effective the likelihood of any major advance is lessened. The history of engineering shows, however, that continuous small advances can add up to constitute a large effect, and there seems no reason why this should not be true in pharmacology.

Need for Further Technical Advance

I think it will be generally agreed that further progress in the technique of anaesthesia is very desirable. The fact that deaths under anaesthesia are increasing rather than decreasing indicates that we are far from having attained perfection. There is a tendency to assume that because the pioneer advances were due to uncoordinated individual enterprise, therefore this remains the best method. I would suggest, however, that although organization is of little service in promoting original thought, yet there comes a stage of development when further progress can only be made by co-ordinated work. This stage has probably been reached in the development of anaesthesia. To decide whether a new anaesthetic constitutes a significant advance is a difficult task, for not only must its usual action be determined, but it is also necessary to know what chance there is of its producing some rare but unpleasant side-action. These facts can only be ascertained by carefully organized large-scale trials of new agents.

The history of anaesthesia, like the history of many other therapeutic problems, shows that this country shines much more in pioneer investigation than in the development of techniques that have already been established. The United States and Great Britain together initiated anaesthesia; I do not propose to attempt to estimate the relative importance of the contributions of

the two countries, but they were of comparable importance, and no other country can claim any substantial share in the credit. The recent advances in anaesthesia are, however, divided between Canada, the United States, and Germany. The change in our country's position is regrettable. I would suggest that what is needed is an organization of the methods of study of anaesthetics that will permit the accurate estimation of the value of new methods, which, even if they do not provide any sensational advance, yet may be a significant improvement on established methods.

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RADIOTHERAPY IN NON-MALIGNANT UTERINE HAEMORRHAGE*

BY

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Diagnosis

The first point to be considered in cases of abnormal uterine haemorrhage is the question of diagnosis. Only too frequently do we see patients who have complained of irregular or excessive bleeding at or about the menopause for which no attempt has been made to discover the cause. Many patients believe that such irregular bleeding is a normal phenomenon and do not seek medical advice; but in some cases they do so, only to be reassured, and to be told to wait for a month or two, when the bleeding will stop, no vaginal examination or other investigation being made. It is from cases such as these that a large proportion of patients with advanced carcinoma of the cervix eventually come for treatment, after a delay of months and when the prospect of cure is very considerably reduced or it is impossible. It cannot be emphasized too strongly that when such symptoms appear the patient must be examined immediately and thoroughly for the possibility that the symptoms may have causes other than menopausal dysfunction of the ovaries, and especially must a thorough pelvic examination be made, to exclude malignant disease.

Apart from this all-important question of diagnosis I do not propose to deal with the vast subject of malignant disease of the uterus, but to consider those types of non-malignant uterine haemorrhage in which radiotherapy is employed. These cases fall into three categories: (1) bleeding at or near the menopause; (2) bleeding associated with fibroids; (3) bleeding in young subjects.

How Radiotherapy Acts

The manner in which radiotherapy acts in the treatment of these cases has been the subject of considerable discussion. It is generally agreed that when external irradiation by x rays is the method employed the production of amenorrhoea is due to the destructive effect on the more mature follicles of the ovary. Much experimental research has been carried out on this subject, and Regaud and Lacassagne (1927), describing the effects of radiation on normal tissue, give a clear and concise account of the changes that occur. All ovarian follicles can be destroyed if the dose of radiation is large enough; but there is a very great difference in their radiosensitivity, depending on the stage of maturity. Immature ovarian follicles have little radiosensitivity, and escape apparently unscathed even after heavy irradiation. As they develop, their degree of radiosensitivity increases, until finally the mature follicle is very radiosensitive and is destroyed by only a small amount of radiation. In the ovary of a woman at the end of her reproductive life and approaching the menopause the follicles which remain are either mature or approaching maturity, and therefore are highly radiosensitive. In such cases permanent sterilization can be brought about by moderate doses of radiation. With the young subject, however, this is not the case: some follicles are approaching maturity and are therefore radiosensitive; but the majority have not begun to develop, and need much greater doses for their destruction. A frequent

* Read in opening a discussion in the Section of Radiology at the Annual Meeting of the British Medical Association, Plymouth, 1938.

result of radiotherapy in a young patient is temporary sterilization, with the return of more or less regular and normal menstruation after a period varying from a few months to one or two years.

There is less agreement as to the action of radium placed in the uterine cavity, and two views are commonly expressed: (a) that radium acts on the ovaries as in the case of external irradiation by x rays; (b) that amenorrhoea is produced by a fibrosing action on the endometrium and underlying blood vessels. The usual argument in favour of endometrial action is that, by the physical laws governing the distribution of radiation, the intensity received on the ovaries from radium placed in the uterine cavity can be only a small fraction of that received on the endometrium, and that the dose received by the ovaries would not be sufficient to cause sterilization. Forsdike (1922-3), who strongly supported the theory of endometrial action, has produced evidence of destruction of the endometrium with underlying fibrosis but with demonstrable effect on the ovaries. On the other hand, Corscaden (1935) has demonstrated that in the uterus which had received a sterilizing dose of radium a portion only of the endometrium was obviously affected. Clark and Norris (1927) have observed the destruction of ovarian follicles with regeneration of the endometrium. Actually, assuming that in the average case the ovary is 4 cm. from the endometrium and that, including the thickness of the container, the endometrium is 0.5 cm. from the radium, the dose received from 2,400 mg.-hours filtered by 1.5 mm. platinum with an active length of 4 cm. would be between 10,000 and 20,000 *r* on the endometrium and between 500 and 1,000 *r* on the ovary, depending on their position in each individual case. This is a very heavy dose on the endometrium, and undoubtedly will produce some destruction; but the dose on the ovary, comparing it with the x-ray dose given for sterilization, should be sufficient to destroy the follicles.

Again, amenorrhoea produced by intra-uterine radium is almost always accompanied by the menopausal symptoms of hot flushes (86 per cent. in Moore Patterson's (1933) series). A recent article by Corscaden, Kasabach, and Lenz (1938) points out also that examination of blood and urine of women made amenorrhoeic by radium or x rays has shown the characteristics found in the spontaneous menopause—absence of oestrone and increase of prolactin.

I think the weight of evidence is definitely in favour of action on the ovaries being the main factor in the production of amenorrhoea by radium, but that changes in the endometrium are probably contributory. Abnormal position of the ovaries may account for the small percentage of failures.

I. Irregular Haemorrhage at or about the Menopause

Radiotherapy is undoubtedly the treatment of choice in this condition. In the joint discussions held by the Sections of Radiology and of Obstetrics and Gynaecology at the Royal Society of Medicine in 1933 and in January of 1938 there was general agreement on this question. The advantages of radiotherapy over surgery in this condition are that the same result can be obtained by irradiation with less risk and with a much shorter and almost negligible period of convalescence. The treatment can be carried out either by x rays or by the insertion of radium into the uterine cavity. Whatever the method, a preliminary dilatation and curettage is advisable; if radium is inserted the treatment is completed and the patient returns home with scarcely any more delay than from

curettage alone, while for the actual x-ray treatment she need not even be hospitalized.

Mr. Leonard Phillips (1938) collected from twenty authors over 7,000 cases of menopausal menorrhagia and of fibroids treated by irradiation, with a 95 per cent cure rate. He estimated that over half of these were cases of menopausal menorrhagia. The mortality rate given by twelve authors was under 1 per cent for each series and averaged 0.25 per cent. for the whole. The report of the Radiumhemmet in Stockholm (1937) shows 282 cases of this condition, with only one death from intercurrent disease and only two cases which were not cured.

The mortality rate from x rays is negligible, while the few deaths recorded from radium have been almost entirely due to an occasional embolus. Moreover, in the very small number of failures of radiotherapy subsequent surgery is not rendered any more difficult. The only contraindications in patients about or over the age of 40 would seem to be the presence of an associated prolapse or cervical laceration, which could be cured at the same time by surgical intervention, or the presence of a previous pelvic inflammation: but even this latter need not be a contraindication if x rays are employed and the treatment is given slowly and carefully.

An analysis of sixty-one consecutive cases of menopausal menorrhagia which I have treated at the North Middlesex County Hospital gives the following data:

| No. of Cases | Result | Remarks |
|--------------|----------------------|---|
| 57 | Successful | 37 had no further bleeding 13 had one subsequent period 7 had no subsequent periods |
| 1 | Partially successful | Periods for 15 months at regular intervals, but very scanty in amount |
| 1 | Unsuccessful | Hysterectomy 4 months later for a recurrence of bleeding |
| 2 | | Subsequent history untreated |

COMPLICATIONS AND SEQUELAE

The complications arising from treatment were not serious. The most frequent one was a watery discharge, which was present in twelve cases and persisted from one to four months. The discharge is undoubtedly due to the destruction of a portion of the endometrium by the intense irradiation which it must receive if a sufficient effect is to be obtained on the ovaries. The heavy filtration of 1.5 mm. of platinum and a rubber cover is used to minimize this effect as far as possible. With less filtration one might expect a higher proportion of cases with discharge, and this possibly accounts also for the cases of pyometra which have been described in other series.

Cases of ulceration or cicatricial stenosis of the vagina have been reported after radium treatment, but these have undoubtedly been due either to insufficient packing of the vagina, so that the radium has slipped out of the cervix, or to the use of irritating chemicals in the packing. Corscaden and others have reported cases where a loop of small intestine adherent to the uterus has been damaged by intra-uterine radium and old pelvic inflammation has been lighted up by this treatment, but none of these complications occurred in my own series. In the large number which Phillips collected there were several deaths from embolism, and, as I have said previously, the mortality for the whole series was only 0.25 per cent.

THE CHOICE OF RADIUM OR X RAYS

In my own series of cases radium has been used almost exclusively, and the complications have all been due to radium insertion. Such complications have not been

reported after the use of x rays alone, and the production of amenorrhoea has been just as certain. The main arguments which have been advanced in favour of radium are: (1) That it is necessary to make a thorough examination under an anaesthetic, with dilatation and curettage in cases of menopausal haemorrhage, and that it is very convenient to insert radium at the time; the whole treatment thus being completed in a few days. (2) That the action of radium may be on the endometrium and may cause less depression of ovarian activity. As I have said, I think the weight of evidence is opposed to this theory.

In favour of x rays it may be said that: (1) there are no complications such as discharge due to endometrial destruction; (2) in cases of diabetes, cardiac disease, etc., when a diagnostic curettage must be omitted, no anaesthetic is necessary; (3) there is no danger of embolism or damage to an adherent loop of intestine; (4) even in cases of pelvic inflammation x rays can be used if given slowly and carefully; (5) there is no reason why x rays should not be employed after a preliminary dilatation and curettage. In addition, radium causes a varying degree of discomfort, nausea, and perhaps vomiting during the time it is in the uterus. This is avoided by the use of x rays, although such symptoms may also occur if x-ray treatment is carried out too quickly—for example, in a single treatment.

To sum up, I think that when both methods are available x rays are to be preferred.

TECHNIQUE AND DOSAGE

Radium.—In England probably the most common method is the one I have described—namely, the use of an intra-uterine applicator containing 50 mg. for forty-eight hours, giving a dose of 2,400 mg.-hours, with a filtration of not less than 1.5 mm. of platinum or its equivalent. Variations of this have been 75 mg. for thirty-six hours or 100 mg. for twenty-four hours, with the object of reducing the time the radium is in the uterus and thereby curtailing the nausea and discomfort. I think, however, that the greater intensity of radiation is more likely to increase the symptoms while the radium is in position. In America the doses have usually been somewhat smaller, but the filtration has been less; 1,800 mg.-hours with 1 mm. platinum filtration is about the maximum. Norman White (1933) showed that recurrence may arise after this dosage, and advised as much as 3,000 mg.-hours with 1.5 mm. platinum, or equivalent, filtration. In our series 2,400 mg.-hours was successful in all but two cases, and these patients were big women, both only 38 years old. In France it is common to use radium packed into the lateral fornices of the vagina as well as the intra-uterine dose, which is considerably decreased. This may be advantageous in that the radium is placed closer to the ovaries and the sequelae of endometrial destruction are diminished; the disadvantage is that vaginal contraction may occur.

X Rays.—Many varieties of technique have been described that aim at the production of amenorrhoea in cases of menorrhagia, and all have met with a high percentage of successes because sterilization in women approaching the menopause can be achieved by a very moderate dose of radiation received on the ovary. This in some cases has resulted in the use of the lower kilovoltages for this purpose, even though the majority of therapeutic x-ray machines in this country are capable of working at about 200 kV. A kilovoltage of 150 or even lower will produce amenorrhoea with a fair degree of certainty, but the dose necessary is close to the skin

tolerance, and there is more danger of causing skin damage than with an adequately filtered beam generated at 200 kV. Sterilization can be produced in women over 35 by an irradiation carried out in one day, but, as previously stated, this may give rise to a considerable amount of nausea and vomiting, which will be entirely avoided if the dose is fractionized and spread over a week to ten days. The effect is also more certain if the period of irradiation is prolonged. A method which we have found suitable is to use 200 kV with a Thoreus filter and a focal skin distance of 50 cm.; to irradiate three fields, one anterior and two postero-lateral, each about 10 by 15 cm.; and to treat daily, giving a dose of 300 r to each field in succession for a total of nine treatments—that is, three treatments of 300 r measured on the skin to each area. This results in a dose of 700 to 900 r to the ovaries. In very big women it may be necessary to increase the surface dose.

Menopausal symptoms such as hot flushes follow the production of amenorrhoea by either radium or x rays, and have been investigated by various workers—Donaldson and Moore Patterson (1938), Malpas (1937), Miss Martindale (1938). There is general agreement that they do not vary either in nature or in severity from those accompanying either the natural or the surgically produced climacteric.

II. Bleeding Associated with Fibroids

In uncomplicated cases of uterine haemorrhage associated with fibroids occurring in women about or over the age of 40 radiotherapy is the treatment of choice. Bleeding is controlled as rapidly and with the same sureness as in menopausal menorrhagia, and the fibroid decreases markedly in size in two to three months. In the case of large fibroids which may not entirely disappear the remnant causes no symptoms. The treatment is carried out in the same way as for menopausal menorrhagia: there are the same indications for the choice of x rays or radium, except that, in the case of fibroids, x rays seem to be more definitely indicated because the distortion due to the tumour may cause the ovaries to lie at an increased distance from the endometrium, with consequent diminution of the dose received from the intra-uterine radium.

Radiotherapy should not be used in the treatment of fibroids in young women unless there is some factor, such as cardiac disease, which makes the risk of surgery too great. The results are uncertain, and successful treatment invariably produces menopausal symptoms. Other contraindications to radiotherapy for fibroids are: (1) pressure symptoms—for example, interference with micturition through pressure on the urethra when a very rapid result is necessary; (2) evidence of degeneration of the fibroid; (3) very large fibroids. These latter tend to show incomplete regression and are more likely to undergo degeneration. Many radiotherapists do not agree that the size of the fibroid is a contraindication. Finzi (1933) in particular states that some of his most striking results have been in cases with very large tumours, in which operation would have meant considerable risk and prolonged convalescence.

III. Menorrhagia in Young Subjects

This is a field in which the indications for radiotherapy are much more debatable. In the past it has been accepted generally that these patients should be treated by hysterectomy, with preservation of the ovaries, if more conservative treatment has failed. A considerable amount of work has been done, however, the object being to produce a temporary cessation of bleeding by giving a

dose of radiation which would destroy the mature Graafian follicles but would not be sufficient to damage the undeveloped follicles; so that menstruation would become established after a period of amenorrhoea lasting for some months, and there would be a possibility of future pregnancy.

Phillips has tabulated the records of 165 patients, in 128 (77.5 per cent.) of whom normal menstruation was restored. These were mostly adolescents and young women under the age of 25. The treatment was by radium in every instance, and a small dose averaging under 500 mg.-hours was given. It would appear that this treatment is still in the experimental stage, and that the dosage cannot yet be expressed numerically with accuracy. The question as to the liability to subsequent normal pregnancy is even less clearly defined.

Corscaden, Kasabach, and Lenz (1938) record sixty-nine further cases which received a substerilizing dose of radium or x rays for menorrhagia, fibroids, or dysmenorrhoea. Eleven pregnancies occurred among six women in this series: five patients aborted; four children lived beyond infancy, and two died at the age of 6 weeks and 6 months. This is only a small series, and the larger numbers of Murphy and Goldstein (1929) and of Miller *et al.* (1936) indicate that preconceptional irradiation should have no harmful effect on subsequent pregnancies, and that certainly it does not cause any increase in the percentage of abnormal children and monsters. It may be thought that the four surviving children in Corscaden's series are sufficient indication that this method of treatment is of value: it is obviously much to be preferred to the alternative of hysterectomy in those cases of severe bleeding which sometimes occur at puberty. It should only be used, however, when all else has been tried, and patients should be warned of the possibility of permanent menopause which may result (with the present state of our knowledge) in a certain proportion, especially of those aged 30 and over.

Further, if one accepts the action of radium as being mainly on the ovary—and it appears that this is the only way that the greater difficulty in sterilizing young women can be explained—it would seem advisable to use x rays rather than radium: the dose to the ovaries can be assessed with greater accuracy and there is less damage to the endometrium, with consequently a greater chance that an impregnated ovum can be retained.

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Small-pox has become an extinct disease in Poland, where the law on compulsory vaccination and revaccination is strictly enforced. Complications of vaccination are rare, and no cases of post-vaccinal encephalitis have so far been reported in Poland. In many towns where immunization against diphtheria is also compulsory protection against the two diseases is carried out at the same time.

THE TREATMENT OF NON-MALIGNANT UTERINE HAEMORRHAGE*

BY

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The treatment of non-malignant uterine haemorrhage in women approaching the menopause—the only class of case which I propose to consider—calls for a nicety of judgment which is, I think, ideally to be expected of the gynaecologist with special training in radiotherapy. Those in whom the surgical instinct predominates habitually subject women to major operations which, as I hope to show, can be avoided in many cases by the substitution of radiotherapy. Radical operation entails a primary mortality which is inseparable from hysterectomy; moreover, in every practice there occur, not infrequently, cases which for one reason or another are bad surgical risks—heart and lung disease, obesity, and so forth. On the other hand, the indiscriminate use of radiotherapy will in some cases involve the retention of a dangerously unhealthy uterine cervix, and in other cases, notably submucous fibroids, a liability to sloughing, with the possibility of catastrophe.

It is my practice to use total abdominal hysterectomy in all cases showing an advanced degree of chronic cervicitis, in the presence of large fibroids causing symptoms, unless myomectomy is indicated, and in those judged to be submucous. I avoid sterilizing operations so far as possible by trying medical treatment and sometimes curettage in women who desire to add to their families. In all other cases, including bad surgical risks, I prefer to use radium. Deep x rays are not at the moment available for my patients, so in the field of radiotherapy radium for me is Hobson's choice.

My impression has been that radium is most valuable in suitable cases, and for the purposes of this discussion, and with the permission of my colleagues of the Birmingham and Midland Hospital for Women, I have investigated the results of cases treated in that hospital during the years 1935 to 1937. These results I propose to present here.

Analysis of Cases Treated with Radium

Of 226 patients presumed to have been reached by a questionnaire 199 replied. I have felt justified in assuming that those who failed to reply are a fair sample of the whole; probably any woman with a grievance would have seized this chance of airing it.

Diagnosis.—The cases are classified as follows: subinvolution seven, metropathia haemorrhagica twenty-two, fibroids twenty. Two cases are included in which radium was applied to bring about sterilization. The remaining 148 cases I have not attempted to diagnose scientifically, but have used the term "chronic metritis."

Dosage.—A single 40-mg. or 50-mg. needle was used, with screenage equivalent to 1 mm. of platinum. The needle was left *in situ* for from twenty-four to forty-eight hours, in a few cases for seventy-two hours. The dosage of radium element varied from 960 to 3,600 mg.-hours, the great majority receiving about 2,000.

* Read in the Section of Radiology at the Annual Meeting of the British Medical Association, Plymouth, 1933.

Results

The results I will discuss under headings, including the usual objections to the use of radium therapy—namely, the complaints of discharge and pain following the application.

Bleeding.—A total of 187 cases (94 per cent.) have complete amenorrhoea. Of the twelve cases in which bleeding was not entirely arrested, hysterectomy followed in two cases; two others are still suffering from menorrhagia. The cases in which hysterectomy was performed were those of chronic metritis at ages 33 and 34, the doses being 1,800 and 1,200 mg.-hours, and it seems probable that a larger dose or a further application would have brought about a cure. A case of chronic metritis at the age of 38 (dosage, 1,920 mg.-hours) had no relief at all, and a case of a fairly large fibroid at 48 (1,920 mg.-hours) is in a similar condition. Three women state that they now have normal periods; they are aged 34 (dose 1,800 mg.-hours), 37 (1,200 mg.-hours), and 35 (1,200 mg.-hours). Five state that they have had a period occasionally. Only four patients (2 per cent.), therefore, are dissatisfied on account of abnormal bleeding. As regards the cessation of bleeding after the treatment in the remaining 187, ninety-five had no further loss. In forty-three the bleeding ceased during the first month; it continued longer than a month in fifteen, the longest time being seven months. Thirty had from one to four periods after the operation; two have an occasional period; one had a single slight loss, and one lost for eleven weeks nineteen months after treatment.

Discharge.—This is a most difficult symptom to evaluate, especially as it was present in many cases before the treatment. Eighty-two patients (41 per cent.) replied that they noticed no discharge; thirty-two had a slight discharge, and eighty-one a moderate amount, lasting for varying periods. Two had a profuse discharge—one for a month only; the other, a patient who had no relief from her menorrhagia, still discharges freely. The one significant point I have been able to make on the subject of discharge is that only two patients complain of discharge under the heading "Ill effects of the treatment."

Pain.—It is even more difficult, from the answers to a simple questionnaire, to reach satisfactory conclusions on this symptom. In 138 cases (69 per cent.) there was no pain at all. Pain was slight or moderate in a further forty-eight. Fourteen cases (7 per cent.) had what they consider severe pain for periods of from a few days up to three months. One woman says she had severe pain for a year. Again, it is significant that only one woman mentioned pain in reply to the question on "Ill effects."

Ill Effects.—No ill effect at all was noticed in 123 (62 per cent.) of the cases. Of the remaining seventy-six, seventeen (8.5 per cent.) mentioned definite menopausal symptoms, such as sweats and flushes—a surprisingly small proportion. Three others noticed an increase in weight, seven had headaches, and fifteen complained of weakness and "nerves." Two complain of dyspareunia (I have not been able to examine these patients), one seems to have had a femoral thrombosis, one cystitis, one severe diarrhoea, and one had thyrotoxicosis later, of which the abnormal haemorrhage was probably an early symptom. The remaining few complaints were irrelevant.

Results from the Patients' Point of View.—In response to the question "Was the result of the treatment entirely satisfactory to you?" 184 (92.5 per cent.) replied "Yes," and twenty-eight patients were moved to add notes expressing extreme satisfaction and gratitude with varying

degrees of eloquence. Only fifteen (7.5 per cent.) were less than completely satisfied.

I entered upon this investigation with, I hope, an unbiased mind, and I have been greatly impressed by the almost uniformly satisfactory results. They seem to me striking evidence of the value of radium therapy in selected cases of uterine haemorrhage in women approaching the menopause. I would only add that of 411 cases so treated during the past four years the only death was that of a patient who afterwards proved to be suffering from purpura, a record which I am sure could not have been equalled had radical measures been adopted in all these cases.

DANGER OF PRIMARY ABDOMINAL TUBERCULOSIS IN CHILDREN

BY

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The object of this paper is to present a series of cases of primary abdominal tuberculosis in children which terminated in a fatal meningitis, and to emphasize certain points in order to direct the attention of practitioners to the danger of primary abdominal tuberculosis in the child.

Primary tuberculosis of the lung has been extensively studied in children, and it is well known that in this form of tuberculosis the greatest risk to life results from generalized dissemination of the disease, usually manifested by a terminal meningitis. This risk is particularly great in the first three years of life, so that the prognosis in a case of primary tuberculous infection of the lung depends mainly on the age of the child.

Investigations into the fate of children infected with primary abdominal tuberculosis have been chiefly centred on identification of the type of bacillus responsible, human or bovine, or to the percentage incidence as compared with that of primary pulmonary infection, notably by Griffith (1932, 1934, 1937, 1938) and Blacklock (1932, 1935). Many significant facts have emerged from their investigations, two of the most important for the purposes of this paper being, first, that in 80 to 82 per cent. of cases of primary abdominal tuberculosis the infection is due to the bovine type of bacillus, and, secondly, that generalized dissemination takes place from a primary abdominal focus of infection in a high proportion of cases (32.4 per cent. in Blacklock's (1935) series of 372 cases).

For many years it was denied on the Continent that miliary tuberculosis could follow a primary abdominal infection, and only lately has this contention been refuted by the work of Griffith and Blacklock in this country and of Klereker (1931) in Sweden. The clinical importance of their investigations is even greater than is suggested by the figures quoted above, as these results were necessarily obtained by post-mortem examination, and, as will be seen later, the post-mortem figures do not nearly approximate to the total number of cases of miliary tuberculosis in children.

The Incidence of Primary Abdominal Tuberculosis

A survey of the last 3,214 post-mortem examinations at the Hospital for Sick Children revealed tuberculous meningitis as the cause of death in 284 cases—that is to say, this disease accounted for 8.8 per cent. of the necropsies. In forty-one (14.4 per cent.) of these cases the primary focus of infection was in the abdominal lymph glands. Stated differently, tuberculous meningitis resulting from a primary abdominal focus was responsible for death in more than 1.2 per cent. of over 3,000 necropsies. That this figure in no way represents the true mortality may be gauged from the fact that during the period 1933 to 1937 eighty-five children died in the hospital from tuberculous meningitis, but in only thirty-six of these were necropsies permitted—less than half the total number. (It is noteworthy that in the experience of one of us (G. H. N.) there is exceptional difficulty in obtaining permission to hold a post-mortem examination on children dying from tuberculous meningitis, in many cases because the child has been the only one.)

Criteria of "Primary Abdominal Focus" Infection

Our diagnosis of "primary abdominal infection" was based on enlargement with obvious tuberculous infection of the mesenteric lymph glands, with or without caseation, and complete absence of evidence of tuberculous infection of the bronchial or other mediastinal glands. No case was included in this series in which any enlargement whatsoever of the bronchial glands was recorded, or in which there were any tuberculous lesions of the lungs other than the miliary tubercles seen as a result of generalized dissemination of the disease.

Age and Sex Incidence

The next important feature is the age incidence. Former investigators have already stated that the highest incidence of primary abdominal tuberculosis falls in the first three years of life. The exact figures of this hospital were:

| | | | | | | | |
|-----------|----|----|---------|-----------|----|----|---------|
| 0-1 year | .. | .. | 4 cases | 3-4 years | .. | .. | 4 cases |
| 1-2 years | .. | .. | 23 " | 4-5 " | .. | .. | 3 " |
| 2-3 " | .. | .. | 2 " | | | | |

Here the facts only are stated; their significance will be discussed later.

A common and tragic history was that the child had been breast-fed for six to nine months and thereafter had had "ordinary milk diet." In one case, however, recorded in detail as an illustrative case, the parents were emphatic that the child had been given nothing but boiled milk and that there had been no contact with any possible source of human tuberculosis.

Our findings as regards the sex incidence were similar to those of Blacklock and Griffin (1935), who found that tuberculous meningitis following a primary abdominal lesion was commoner in boys than in girls. Twenty-eight of the forty-one cases occurred in boys and only thirteen in girls. Of the total 284 cases of meningitis 152 were in boys and 132 in girls, so that 18.4 per cent. of boys succumbed to meningitis following a primary abdominal lesion and only 9.8 per cent. of girls.

Clinical Features

It may be said that diagnosis of primary abdominal tuberculosis in the living child is almost impossible in the absence of such secondary lesions as tumour-like masses of glands, gross tuberculous peritonitis, or advanced ulceration of the intestine. The first sign of primary abdominal

tuberculosis is only too often the onset of meningitis. It was rare in our series to obtain a history of anything but malaise, irritability, with perhaps constipation or vomiting for a short time, very seldom for more than two weeks. Only in four cases was there a history of illness extending over a period of two months. One of these (Case III below) is quoted as an illustrative case. Two of the other three cases with a long history had frank plastic tuberculous peritonitis, the intestines being matted together by caseating glands and adhesions in the mesentery. In the fourth case a long-standing spinal caries affecting the second lumbar vertebra and complicated by a psoas abscess preceded the meningitis.

Unfortunately an x-ray examination, which is of such invaluable help, if conducted critically, in diagnosis of a primary lung infection, is of little use for the diagnosis of primary abdominal infection. It reveals only calcified glands, a residuum of the infection, when the disease process is no longer active and danger is past. In the present state of our knowledge we can only say that, as clinical diagnosis of the primary abdominal focus is impossible, prevention of the infection becomes of paramount importance.

Case I

J. C., aged 1 year 8 months, was quite well until two weeks before admission to hospital on June 4, 1937, when he became drowsy and disinclined to play. His appetite became poor. About a week later he had a convulsion and became unconscious. Since then he had been comatose and difficult to rouse. For several days he had vomited after meals. He was a normal full-term infant and was breast-fed (period not stated). There was no history of contact with tuberculosis. There was one other child, a boy aged 6 years, who was well. The parents were healthy.

On examination the child was comatose. The head was retracted. There was marked proptosis of both eyes. The optic fundi were normal. The Mantoux reaction (1 in 1,000) was strongly positive. The cerebrospinal fluid was examined on June 10, and contained 15 lymphocytes per c.mm., 95 mg. of protein per 100 c.cm., and 690 mg. of chlorides per 100 c.cm. No tubercle bacilli were seen. The chlorides fell terminally to 590 mg. per 100 c.cm. The child died a month after admission.

Necropsy Findings.—A typical tuberculous meningitis was present. There was a considerable degree of hydrocephalus. No tuberculomata were found in the brain. Many miliary tubercles were scattered throughout both lungs. There was no tuberculous infiltration of any of the bronchial or mediastinal glands. Miliary tubercles were present in the liver, spleen, and kidneys. A mass of enlarged tuberculous glands was situated in the mesentery. Caseation had not yet begun. No tuberculous ulceration was found in any part of the intestinal tract.

Case II

D. I., aged 1 year 6 months, was admitted to the Hospital for Sick Children on December 9, 1937. For two weeks he had had pyrexia and had lost his appetite. He had vomited occasionally. There was no history of contact with tuberculous patients. The other members of the family were healthy.

When admitted he was drowsy, with a temperature of 102° and a pulse rate of 128. There was neck rigidity, and a positive Kernig's sign was obtained on both sides. No papilloedema and no choroidal tubercles were observed. Examination of the cerebrospinal fluid showed 275 cells per c.mm., 2 per cent. being polymorphs and 98 per cent. lymphocytes; and 100 mg. of protein per 100 c.cm. Reduction of Fehling's solution was poor. Chlorides amounted to 670 mg. per 100 c.cm., and tubercle bacilli were present. The child died six days after admission.

Necropsy Findings.—Well-marked tuberculous meningitis was present. There was a considerable degree of hydrocephalus. A few miliary tubercles were found in both lungs. There was no tuberculous infiltration of any of the bronchial or mediastinal glands. Many miliary tubercles were present in the liver and spleen, but none were observed in the kidneys. There were one large and several smaller tuberculous glands in the mesentery. These had undergone caseation and were becoming liquefied. No definite tuberculous ulceration was found in the small or large intestine.

Case III

J. S., aged 1 year 3 months, was admitted to the Hospital for Sick Children on July 16, 1938. He had been well until two months previously, when he developed intermittent vomiting, lost his appetite, and became constipated. Ten days before admission he had three convulsions. Later he became drowsy and eventually relapsed into coma. There was no history of tuberculous contact. The parents were healthy. The child since early infancy had been fed on "accredited" milk, which the parents declared was always boiled.

The patient, on admission, was comatose and had Cheyne-Stokes respiration. The abdomen was retracted. A mass was felt near the umbilicus and another in the right iliac fossa. Early papilloedema was present, but no choroidal tubercles were seen. The cerebrospinal fluid was not under pressure; it was opalescent and slightly yellow; the chlorides amounted to 650 mg. per 100 c.cm.; and culture was sterile. The child died the day after admission.

Necropsy Findings.—There was only a thin fibrinous exudate containing a few miliary tubercles at the base of the brain and limited to the infundibular space. A few very small miliary tubercles were scattered throughout both lungs. There was no tuberculous infiltration of any of the bronchial or mediastinal glands. The spleen was slightly enlarged, and contained many rather large miliary tubercles. A few miliary tubercles were present in the kidney and liver. There was extensive ulceration of the mucous membrane of the last few inches of the ileum and of the caecum. The ulcers were irregular, and were situated transversely to the long axis of the gut. There were many miliary tubercles on the peritoneal surface. No ulceration was present in the rest of the small intestine or in any part of the large intestine. One large caseous tuberculous gland was situated alongside the second part of the duodenum and a large mass of tuberculous glands was present in the mesentery of the ileo-caecal angle. These glands were in various stages of caseation.

Some Points in Morbid Anatomy

Two of the above cases illustrate the salient feature of the morbid anatomy of tuberculous meningitis resulting from a primary abdominal focus—that is, the small size of the lesion in the abdomen which can give rise to a fatal meningitis. In many cases only *one* enlarged infected gland could be found in the mesentery, and no trace of ulceration could be discovered in the bowel. Reference has already been made to the few cases in which gross peritonitis or ulceration of the bowel was present. Widespread dissemination of miliary tubercles was almost invariable; only in three cases was there a meningitis without miliary tubercles in the viscera. Often only a few tubercles were scattered over the pleural surfaces of the lungs and on the surface of the liver, spleen, and kidneys; but in view of Blacklock and Griffin's series (1935), in which they found 27.8 per cent. of cases with meningitis following a primary abdominal lesion without generalized miliary tuberculosis, it is rather remarkable that only three similar cases (7.3 per cent.) should have occurred in our series.

A macroscopic tuberculoma was found in the brain in only one case, in which a hard mass the size of a cherry stone occupied part of the right crus and the floor of the third ventricle. The rarity of tuberculomata in meningitis

following a primary abdominal lesion contrasts with the frequency with which they occur in meningitis resulting from a primary lung infection; for in the whole series of 284 cases of meningitis, tuberculomata were present in thirty-five (12.3 per cent.).

Geographical Distribution

Both Griffith (1938) and Blacklock (1932) have pointed out that primary abdominal tuberculosis, owing to the high percentage of the bovine type of bacillus found in this form, is more prevalent in rural districts than in cities. It is noteworthy that in our admittedly small series of forty-one cases twelve children came from one particular county and from a radius in it of not more than thirty miles. Central London furnished only fifteen cases and "Greater London" another four.

Discussion

Our observations on a series of children who were investigated both clinically and pathologically afford striking evidence of the danger to which children are exposed by infection with primary abdominal tuberculosis. This danger may take the form of generalized miliary tuberculosis with or without a terminal meningitis, or, rarely, of an isolated fatal meningitis. The admirable work and statistical surveys of pathologists and bacteriologists such as Blacklock and Griffith in this country and Klercker in Sweden are apparently not fully appreciated by practitioners. This is the more deplorable because the mortality revealed by their studies and also by our investigations represents only part of the morbidity due to primary abdominal tuberculosis, which results also in many cases of "surgical tuberculosis."

One of the most important points with which we have dealt is the reflection of age incidence on the prognosis. We found that twenty-eight cases of the forty-one came to necropsy during the second year of life, and that no case occurred after the age of 5 years. In order to explain this age incidence many factors must be considered. It is possible that younger children are more susceptible subjects for implantation of the tubercle bacillus in the intestine, as it is well known that their intestines form a *locus minoris resistentiae* for many intestinal disorders which occur at this age. But a more likely possibility seems to be that in the very young there is *difficulty in localizing* the disease process. This opinion is supported by the parallel series of cases of generalized miliary tuberculosis with meningitis resulting from primary lung infection published by one of us (S. E.) in 1924 and 1930. In these cases failure of localization was revealed by anatomical evidence. In the younger children bronchial glands at a distance from those primarily draining the primary tuberculous focus in the lung were larger and much more often affected than in older children. The slight tendency for younger children to localize the tuberculous process was thus proved by ocular demonstration. It has not yet been possible to bring forward similar evidence in primary abdominal infection owing to the small number of cases personally observed.

Another point to be mentioned is the effect of the difference in feeding which takes place during the second half of the first year. This change from breast milk to cow's milk could be held responsible for the high incidence of fatal cases in the second year of life. We consider that the infection originates in this way in the vast majority of cases, but that the high mortality at an early age is due to the deficient power of localization mentioned above. It is common knowledge that primary abdominal tuber-

culosis is most often due to the bovine type of bacillus which is conveyed in milk. The researches of Blacklock and Griffith leave no doubt on this point, as they found the bovine type of bacillus in 80 to 82 per cent. of cases with primary foci in the abdomen. We are therefore entitled to assume that in our cases also the bovine type of bacillus predominated. This assumption is sustained by the fact that a majority of the children came from rural areas where children are more often fed on raw milk.

It may be remarked that in Case III the parents declared that the child had been given only boiled milk. The possibilities in this case are, first, that the infection was of the human type, which is rare; and, secondly, that the milk had been insufficiently or not always boiled. To omit to boil milk properly on a single occasion is quite sufficient to allow the tubercle bacillus to enter the body and give rise to infection.

Conclusions

Primary abdominal tuberculosis is a commoner disease in children than is generally supposed, and the true incidence is much higher than post-mortem figures indicate.

In primary abdominal infection, as in cases with a primary lung infection, the prognosis depends on the age of the child: the younger the child at the time of infection the worse the prognosis.

We are unable to accept the current view that primary abdominal tuberculosis can be more lightly regarded in children than can a primary lung infection: the bad prognosis in young children refutes this view. Diagnosis in cases of primary abdominal tuberculosis in the living child is extremely difficult; consequently early treatment is rarely possible. Prevention of infection is therefore all-important. Many cases of tuberculous meningitis, miliary tuberculosis, and crippling deformities could be prevented. We should endeavour, as an ideal, to secure for children milk from tuberculin-tested herds only, but at present it is impossible to provide this for the whole population. Therefore the greatest measure of protection is afforded by milk which has been boiled or efficiently pasteurized.

We wish to thank Dr. D. N. Naharro, Director of the Pathological Department, Hospital for Sick Children, for the interest he has taken in our work, and the honorary medical and surgical staff of the hospital for permission to use their case reports and post-mortem records.

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APLASTIC ANAEMIA WITH COMPLETE RECOVERY

BY

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When treating a patient with aplastic anaemia it is difficult to decide as to how long it is worth while keeping him alive by repeated blood transfusions in the hope that his bone marrow will ultimately revive and so maintain his cure. There are types of so-called idiopathic aplastic anaemia in which the bone marrow fails to recover and the disease is progressive and fatal. Blood transfusion probably does no more than postpone their death by a few months. There are other types of aplastic anaemia, usually the result of poisoning by drugs, in which the bone marrow quickly recovers its function and effects an automatic cure with or without the aid of a few blood transfusions. It is between these extremes that we are faced with the difficulty of deciding the number of transfusions to be given.

The case whose story is reported here is that of a man with aplastic anaemia following salvarsan therapy who in 1935 was kept alive for nine months with blood transfusions and is now (three years afterwards) in good health. At first no history of treatment by salvarsan was obtained, and in the absence of any apparent exposure to a noxious drug he was regarded as suffering from idiopathic aplastic anaemia. With the haemoglobin falling to 18 per cent. and the patient almost blind from retinal haemorrhages, there appeared to be no hope of recovery. He continued in this state for five weeks while transfusions were given to him two or three times weekly. In all, twenty-five transfusions were given in nine months.

Case History

The patient, a confectionery baker aged 50, began to complain of lack of energy and shortness of breath on exertion, and in April, 1935, his friends noticed that he was getting pale. A blood count done at that time showed 50 per cent. haemoglobin with colour index 1.1, and in spite of intensive oral and intramuscular liver therapy his condition rapidly became worse. He was first seen in May, and was admitted to hospital on the 30th of that month. He was then in a very critical condition, with dyspnoea on the slightest exertion. His mental processes were distinctly sluggish, his manner morose, and the history was given in a distant and hesitant manner which did not lead one to place much reliance on his statements. There were widespread haemorrhages into the skin and mucous membranes, and these were so thickly scattered in the retina that he was scarcely able to see. There were a few superficial ulcers with their sloughs on the buccal surface of the lower lip. Apart from some distension of the bladder, which could be palpated without discomfort, and absent ankle-jerks, examination was negative. The Wassermann reaction was very weak positive, and the van den Bergh normal, and radiographs of the femora revealed no encroachment on the medulla.

A blood examination resulted as follows: red cells, 1,380,000; haemoglobin, 23 per cent.; colour index, 1.02; reticulocytes, 0.6 per cent. The red cells were normal in shape, size, and colour. There was a slight amount of anisocytosis, but no poikilocytosis or polychromatophilia. No early forms were seen. Platelets numbered 38,600 (over 500 erythrocytes), and the white cells 2,187. The differential count showed: polymorphs, 16 per cent. (350 per c.mm.); lymphocytes, 72 per cent. (1,575); monocytes, 9 per cent. (197); eosinophils, 1 per cent. (22); basophils, 1 per cent. (22); myelocytes, 1 per cent. (22). The lymphocytes were mainly large in character. No primitive forms were seen. The

The regulations governing the award of Commonwealth Fund Fellowships have been amended since the publication in the *Journal* of October 15 (p. 804) of the announcement regarding the fellowships. The chief alterations are as follows: Candidates must be unmarried and must not have attained the age of 30 on September 1 of the year of award; fellowships are vacated by marriage; they are open to men only; and are tenable for two years. Readers of the *British Medical Journal* who are interested are advised to apply to the secretary of the Commonwealth Fund Fellowships, 35, Portman Square, W.1, for copies of the revised regulations.

Arneth count over 16 polymorphs showed a slight shift to the left: young forms, 5; 2 lobes, 9; 3 lobes, 2.

The patient's doctor was unaware that the man had ever had any serious illness or any treatment during the few years he had known him, and the patient was unable to give any reliable evidence regarding himself. It subsequently transpired that in 1926, when living elsewhere, he sought medical attention for incontinence of urine, and was found to have a positive blood Wassermann reaction. He received treatment during the subsequent four and a half years, at the end of which time he was discharged symptom-free but with the Wassermann reaction still positive. Details of treatment before July, 1928, are not available, but subsequent to that date he received three doses of 0.45 gramme of N.A.B., four of 0.6 gramme of N.A.B., six of 0.6 gramme of stabilarsan, and thirty-eight of 1 grain of mercury.

In July, 1928, symptoms returned, and treatment was resumed, being continued until December, 1934. During this time he received four doses of 0.45 gramme and five of 0.6 gramme of N.A.B. Jaundice then developed, and no treatment was given until March, 1935, from which date to the onset of symptoms six doses of 0.45 gramme of N.A.B. were administered, with no apparent ill effects other than slight loss of weight.

On account of the patient's condition on admission and a further fall of haemoglobin to 18 per cent. and red cells to 750,000 in the next week in spite of 18 oz. of blood being received as three transfusions, a hopeless prognosis was given. Intramuscular injections of pentose nucleotide were without effect on the white cell count and were soon discontinued, as the patient complained bitterly of pain at the site of injection. It was decided to see if recovery of the bone marrow would occur with the blood at a higher level, and accordingly ten transfusions of up to one pint were given in the next four weeks. During this period a remarkable change took place in the patient's mental and physical condition. He became cheerful and joelular, was able to get up and go about in comfort, and vision was restored to normal. No haemorrhages were now visible in the retina, and the blood count was as follows: red cells, 4,320,000; haemoglobin, 68 per cent.; reticulocytes, 0.6 per cent.; white cells, 4,375; polymorphs, 12 per cent.; lymphocytes, 84 per cent.; monocytes, 4 per cent.

At no time during this period did the reticulocytes exceed 1 per cent. The patient was discharged with instructions to take things very quietly and avoid physical exertion. One month later the haemoglobin fell to 38 per cent., but he still felt fairly well, and was able to carry out light supervisory work. Regular transfusions of one pint at intervals of three weeks were begun, and by this means haemoglobin was kept in the region of 50 per cent. He was transfused as an out-patient, and no untoward reactions were experienced, except on one occasion when loss of consciousness and an epileptiform convulsion occurred towards the end of a transfusion. The patient was then admitted for a few days, and an itching urticarial rash appeared three days after the transfusion. The blood was from a donor who had been used three months previously, and had been given at the same rate and in the same manner as on other occasions—citrate blood through a No. 12 hypodermic needle with a two-way syringe. The blood of two polycythaemic patients with haemoglobin 130 to 140 per cent was used on several occasions, but had to be diluted with saline to facilitate passage through a No. 12 needle.

Throughout this period the red blood cells showed a good deal of anisocytosis and the colour index remained high. At no time did the reticulocytes exceed 1 per cent. Platelets were about 40,000; the white blood cells were 1,500 to 4,000, with polymorphs less than 20 per cent. and many of them bilobed.

In March, 1936, owing to thrombosis of his only good vein and increasing difficulty in using the small superficial ones, it was decided to see if he could maintain himself at a low level. At first a slight fall occurred, but after several weeks the haemoglobin began to rise at the rate of 2 to 3 per cent. a week. Reticulocytes varied from 2 to 6.3 per cent.

In April, 1937, the count was: red cells, 4,110,000; haemoglobin, 99 per cent.; colour index, 1.2; white cells, 7,700. In August, 1937, it was: red cells, 4,880,000; haemoglobin, 105 per cent.; colour index, 1.07; white cells, 6,000; platelets, 214,000; polymorphs, 25 per cent.; lymphocytes, 52 per cent.; monocytes, 2 per cent.; basophils, 1 per cent. Undifferentiated, 18 per cent.; myelocytes, 2 per cent.; the red blood cells showed moderate anisocytosis.

When last seen, on December 28, 1937, the patient appeared quite normal, had had no further nervous symptoms, and the blood count was as follows: red cells, 4,600,000; haemoglobin, 92 per cent.; reticulocytes, 0.4 per cent.; white cells, 6,800; platelets, 370,000. At the present date he is known to be still well and at work.

Commentary

A case showing marked diminution in all the cellular elements of the blood following considerable arsenamine therapy is recorded. Fortunately the anaemia due to aplasia in this case was not increased by haemorrhage from the mucous membranes, as seen in a recent case of aplastic anaemia due to gold therapy for rheumatoid arthritis in which a fatal haematemesis occurred.

Despite a fall to 18 per cent. haemoglobin and 750,000 red cells recovery has occurred, and the patient is apparently normal more than two years after the last transfusion.

In the cases reviewed by McCarthy and Wilson (1932) that with the lowest level—one million—recovered, as did Imrie's (1935) case with 840,000 red cells and 17 per cent. haemoglobin. The former authors concluded that the drug and dose used made little difference to the prognosis, but the shorter the period between the last dose and the onset of symptoms the better the outlook. The thirty-four cases they described and collected from the literature showed a mortality of 83 per cent.

During the period that the blood level was kept up by transfusions there was no evidence of spontaneous recovery, the haemoglobin always being about 40 per cent. immediately before and 50 per cent. immediately after a transfusion.

Within a few weeks of ceasing transfusions there was an increase of reticulocytes and a gradual rise of red cells. The colour index remained high until a normal level was reached, and granulocytes lagged behind in their recovery.

There seems no doubt that without repeated transfusions the case reported would have rapidly proved fatal.

In all 418 oz. of blood were given as twenty-five transfusions.

I am indebted to Dr. J. C. Spence for allowing me to treat this case and for many helpful suggestions.

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All applications for fellowships in connexion with the Finney-Howell Research Foundation must be filed in the office of that Foundation, 1211, Cathedral Street, Baltimore, Maryland, U.S.A., by January 1, 1939; the awards will be announced on March 1. This Foundation was created to intensify research into the cause or causes of cancer and its treatment. Ten such fellowships were awarded in 1938; each carries an annual stipend of 2,000 dollars, and may be renewed in two successive years. Applications are to be made on the forms supplied by the secretary of the Foundation at the above address.

TRIPHENYL ETHYLENE TESTED ON
CAPONS

BY

A. M. HAIN, D.Sc.

(From the Institute of Animal Genetics, Edinburgh University)

It has been shown by Robson and Schönberg (1937) that the synthetic substance triphenyl ethylene is highly oestrogenic when tested on ovariectomized mice; its ability to inhibit the specific effects of progesterone on the endometrium and muscle of the rabbit's uterus (Robson, 1938) demonstrates that it possesses many of the attributes of oestrin. Since oestrin also has a typical gynaecogenic action in that it causes hen-feathering in the capon (Juhn and Gustavson, 1930), it was suggested to me by Dr. J. M. Robson that the ability of triphenyl ethylene to induce a similar effect might be examined. Tests made on old English game capons (bantams) of the black-red variety produced no change in feather-colouring when 1 gramme of substance was injected in two days. It was found, however, that neither do such birds react to 1 mg. of oestrone of the international standard, and in the experience of Dr. Parkes (personal communication) they are comparatively insensitive to oestrin.

When a brown Leghorn capon was injected with a total of 0.8 gramme of triphenyl ethylene in two days a very marked reaction was obtained in both the colouring and the structure of the feathers. Thus, triphenyl ethylene possesses in common with another synthetic compound—diethylstilboestrol (Dodds, Lawson, and Noble, 1938)—oestrogenic and gynaecogenic activity.

The combs of capons injected with 0.8 and 1 gramme of triphenyl ethylene showed no increase in size but actually a slight regression on their previous minimum. A similar absence of effect was observed when 1 gramme in arachis oil was smeared on the comb of another capon. When the equivalent of approximately 0.5 gramme was smeared on the comb of a capon which was at the same time being injected with 1.5 mg. of standardized androsterone there was no inhibition of the response to androsterone.

Summary

1. Triphenyl ethylene causes hen-feathering in the brown Leghorn capon, as does oestrin and diethylstilboestrol.

2. In the amounts used it had no effect on old English game bantams (black-red), which have a low sensitivity to oestrin.

The expenses of the above investigation were defrayed by grants from the Medical Research Council.

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During the past twenty-four years Dr. T. Wilson Parry has devoted much of his spare time to the study of primitive surgical holing (trephining or trepanning) of the human skull, and has published in all seventeen papers on this branch of medical history. He has now presented to the Library of the British Medical Association reprints of these contributions in pamphlet form, which can be consulted there by members interested in the subject.

Clinical Memoranda

Sulphanilamide in Climatic Bubo

Paradenitis venerea (climatic bubo or lymphogranuloma inguinale) is an uncommon disease in Great Britain, and the majority of the cases met with here are seen by the venereal diseases officers in the larger seaports. In the past the treatment of this condition with antimony compounds has been disappointing, and in the only case I have seen treated with vaccine the result was unsuccessful. The cases which reported for diagnosis before the infected glands had broken down have responded satisfactorily to surgical excision, but unfortunately the disease is usually further advanced when first seen and is characterized by extensive adenitis, inflammation of the adjacent tissues, sinus formation, and even involvement of the thigh and abdominal wall. The treatment of such cases has, in my experience, been disheartening to patient and doctor alike, and has required several dressings daily over a period of some months before healing of the sinus has been effected. It may be of interest, therefore, to record the following case, which satisfies the criteria necessary for a diagnosis of climatic bubo, and in which the response to chemotherapy with sulphanilamide has been very encouraging. In this connexion it is of interest to note that Fritz Bär (1938) has studied the experimental action of prontosil album in lymphogranulomatous meningo-encephalitis in mice, and mentions that Gjurić (1938) has recently reported successful results in the treatment of paradenitis venerea with prontosil album and also with a combination of prontosil album and foudadin. Kubitzki (1938) recorded a prompt fall of temperature and local improvement in cases treated with injections of prontosil.

CASE REPORT

The patient, a seaman aged 28, developed a small painless and non-tender swelling in the left groin three days after exposure to infection. A fortnight later the swelling had increased considerably and was then tender and painful. At no time was a genital sore noted. He attended the Seamen's Dispensary, Liverpool, where a diagnosis of climatic bubo was made and admission to hospital advised for excision of the infected glands, but unfortunately the patient refused to accept this advice. The Wassermann reaction at this visit was negative.

Six weeks after the onset of the adenitis the patient came under my observation when he was admitted to the V.D. wards, Mill Road Infirmary, Liverpool. On admission he felt and looked ill, and presented extensive inflammation and matting of the left inguinal glands. The inflammation also affected the tissues adjacent to the infected glands, involving an area which overlapped the left inguinal canal and extended below Poupart's ligament well into the base of Scarpa's triangle. The bubo had already broken down, and a copious, seropurulent, odourless discharge was draining through two small sinuses. There was no evidence of a genital sore or scar, and a tentative diagnosis of paradenitis venerea was subsequently confirmed by a positive Frei test. The Wassermann reaction was again negative, and an intradermal test with dmeclos vaccine produced no reaction.

Encouraged by the beneficial results of sulphanilamide therapy which I have obtained in cases of chancroidal ulceration, I decided to use this drug in the present case. The patient received 5 grammes daily for two days, 3.5 grammes on the third, fourth, and fifth days, and 2.5 grammes on each of the following eight days. Glycerin and magnesium sulphate dressings were applied locally, and four days later the bridge of necrotic tissue between the two sinuses was excised to facilitate drainage and permit packing the wound with gauze soaked in cod-liver oil. Under this regime the discharge

rapidly diminished and the wound showed evidence of healing. The patient was sent home in good health thirty-two days after admission, the sinus in the left groin being completely healed.

I wish to acknowledge my indebtedness to Dr. A. O. Ross for the findings obtained at the Seamen's Dispensary, Liverpool; and to Dr. L. Findlay, medical superintendent, Mill Road Infirmary, Liverpool, for permission to publish the case report.

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Extra-uterine Intra-abdominal Pregnancy

Recent articles prompt us to record a case of extra-uterine intra-abdominal pregnancy in a native from the district of Mwanza, in the Lake Province, Tanganyika Territory.

CASE REPORT

The patient was admitted to the Mwanza Hospital on June 10, 1938, with a history of a nine-months pregnancy and, five days before admission, small pains and the loss of a little blood. The pains lasted for one day only. Previous labours (three) had been normal, but each infant had died after a few days.

At midday on the day of admission the patient was examined by the senior sister, and again at 4 p.m. by one of us. The notes read: "Vertex presentation, membranes ruptured; soft mass behind head (? twins), cervix two fingers dilated." The case was puzzling, so at 4.30 p.m. another examination was made, and the following was recorded: "Vertex presentation, membranes ruptured, cervix peculiar to touch, and a little bleeding after examination. The abdomen tense." Further examinations showed:

- 6 p.m.: Very slight pains; still losing liquor and very little blood.
9.15 p.m.: Very slight pains.
June 11, 2.20 a.m.: Slight pains; very slight loss of liquor. Has slept. Pulse 106.
7.15 a.m.: Losing a little blood; slight pains. Pulse 92.
10.15 a.m.: Refused intervention. No pain; liquor stopped. Pulse not good.
11.50 a.m.: No progress since yesterday; ? foetal heart heard. Slight blood loss. Blood malaria-positive.
2.30 p.m.: Consented to go to theatre. Condition very poor; but we were convinced that a laparotomy was needed, although a positive diagnosis had not been made.

Operation revealed an intra-abdominal pregnancy. The head had sloughed through the vaginal vault and presented as a vertex. The uterus, enlarged to the size of a five-months pregnancy, lay behind the head. The placenta was plastered on to the intestines. Peritonitis was advanced.

The child was a full-term female of good development, and weighed 7½ lb. The mother collapsed, and all efforts to resuscitate her and the infant failed.

COMMENTARY

The interest in this case lies in the vertex presentation of an intra-abdominal pregnancy. The head had found the pelvis, and intra-abdominal pressure had caused a necrosis. On removal of the foetus from the pelvis the large opening into the vagina could be easily seen and demonstrated.

There was no story of injury or interference by friend or witchcraft practitioner, but the doubt cannot be stilled that someone in the village community had attempted to deal with the condition.

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Reviews

TROPICAL DISEASES AND HYGIENE

Krankheiten und Hygiene der warmen Länder. By Professor Dr. P. Mühlens, Professor Dr. E. Nauck, Dr. H. Vogel, and Professor Dr. H. Ruge. Fourth edition. (Pp. 564; 431 figures, 6 coloured plates and 1 in half-tone, RM. 43; bound, RM. 45.) Leipzig: Georg Thieme. 1938.

Ruge, Mühlens, and Verth's well-known work *Tropical Diseases and Hygiene* now appears in a fourth edition revised and enlarged to 560 pages, with important contributions by Professors Nauck, Vogel, and Martini. It is a complete systematic treatise covering the whole field of tropical medicine and hygiene, and forms an important source of reference to the latest advances in these subjects. Professor Ruge is the author of sections dealing with climate and tropical hygiene, the bacterial diseases, tropical skin and venereal diseases, blood technique, sleeping sickness, Chaga's disease, tropical surgery, the tropical anaemias, and other matters. Professor Mühlens provides the sections on malaria (eighty-five pages), the leishmaniasis, amoebic diseases, and the spirochaetoses. The sections on yellow fever, dengue, sandfly fever, typhus, *Bartonella*, psittacosis, and deficiency diseases are by Professor Nauck; while Dr. Vogel is responsible for the section on parasitic worms (sixty pages) and Professor Martini for those on myiasis, sandflies, and poisonous animals. This indication of subject-matter suffices to show how large is the field now covered by tropical medicine; a detailed account of the enormous quantity of material included in the volume is impossible in the space of a short review. The section on tropical hygiene gives an interesting summary of the different climates of the earth, discusses acclimatization, clothing, construction of dwellings, dietary, water supply, hints on mode of life, care of children, and the general question of health and protection from disease in the Tropics. The section on malaria covers in condensed form practically the whole of this immense subject, and is a difficult one to comment on beyond saying that it is up to date and includes recent advances in treatment and in the principles of modern anti-malarial sanitation. The section on sleeping sickness provides a good clinical account of the different stages of the disease and its treatment, with brief but informed references to *Glossina*, the stages of the parasite as seen in the insect host, and methods used in control. Good short sections on kala-azar, Oriental sore, and American leishmaniasis are followed by a larger one on amoebic dysentery and other amoebic conditions, and this in turn by consideration of the now numerous spirochaetal diseases. In place of the one-time single heading of "relapsing fever" of the older textbooks, one now finds separately described the European (*Spirochaeta obermeieri*), the Spanish (*S. hispanica*), the Central African (*S. duttoni*), the North African (*S. berbera*), the Asiatic (*S. carteri*), the North American (*S. novyi*), and the South American (*S. neotropicalis*) forms, differing in the nature of the causal agent, the clinical features, and the vector concerned in transmission. Among diseases of leptospiral origin are useful sections on Weil's disease, Japanese seven-day fever, and rat-bite fever. Under rickettsial diseases are again many conditions, once unheard of or vaguely described, now clearly set forth with illustrative matter; and the same with diseases due to the bartonellas. Among the deficiency diseases is a section on epidemic

dropsy. Besides such major bacterial infections as plague, cholera and bacterial dysentery, and leprosy, there are accounts of tularaemia, psittacosis, and melioidosis. An interesting and well-illustrated section is that on poisonous animals.

The volume is one which as a work of reference on tropical diseases can scarcely be excelled. Accompanying the text are a number of well-executed coloured plates representing appearances of the different malaria parasites, forms of leucocytes, ova of worms, and other subjects.

SOCIAL HYGIENE

Empire Social Hygiene Yearbook, 1938-9. Prepared by the British Social Hygiene Council. Fifth annual edition. (Pp. 603. 15s. net.) London: George Allen and Unwin, 1938.

The *Empire Social Hygiene Yearbook*, which is now in its fifth year, contains a vast amount of information, not easily to be gathered from other sources, concerning the health, social, and educational services of the counties and county boroughs of Great Britain and Northern Ireland. Similar information is also afforded regarding the various States and provinces of India, the Dominions, and the Colonies. The preoccupation of the book is with the facilities for combating venereal diseases, but it is not limited to that subject, and the information which it gives with regard to district nursing, health visiting, ante-natal and child welfare centres, and provision for mental defectives is useful and well arranged. There are chapters, compact with information, on housing, maternity, illegitimacy, juvenile delinquency and probation, mental defect, tuberculosis, blindness, deafness, and crippledom. The section on the care of cripples is a relatively new feature. The number of cripples in England and Wales is stated to be nearly 200,000; at least eight of every thousand children under the age of 5 are cripples or require orthopaedic treatment, and of the population as a whole at least four in every thousand are in the same category. The analysis by counties and county boroughs includes this year a new section giving information about orthopaedic clinics. In some areas, particularly certain of the Welsh counties and Lancashire, these clinics are numerous and well attended; in others they are scarcely functioning, and from fifty-eight areas no information at all is vouchsafed. Local statistics of registered blind persons are also given, but here again many areas, including populous ones, furnish no returns. An article on the marriage laws sets out the changes made by the Matrimonial Causes Act. This year-book has well earned its place on the official desk and in the hands of those engaged in health and social services.

THE NEW CHEMOTHERAPY

Sulfanilamide Therapy of Bacterial Infections. With Special Reference to Diseases caused by Hemolytic Streptococci, Pneumococci, Meningococci, and Gonococci. By Ralph R. Mellon, M.D., Paul Gross, M.D., and Frank B. Cooper, M.S. (Pp. 398; 16 figures, 26 tables. 18s.) London: Baillière, Tindall and Cox. 1938.

The three years which have now elapsed since the public advent of prontosil have provided more than enough material for a book, and the volume *Sulfanilamide Therapy of Bacterial Infections*, by R. R. Mellon, P. Gross, and F. B. Cooper, has now been written. Actually less than half the text is a review of the chemistry, pharmacology, and experimental and clinical effects of sulphonamide compounds. The remainder is an account of the authors' own work on this subject, of which the main parts have been studies of the chemotherapy of experi-

mental streptococcal and pneumococcal infection and an analysis of the mechanism of sulphanilamide bacteriostasis. They explain the divergent results of *in vitro* tests in this connexion on the basis of "potentiation," by which is meant the combined damaging effect of sulphanilamide and something else. In their own experiments this other factor was saline used for culture dilution, which appeared to render streptococci more vulnerable than they were when broth was the diluent. There may be something in this idea, although its translation to *in vivo* terms is not an easy matter, and it would still hold good in principle even were the initial damaging agent not sodium chloride but copper: it is necessary to point this out because the source of the distilled water used in preparing the saline is not stated. Some of the arguments elaborated in this part of the book do not carry conviction: at least one is based on premises which have since been proved false, but it must be difficult to escape such penalties in writing at large on a subject undergoing such rapid development.

Freedom from the space restrictions which encompass the writer of a mere paper has evidently tempted the authors to dilate not only on their personal beliefs about chemotherapy but on other subjects remotely related, and there are descriptions of alleged bacterial mutation and a discussion of "fitness" in rabbits and men as indicated by capacity for heat regeneration, the connexion of which with the main subject seems rather forced. It is chiefly for its review of the experimental and clinical development of sulphanilamide therapy that this book will be valued: that review is clear, full, and competent. The clinician anxious to base his use of this drug on a better understanding of its properties, and the experimentalist who might otherwise have to search for a single fact among a score of papers in almost as many different journals, can each profit by reference to it.

COLLAPSE THERAPY OF PHTHISIS

Kollaps-therapie der Lungentuberkulose. By Hein, Kremer, and Schmidt. Two volumes. (Pp. 1,135; illustrated. RM. 116; bound, RM 119.) Leipzig: Georg Thieme. 1938.

The complaint is often heard that in spite of the advances made in the collapse therapy of pulmonary tuberculosis much of it still lacks a precise physio-pathological basis. The book by Hein, Kremer, and Schmidt (with three collaborators) should convince those who have not yet been won over to collapse therapy that in some clinics at all events such an accusation is not justified. What is by many still considered as belonging to theoretical or experimental fields is here seen applied in daily routine: for instance, tomography, kymography, and detailed investigation of the respiratory and cardiac functions. This is a far cry from the almost care-free embarking on a collapse operation after little more than inspection of a skiagram. But it required six authors, 1,100 pages, and over 1,000 illustrations to present a readable and logical account of methods and review the more important literature. Nevertheless it will be the costliness of these two volumes rather than their size which will discourage readers amenable to the conviction that phthisis is a curable disease from appreciating their contents.

A chapter on the morbid anatomical basis of collapse therapy by Wurm is followed by chapters on the morbid anatomical and clinico-radiological aspects of the healing of cavities by Wurm and Alexander respectively. In a section of nearly 200 pages, containing 200 illustrations, Schmidt and Gaubatz discuss the basis and methods of determining the indications for collapse therapy. The chapters on artificial pneumothorax and on oleothorax

are written by Schmidt, while Kremer deals with adhesion-section. In the second volume he discusses phrenic interruption, and is followed by Schmidt on "pneumolysis with subsequent extrapleural pneumo- or oleo-thorax." This is the best account so far published of this much-discussed operation, but it is debatable whether one should include in a standard textbook so full an account of a method the remote results of which are as yet unassessable.

Schmidt rightly insists that the procedure is not new, but has merely been taken up again recently with success. He brings out the indications clearly. The operation is indicated in the late stages of the "early" cavity (when intrapleural pneumothorax is impracticable owing to adhesions), and in certain patients with "tertiary" cavitation (for which up to the present plombage or thoracoplasty was carried out) when these operations are contra-indicated: extrapleural pneumothorax is associated with a slight operative mortality (2 per cent.), and affects the functional capacity of the lung only to an insignificant extent. These facts also support its use for bilateral collapse. Thus Schmidt's view on indications differs entirely (and in the reviewer's opinion rightly) from the view sometimes expressed—that extrapleural pneumothorax should always be carried out when possible in preference to thoracoplasty.

Kremer discusses plombage and shows that it retains a definite place in the treatment of cavities when thoracoplasty is contraindicated. Thoracoplasty is amply described by Hein in a section of 350 pages with 308 illustrations. The help that can be obtained from the use of tomography in connexion with this operation is well demonstrated. Several detailed tables of personal results are appended. In the final chapter Schmidt does a service in emphasizing the great importance of *Korrekturplastik* by devoting a special section to it himself; for too many surgeons, by not keeping rigidly in mind that the aim of collapse therapy is to render the patient sputum-negative, are apt to show timidity in tackling the sputum-positive patient on whom they have already performed a thoracoplasty.

The production of the book maintains the high standard of German medical publications, but the price will put the work out of reach of those who have not constant access to a good medical library. The illustrations, some of which are in colour, are excellent. The reproductions of the skiagrams leave nothing to the imagination. The typographical arrangement of the ample bibliographies, the usual one in German publications, must, however, be criticized; it will not encourage the reader to verify chapter and verse.

OTO-RHINO-LARYNGOLOGY

Diseases of the Nose, Throat and Ear: Medical and Surgical. By William Lincoln Ballenger, M.D., F.A.C.S., and Howard Charles Ballenger, M.D., F.A.C.S. Seventh edition, thoroughly revised. (Pp. 1,030; 576 figures, 30 plates, mostly in colour. 50s. net.) London: Henry Kimpton. 1938.

Practical Otolaryngology, Rhinology and Laryngology. By Adam Edward Schlanser, M.D. (Pp. 315; 81 figures. 21s. net.) London: Henry Kimpton. 1938.

Ballenger's *Diseases of the Nose, Throat and Ear* has become a standard American textbook, and the seventh edition is now published. The general style remains the same, but there has again been some rearrangement, and some new sections, such as those on physical therapy and on petrositis, have been added. The chapters on endoscopy at the end of the book by Dr. G. Tucker and Dr. C. L. Jackson again form a valuable feature. It was suggested in a former review that the practice of introducing sections

by independent authors might be extended with advantage. Dr. J. M. West describes the management of dacryostenosis, but otherwise this plan has not been followed to any extent, so that the opportunity of thorough revision of such chapters as those on malignant disease has been missed. The general excellence of the book, especially of the section on the ear, will no doubt maintain its popularity, but this edition provides no striking novelty, and some parts which are now out of date might have been eliminated.

Practical Otolaryngology, Rhinology and Laryngology is a manual written by Colonel Schlanser of the Medical Corps, United States Army, quite suitable for general use but directed chiefly to the attention of military surgeons. As army medical officers are expected to be competent in a variety of branches of medical practice, among which otology and laryngology have now increased in importance, this book should be popular in all English-speaking countries, as it presents the subjects from the rather different point of view of military practice. There is an account of all the ordinary examinations, treatments, and operations likely to be encountered in practice amongst soldiers and their families, but a few points demand criticism. The arrangement of the book upon a symptomatic rather than a pathological basis will fail to satisfy many readers. The author states that a chronic discharge from the ear is indicative of neglect or faulty treatment of an acute inflammation of the middle ear. This opinion no longer holds good for many cases in which otorrhoea is associated with cholesteatoma. There are also many instances of loose writing, though the meaning is usually clear. The following is an example: "The indications for surgery in chronic suppuration of the ear are less clearly defined and more difficult to interpret than acute otitis media and mastoiditis." A more serious criticism relates to the use, advocated by the author, of pyramidon as a substitute for aspirin. Atophan in the form of arcanol is also recommended without warning against the danger of using this drug. On the whole the advice given in the management and treatment of patients is sound, and the author shows wisdom and caution in many points likely to arise, and his book can be recommended as a useful guide both in civil and in military practice.

Notes on Books

A total of 188 cases occurring in Sweden, Norway, and Denmark form the basis of A. GREVILLIUS'S monograph on malignant tumours of the testis, *Über Maligne Hodengeschwülste*, published by Appelbergs of Uppsala. Among important points which emerge from their analysis are the diagnostic and prognostic value of detecting sex hormones in the urine, the prognosis and degree of radio-sensitivity of different types of tumours, and the relative values of extirpation and of irradiation in treatment. There are good photomicrographs of many representative tumours, a brief statement in tabular form of the main features and clinical course of all the cases, and a useful bibliography.

In *A Natural Golfer* (London: Thomas Murby, 10s. net) Dr. J. FORREST returns to the self-imposed and formidable task of converting the artificial golfer into a natural one. Once again the secrets of the successful golfer are traced to wrist action and fittingly caught and photographed. Most golfers live in the hope that the next round is going to be better than the last, and will open this book with the secret hope that there may be "something in it." What that is may best be seen in the lovely photographs of Jack Hobbs on page 83.

MEDICAL WORK OF THE MINISTRY OF PENSIONS

From the medical standpoint the most important practical task of the Ministry of Pensions is the provision of treatment. Few of those engaged in the work to-day can recall the extent of the institutional organization which has been in existence, and many of the institutions in former use are now mere names unassociated with any particular memory.

Institutional Accommodation since 1918

While the Ministry opened certain hospitals itself, for the most part the accommodation was taken over from the Services and for some time continued to be held under D.O.R.A. or under private arrangement with the owners of the property. Some were purely temporary huddled hospitals, others Poor Law institutions, mental hospitals, and private houses converted to general or special hospital use. The first hospital was acquired in February, 1918, but the acquisition of further hospitals during the continuance of the war was slow. By March, 1919, however, arrangements were in full swing for the transfer or setting up of hospital accommodation considered to be necessary to meet the problem with which the Ministry was faced, and by March, 1920, over 10,000 beds had been acquired, spread over forty-eight institutions controlled by the Ministry and used solely for the treatment of disabled ex-Service officers and men. The peak of the Ministry's institutional work was reached in 1921 when over 14,000 beds were acquired, not to deal with the whole of the Ministry's liability for in-patient treatment but only such part as needed special provision and in the main was not or could not be provided by existing civil institutions. Ministry accommodation provided less than 50 per cent. of what was required, for at the end of the year 1920-1 there were still nearly 31,000 pensioners in hospital, while during the year it had been necessary to treat 135,000 cases.

Altogether the Ministry has occupied at one time and another eighty-three hospitals and six convalescent centres, and the nine hospitals which still survive are for the most part replacements of the original war hospitals which had been closed because they had become unsuitable or were required for their original peace-time use.

The Position To-day

By March 31, 1938, the bed strength in Ministry hospitals had been reduced to 1,598, while the total number treated during the twelve months preceding that date had fallen to just over 6,000. There are, however, certain signs which suggest that a stage is being approached where reductions in the numbers requiring treatment characteristic of earlier years can no longer be looked for, and that indeed increases must be expected in some directions. Thus it is found that the total number treated during the year 1937-8 rose by 17, whereas there was a drop of 401 in the preceding year. Never before has the number in hospitals in succeeding winters approximated that of the previous year, but the number in the winter of 1937-8 was in fact in excess of that twelve months earlier.

With advancing years the disabilities, whether they be wounds or diseases, are becoming more in evidence and more and more resistant to treatment, thereby necessitating longer and more frequently repeated institutional care. Admissions themselves were in excess of the previous year and included no fewer than 473 cases for investiga-

tion, the difficulties and complexities of which are increasing as the war years recede into the background of the medical history.

Deaths in Ministry Hospitals

In spite of the greatly increased number of gravely ill pensioners the death rate in Ministry hospitals tends to diminish and is now only 2.2 per cent. of those admitted. Of the 138 deaths in Ministry hospitals during the year it is of interest to note that respiratory diseases (32.6 per cent.), diseases of the cardiovascular system (23.2), affections of the renal system (12.3), and malignant disease (8) account for 76 per cent. of the total. It is not until we come to septicaemia (6.5 per cent.) that any condition is approached which appears to be the late effect of a battle casualty apart from those respiratory diseases that have been accepted as being the result of poison gas. Investigation as to what extent direct enemy action during the great war was still responsible for deaths among ex-Service men reveals that battle casualties accounted for only 16.5 per cent. in 1936-7, though this increased to 24 per cent. in the year ending March 31, 1938.

Provision of Treatment

As heretofore treatment is provided by the Ministry itself only when facilities which are otherwise provided from public funds are not available, and the treatment of insane and tuberculous pensioners (other ranks) continues normally to be provided by the respective local authorities.

Of the total number of 13,659 other ranks provided with in-patient treatment during the year 6,133 received it in Ministry hospitals, 5,771 in mental hospitals, and 763 in sanatoria. The remaining 992 were those treated in civil hospitals, some of which are reserved exclusively for ex-Service patients, others only in part, the remainder being ordinary civil hospitals. Out of a total of 2,746 pensioners provided with out-patient treatment just over 2,000 were treated at Ministry clinics, the bulk of the work being undertaken at the special surgical clinics.

The supply of new artificial limbs reached over 4,000 and over 33,000 were repaired, while the death of 355 amputees was in part offset by 101 fresh amputations, of which 59 were primary and 42 re-amputations. The number of appliances provided by the Ministry continues to increase, and a substantial addition in the number of invalid chairs and tricycles supplied during the past year must be regarded as to some extent due to advancing years and progressive deterioration of the disabilities.

The amount of work done in the wards of each Ministry hospital is reflected in the activities of its ancillary services. All Ministry hospitals make use of the Central Laboratory at Roehampton for reports on their pathological specimens, 15,706 of which were dealt with during the year 1937-8, involving over 27,000 separate investigations. This is an increase of more than 2,000 over the figure for the previous year and affords an interesting indication of the growing need for investigation.

War's Aftermath

It will be seen from this brief review, which touches only one aspect of the Ministry's activities, how much has been done and still remains to do for those disabled by a conflict that raged twenty years ago. The record stands as an impressive warning of the prolonged suffering that follows in the train of modern warfare and as an appeal to the humanity of all nations to prevent such a calamity in the future.

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THE PITUITARY AND DIABETES

Ten years ago it was supposed that diabetes was due simply to a deficient secretion of insulin. In 1930 Houssay¹ and his collaborators observed that the symptoms of diabetes in depancreatized dogs were relieved by hypophysectomy, and subsequently that injection of crude extracts of anterior pituitary material into such "Houssay dogs" (hypophysectomized-depancreatized animals) caused diabetic symptoms to develop. Since that time the influence of the anterior pituitary on carbohydrate metabolism has been the subject of intensive study. Much of this work has been undertaken in this country by F. G. Young, who has recently reviewed the present state of knowledge.^{2,3} Before Houssay's classical observations it was known that the glycogen stores of the liver were derived not only from carbohydrate but also from protein and fat, and that the mobilization of this glycogen to supply a constant blood-sugar level was controlled by a number of factors of which adrenaline was one of the most important. Adrenaline was also responsible for helping to convert tissue glycogen to lactic acid. The hypoglycaemic action of insulin was due to its powers of preventing the formation of glycogen in the liver, to its antagonistic effect on the mobilizing function of adrenaline, and to its facilitating the conversion of blood sugar to tissue glycogen. If the supplies of carbohydrate were adequate the conversion of fat to glycogen was prevented by insulin. In the process of this conversion there was a tendency to liberation of ketone bodies, so that insulin in the presence of glucose diminished the tendency to ketosis.

F. G. Young⁴ has shown that administration of crude anterior pituitary extracts to normal dogs gives rise to hyperglycaemia, glycosuria, and ketonuria. With small constant doses this diabetogenic effect tends to disappear, but can be made to reappear if the daily dose is increased, and if large doses are given the dogs are rendered permanently diabetic.⁵ These animals, however, can survive indefinitely without insulin treatment and can readily manufacture sugar from protein,⁶ so that, provided they are supplied with a high protein diet, their body weight is maintained or even increased. It

appears that this diabetogenic effect is due not to inhibition of secretion of insulin but to the raising of the threshold of sensitivity to it.⁷ Young⁸ found that extracts of the lactogenic hormone of the anterior pituitary, prolactin, possess this diabetogenic activity, though he⁹ subsequently demonstrated that the "glycotropic factor" is a contaminant of, but not identical with, prolactin. Although crude extracts of the anterior pituitary are "diabetogenic" neither prolactin nor the glycotropic factor will raise the blood-sugar level in intact animals, though they will provoke glycosuria in "Houssay dogs."¹⁰ Furthermore, neither prolactin nor the glycotropic factor will induce ketonuria either in the intact¹¹ or in the "Houssay" animal.¹⁰ So at least three different factors would appear to be required to produce the "diabetogenic" effect in the intact animal: the glycotropic factor, the ketogenic factor, and a factor responsible for inducing glycosuria in the intact animal. Further information as to the mode of action of the glycotropic factor is provided by the observations of Himsworth and Scott¹² that this substance is equally active in adrenalectomized animals, and that its effect therefore is not brought about by increasing the glycogenolytic power of adrenaline. In a histological study of the pancreatic islets in diabetic animals Richardson and Young¹³ observed that, whereas in dogs rendered permanently diabetic there is evidence of degeneration of the Langerhans tissue, in rats receiving crude extracts of anterior pituitary there is an increase in the amount of islet tissue, and in dogs receiving small daily doses active mitosis of the cells is found. This is of significance in view of the observation that such animals tend to become resistant to the diabetogenic effect of small doses, and supports the evidence for the existence of a "pancreatropic" factor of the anterior lobe. Yet another aspect of this pituitary activity is the self-limiting mechanism which appears to be a function of all anterior pituitary factors. Young¹⁴ has shown that by continuous treatment of monkeys with glycotropic substance it is possible to develop an "anti-prolactin" in the serum, though this antigenic substance does not appear to be consistently anti-glycotropic.

The story is by no means complete, but enough has been told to show that the normal animal, and presumably the normal human being, like the "Houssay dog" lives "precariously balanced between hypoglycaemia and diabetes," and that this balance depends on the efficient interaction of the anterior pituitary and the pancreas. It is still too early to apply these discoveries clinically, but we

¹ *Endocrinology*, 1931, 15, 511.² *Lancet*, 1936, 2, 237, 297.³ *Proc. roy. Soc. Med.*, 1938, 31, 1305.⁴ *Biochem. J.*, 1938, 32, 513.⁵ Young, F. G. *J. Physiol.*, 1938, 92, 15P.⁶ Marks, H. P., and Young, F. G. *Ibid.*, 1938, 93, 61.⁷ Cope, O., and Marks, H. P. *J. Physiol.*, 1934, 83, 157.⁸ *Ibid.*, 1936, 87, 13P.⁹ *Chem. Ind.*, 1937, 55, 237.¹⁰ Long, C. N. H. *Medicine*, 1937, 16, 215.¹¹ Young, F. G. *Biochem. J.*, 1938, 32, 524.¹² *J. Physiol.*, 1938, 91, 447.¹³ *Ibid.*, 1937, 91, 352; and *Lancet*, 1938, 1, 1098.¹⁴ *Biochem. J.*, 1938, 32, 656.

may look forward confidently to a third milestone in the history of the treatment of diabetes which may prove to be not less important than the discovery of insulin by Banting and Best or the introduction by Hagedorn and Scott of the protamine-zinc-insulin compound.

RAW AND PASTEURIZED MILK

Two reports have already been issued describing work carried out under the supervision of the Milk Nutrition Committee on the comparative nutritive value of raw and commercially pasteurized milk. The first dealt with observations on rats, the second on school children. A third report¹ is now published dealing with experiments on calves carried out at the National Institute for Research in Dairying, Reading, and at the Rowett Research Institute, Aberdeen. At Reading sixteen pairs of bull calves from tubercle-free herds were compared. One animal in each pair was fed on raw and the other on pasteurized milk from the same source. The milk was given in proportion to the weight of the animals. A hay supplement was included after eight weeks and a meal supplement after seventeen weeks. The experiment terminated after twenty-six weeks. In assessing the results five pairs of calves were omitted on the ground that three calves on raw milk died of pneumonia, one calf on raw milk was ill, and one calf on pasteurized milk had intestinal obstruction. The average weight of the remaining eleven pairs was 453.9 lb. in the raw group and 454.36 lb. in the pasteurized. Body measurements showed a slight but insignificant advantage in favour of the animals on raw milk; but, since the difficulties of obtaining uniform measurements in calves are said to be great, little weight can be attached to this difference. Examination of the raw milk showed that 30 per cent. of samples contained tubercle bacilli, in spite of the fact that it came mainly from accredited herds. None of the pasteurized samples was found to be infected. Tuberculin tests made towards the end of the experiment showed that eight out of the eleven calves on raw milk and one out of the eleven on pasteurized milk reacted positively.

At Aberdeen two experiments were carried out on the same general lines as at Reading. In the first experiment six heifer and ten bull calves were included in each group. Milk was fed according to appetite up to four months and then limited to 20 lb. per head per day. Hay was not given, but oat straw was fed freely throughout. Meal was added after four months. In the second experi-

ment ten pairs of bull calves were observed, milk being limited to 15 lb. daily, and meal added as soon as the calves would eat it. The milk supplied was the same in both experiments. Of the raw milk 74 per cent. of samples contained tubercle bacilli and 74 per cent. *Br. abortus*; of the pasteurized milk 7 per cent. of samples contained tubercle bacilli and 5 per cent. *Br. abortus*, though it is stated that the phosphatase test was uniformly negative. In the first experiment, omitting two calves that died in the raw milk group and one in the pasteurized, the average weight at 183 days of the animals fed on raw milk was 417.9 lb. and of the animals fed on pasteurized milk 402 lb. This difference cannot be regarded seriously, since throughout the experiment the growth curves of the two groups of animals were frequently crossing each other, and it so happened that at the time the experiment came to an end the animals on raw milk were in the ascendant. In the second experiment the average weight of the animals at the end of 187 days was 379.6 lb. in the raw group and 352.2 lb. in the pasteurized. In neither experiment was the difference in weight statistically significant. In the first experiment four calves in the raw group and three in the pasteurized reacted to tuberculin; in the second experiment the numbers were four and one respectively.

There are several different ways of carrying out experiments of this sort, and the answer obtained necessarily depends on the type of procedure adopted. Wilson, Minett, and Carling at Peppard endeavoured to make a pure comparison of the nutritive value of raw and pasteurized milk. For this reason they used calves from a healthy herd and fed them with milk that was free from both the tubercle bacillus and *Br. abortus*. As a result none of their animals became infected, and the results were not vitiated in any way by disease. Wilkie, Edwards, Fowler, and Wright at the Hannah Dairy Research Institute wanted to compare the general effect of raw and commercially pasteurized milk. For this reason they used animals from tuberculosis-free herds, fed them on ordinary raw and pasteurized milk, and kept them under completely separate housing conditions. The result was that twenty-four out of the thirty-six animals on raw milk became infected with tuberculosis and not one of the animals on pasteurized milk. In both these experiments, it may be noted, the average gain in weight of the animals was either equal or slightly higher in the pasteurized than in the raw group. The Reading and Aberdeen workers seem to have fallen between two stools. Some of their animals came from tuberculin-tested herds and others did not. Ordinary raw and pasteurized milk were given, but the animals were all housed together. It is not surprising, therefore,

¹ Milk and Nutrition, Part III. New experiments reported to the Milk Nutrition Committee. The effect of commercial pasteurization on the nutritive value of milk as determined by experiments on calves. Poynder and Son, Reading, 1938. Price 2s.

to frustration. The attack by biopsy is a bold method and is designed to avoid the disturbances caused by agonal and post-mortem changes. Nevertheless, it itself is not entirely free from the possibility of criticism. Scholz² has said that small portions of brain tissue, obtained fresh and preferably by biopsy, are in a high degree susceptible to artefacts produced by the hardening process. Dr. Penfield, however, has stated that he has never seen marked swelling in the oligodendroglia cells in bioptic material without there being some disturbance in the consciousness of the person from whom the tissue came. It is very much a matter of debate what significance, if any, can be attached to swelling of the oligodendroglia. It is, as a rule, considered to be an acute change and not one that can persist uninterruptedly for a prolonged period of time. Examination by biopsy is well worth a trial where facilities are available. There are, however, few English clinics which would use such a measure when operation was not on other grounds advisable. With further experience the special advantages and disadvantages of the method will come to be better known. Confirmation of these results will be required before a solid basis for further work on these lines is possible. Even then knowledge may be but little advanced, and such pathological findings may show themselves to be concurrent changes and not of aetiological significance. Much excellent biochemical work has succeeded only in reaching such a paltry conclusion.

PATHOLOGY OF RETINITIS PIGMENTOSA

The very name "retinitis pigmentosa" is a hybrid of fallacious pathology and doubtful physiology. Whatever the nature of the lesion it is not an inflammation of the retina, and that the pigmentary disturbances are not an essential feature of the process is shown by the existence of the subvariety of retinitis pigmentosa sine pigmento. The experimental work of Wagenmann, who studied the effect of cutting the short posterior ciliary arteries in rabbits, tended to implicate the choroidal circulation as the seat of the primary lesion, but the hereditary character of the affection and some histological features point to the retina rather than the choroid. Wagenmann's work, which was accepted as valid for many years, has recently been challenged,³ and opinion as to whether the primary lesion is one of the retina or of the choroid is still divided. The histological features of retinitis pigmentosa have led equally weighty authorities to support both views. General studies on the whole have been unhelpful until the recent revival of interest in the Laurence-Biedl syndrome with its widespread disturbances. Zondek,⁴ in particular, and many Italian writers have insisted on the endocrine basis of the disease; but the evidence is far from conclusive, and especially so in the case of attempts to single out a pituitary disturbance as the essential feature. Considerable interest therefore attaches to the work of E. C. Dax,⁵ who has

shown that the blood and urine of twenty patients with retinitis pigmentosa contain a substance which on injection into frogs disperses the melanosomes of the skin. The same effect is produced by the urine of patients with pituitary abnormalities or by urine excreted at times when the gland is subjected to physiological stress, as in menstruation. This wider view of retinitis pigmentosa, however, still leaves unsolved the problem as to the primary seat of the affection, though it tends to support the belief in an essentially retinal origin. The conception of retinal abiotrophy,⁶ though criticized as an escape into mere terminology, has by now yielded sufficiently valuable results in the discrimination of a large group of degenerative lesions to gain a new meaning. That retinitis pigmentosa is fundamentally a slow and premature death of the fully organized retina is further borne out by the investigation of this condition in a batch of rats undertaken by Bourne, Campbell, and Tansley.⁷ The material at their disposal enabled them to make something like an experimental study of the lesion in the retina at different stages, and their evidence is distinctly against the choroid as the primary source. It is not easy to see just how far a pituitary disturbance fits into such a picture. Assuming that it can be proved that such disturbances are invariably present in retinitis pigmentosa the question still remains as to whether the pituitary disorder is the primary factor or whether it is merely an associated condition arising out of the same underlying cause. Much more confirmatory evidence is needed before it can be accepted that retinitis pigmentosa is a pituitary dysfunction and nothing more. This view will also have to be harmonized with the evidence available on the rather ill-understood role of vitamin disturbances in the affection, as also with the pigmentary degeneration of the retina which can be experimentally induced by sodium iodate.

TROPICAL MACROCYTIC ANAEMIA

It seems clear that one of the fundamental causal factors in tropical macrocytic anaemia is a dietetic deficiency and that similar anaemias in varying degree are widespread. Hamilton Fairley and his colleagues⁸ have therefore suggested that the condition should be called nutritional macrocytic anaemia, and as a result of their observations in Macedonia they divide this into two varieties: a non-haemolytic and a haemolytic. The first variety is rare in Macedonia and seems to arise from uncomplicated dietary deficiency, whereas the second is common and appears to be due to dietary deficiency complicated by chronic malaria. Malaria exerts its action not directly on the red cell but through the increased phagocytosis of abnormal red cells derived from a pathological bone marrow by a reticulo-endothelial system activated and hypertrophied, it is thought, as a result of chronic malarial infection. A remarkable feature of these cases was the resistance to treatment. Massive doses of marmite (60 grammes

² *Z. ges. Neurol. Psychiat.*, 1933, 145, 471.

³ *Trans. ophthalm. Soc. U. Kingdom*, 1938, 581, 252.

⁴ *Diseases of the Endocrine Glands*, London, 1935.

⁵ *Brit. J. Ophthalm.*, 1938, 22, 345; *Trans. ophthalm. Soc. U. Kingdom*, 1938, 581, 227.

⁶ *Int. Congress Ophthalm.*, Washington, 1922, 1, 103; *Trans. ophthalm. Soc. U. Kingdom*, 1934, 54, 160.

⁷ *Trans. ophthalm. Soc. U. Kingdom*, 1938, 581, 234.

⁸ *Trans. roy. Soc. Trop. Med. Hyg.*, 1938, 32, 132.

or more daily) or liver extract (6 to 8 c.cm. campolon daily) were required to produce maximal reticulocytosis and blood regeneration; and even so the blood counts increased slowly. As the reticulocyte response was generally adequate it seemed that blood regeneration, even if adequately initiated, could not be maintained, or, in accordance with the general theory of the authors, though satisfactory blood regeneration was taking place the new blood was being destroyed by the hypertrophied reticulo-endothelial system. Another interesting question is the relation of tropical macrocytic anaemia to pernicious anaemia. From observations both on the experimental deficiency anaemia of monkeys (the supposed animal counterpart of human tropical macrocytic anaemia) and on the human disease itself, Wills and Evans⁹ claim to have shown that, whereas crude liver extracts are effective, the highly purified extracts so potent in pernicious anaemia are relatively inert, even in enormous doses. They state that in tropical macrocytic anaemia anahaemin, although the doses used were very high, produced no clinical improvement, no reticulocyte crisis, and no appreciable rise in the red cell count, and that similar results were obtained with examen; Napier and his colleagues¹⁰ support this opinion respecting anahaemin. These observations would suggest that uncomplicated tropical macrocytic anaemia is due to a deficiency in the diet of some factor other than Castle's extrinsic factor. The precise nature of this new factor, present in crude liver and autolysed yeast extracts, has not yet been demonstrated, though it does not appear to be vitamin B₁, B₂, lactoflavin, or nicotinic acid. However, until its identification and isolation are completed and its relation to other haematopoietic factors is determined, all cases of tropical macrocytic anaemia should be treated by the cruder liver extracts or by marmite; and, furthermore, the effect of any secondary haemolytic factor, such as chronic malaria, on the dosage required to produce a therapeutic response must be kept in mind.

PASTEUR INSTITUTE, 1888-1938

The Pasteur Institute in Paris, which celebrated its fiftieth anniversary this week, was opened on November 14, 1888, by the President of the French Republic in the presence of a distinguished gathering in the large library. It may be of interest to record one or two incidents that took place on this historic occasion. Dr. Grancher, who spoke after the proceedings had been opened by a brief speech from M. Bertrand, the secretary of the Academy of Science, inveighed against the opponents of the "Pasteurian method," and favourably contrasted the action taken by the Committee of Investigation appointed by the English Government. Dr. Grancher recorded that since the middle of 1885, when the first two patients were inoculated against rabies, 5,384 persons had passed through the laboratories at Rue d'Ulm and Rue Vauquelin. At that time twenty laboratories had been established for preventive inoculation: seven in Russia, five in Italy, and one each in Rumania, Austria, Brazil, Cuba, and the Argentine Republic—one was shortly to be opened at Chicago

and one in Malta. After Dr. Grancher had spoken M. Christophle, the treasurer of the Fund, reported that the subscriptions, including handsome donations from the Czar of Russia and the Sultan, amounted to over £100,000, three-fifths of which had been spent in building and equipping the Institute, leaving only £40,000 as capital for an endowment fund. The Government had been making a grant of £5,000 a year, but Pasteur and his committee hoped to obtain further private subscriptions which would render the Institute independent of the State. When the time came for Pasteur to speak he was so overcome that the speech which he had prepared had to be read by his son. It is worth recalling that Joseph Meister, at present lodgekeeper of the Institute, was the first person to be treated by Pasteur's method: this was on July 6, 1885, when at the age of 9 years he was bitten by a mad dog.

BRITISH HEART JOURNAL

At the beginning of next year the British Medical Association will increase its services to medical science by publishing quarterly a special journal devoted to diseases of the heart and of the circulation, under the title *British Heart Journal*. This journal, which is being published at the request of the Cardiac Society of Great Britain and Ireland, will be jointly edited by Dr. Maurice Campbell and Dr. Evan Bedford, assisted by an editorial board appointed by the Cardiac Society. Diseases of the heart and the circulatory system form the first of the principal certified causes of death at all ages in this country, and it is therefore a matter of surprise that such a journal is not already in existence in view of the gravity of the conditions which will form the subject-matter of this new publishing venture. We do not, of course, forget *Heart*, which for many years was edited by Sir Thomas Lewis and held a unique place in the medical literature of the world—a position still maintained with change of title to *Clinical Science*, but happily without any change of editorial guidance. The research work in experimental medicine that is carried out under the leadership of Sir Thomas Lewis, the reports of which appear in his journal, are of supreme importance to medicine, and represent a field of activity that probably will only be incidentally surveyed in the *British Heart Journal*. In the new periodical one may expect to find work more concerned with the everyday diagnosis and treatment of patients, and so of immediate value to the practising physician. Its obvious appeal will, of course, be to the specialist in heart disease or "cardiologist," both in this country and in others, but we would, too, strongly commend it to all physicians to whom the stethoscope of Laennec has become the badge of their tribe. In shape and form it will be similar to the other two specialist journals published by the B.M.A., and it will be priced at 25s. a volume of four numbers.

We regret to announce the death, on November 14, of Patrick Watson-Williams, M.D., consulting surgeon in charge of the Ear, Nose, and Throat Department, Bristol Royal Infirmary. We hope to publish a memoir next week.

⁹ *Lancet*, 1938, 2, 416.

¹⁰ *Indian med. Gaz.*, 1938, 73, 385.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

INNOCENT TUMOURS OF THE BREAST

BY

W. SAMPSON HANDLEY, M.S., F.R.C.S.

Unless the diagnosis is certain and the tumour of very moderate size, the removal of a benign swelling of the breast should not be undertaken as an exercise in minor surgery. While in some cases, as in the mobile fibro-adenoma of the young woman in her twenties, the lump may be unquestionably innocent, in a woman over 40 a clinically similar lump may prove to be a mobile carci-

Owing to the close relation of the great pectoral muscle to the breast early movement of the arm is very undesirable.

The dressing applied should maintain elastic pressure upon the field of operation, and, except for the smallest operations, a many-tailed bandage is best, as it ensures uniform support for the whole breast.

Removal of an Encapsuled Fibro-adenoma

A direct approach to the tumour is usually best by an incision radiating from the nipple so as to avoid division of main ducts and situated over the most prominent part of the swelling. The tumour should be steadied and made prominent by fixing it between the thumb and index

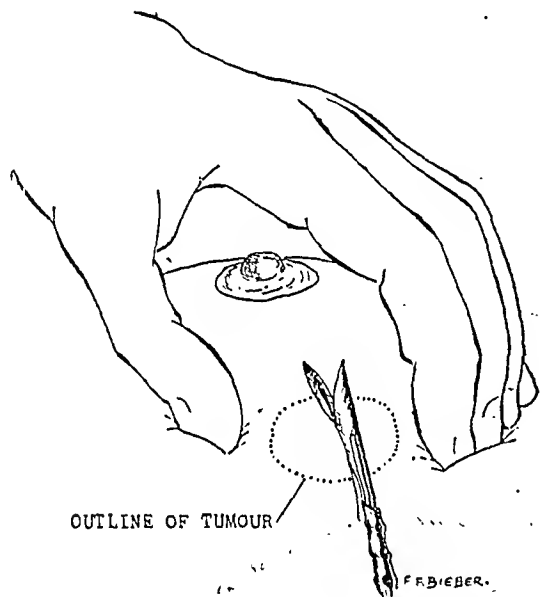


FIG. 1.—The method of approach to the tumour

noma, for which an immediate radical operation is desirable. In some cases an immediate frozen section by a pathologist in attendance may be necessary to settle the question, and if malignancy is reported it is desirable, though not absolutely essential, that immediate radical operation should follow. If this is not possible the wound should be immediately sewn up and the patient sent to a fully equipped hospital. In any case where cancer is suspected the scope of the exploratory operation should be as restricted as possible, and the incision should be one which will not prejudice a subsequent radical procedure—that is to say, the lump should be approached by a small incision made directly over it, and not by an indirect or marginal incision. It is a safe rule that no case in which a carcinoma may be present should be submitted to exploration unless the surgeon's experience and environment justify, if necessary, an immediate major intervention.

It is a mistake to minimize to the patient beforehand the importance of even a small operation, for this will make it more difficult to control her during convalescence. Even a small wound takes a week to heal firmly. In a vascular organ such as the breast rest for a week with the arm in a sling should usually be insisted on. Early movement is likely to produce a troublesome haematoma, which will delay recovery and may possibly require evacuation.

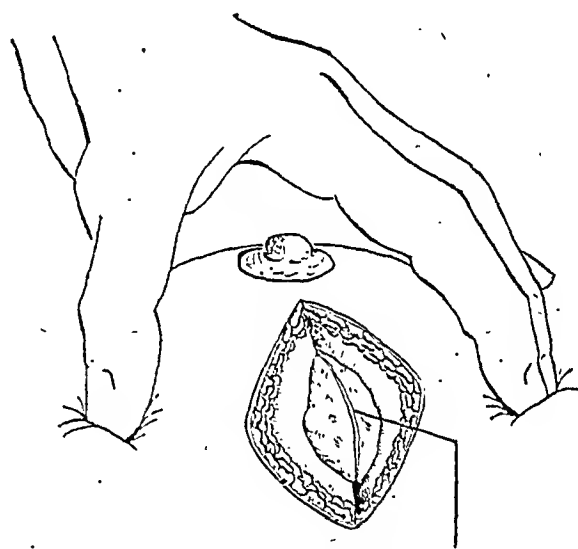


FIG. 2.—Showing the incision down to the tumour and through its capsule.

finger of the left hand (Fig. 1). A firm cut is made right down to the tumour and through its capsule (Fig. 2). The latter is an essential point, for the plane of easy enucleation is not between the tumour and its surroundings but between the capsule of the swelling and the tumour substance itself. With a blunt instrument—a blunt dissector, a closed artery forceps, or the gloved finger—the enucleation is now carried out, as a rule without difficulty (Fig. 3). The cavity is then inspected to see that no lobules of the tumour have been left behind. Some surgeons advise that the capsule should now be separately excised, but I think this is unnecessary. The cavity is examined for bleeding points, which should either be carefully ligatured or else underrun with a fine semicircular needle carrying a ligature, which is then tied over the bleeding point. The latter is the safer plan. With a similar needle the cavity left should be obliterated by approximating its sides. The needle takes a grip first of one lateral wall of the cavity and then of the corresponding point on the opposite wall. The ligature is now tied. Two or three such stitches may be necessary (Fig. 4). A narrow strip of corrugated rubber may be put in as a drain for twenty-four hours, but should not be left longer. It only remains to insert the skin sutures. Double horsehair, which is elastic and non-absorbent, leaves little mark if not left in too long,

or thin silkworm-gut or clips may be preferred. Special care must be taken that the skin edges are not inverted and are accurately coapted. If an invisible scar is hoped for the stitches must be removed early—say on the fourth or fifth day. After their removal it is well to apply a single layer of gauze over the wound and to paint it with collodion. This will prevent gaping of the incision.

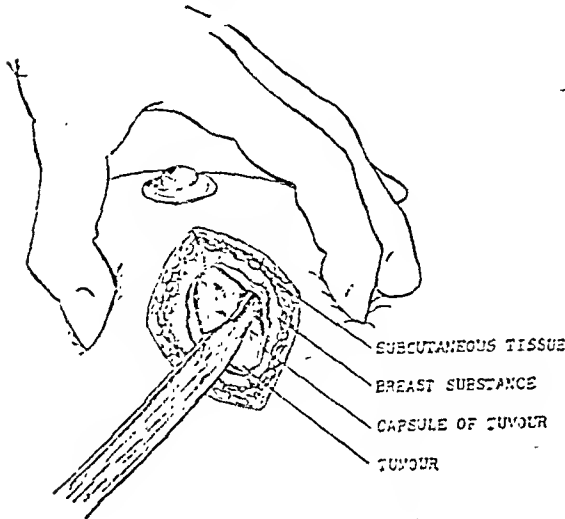


FIG. 3.—The method of enucleation.

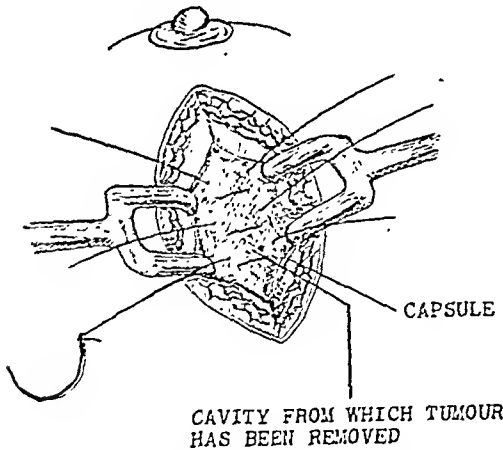


FIG. 4.—Obliterating the cavity.

Unencapsuled Fibro-adenoma

Certain fibro-adenomas have no capsule and cannot be enucleated. They can only be removed by cutting round the tumour, preferably with curved scissors, where it merges into the surrounding breast. If a fibro-adenoma proves to be non-enucleable a suspicion of carcinoma should be aroused.

Gaillard-Thomas Method

In cases in which it is desirable to avoid a scar over the surface of the breast access to the outer position of the organ can be obtained from the posterior surface by the Gaillard-Thomas marginal incision. (Fig. 5). The operation, however, may be attended by free bleeding, and lies

on the edge of the domain of minor surgery. At least a dozen artery forceps should be available. Usually the incision begins in the axilla just under cover of the lower

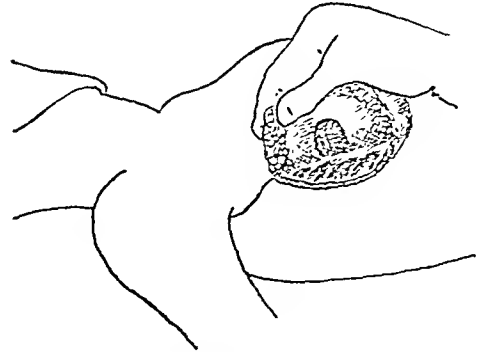


FIG. 5.—The Gaillard-Thomas marginal incision.

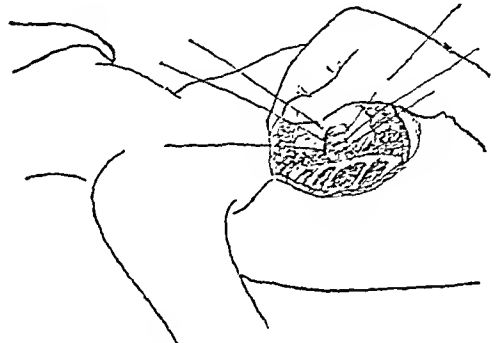


FIG. 6.—The cavity as it appears after enucleation of the tumour.

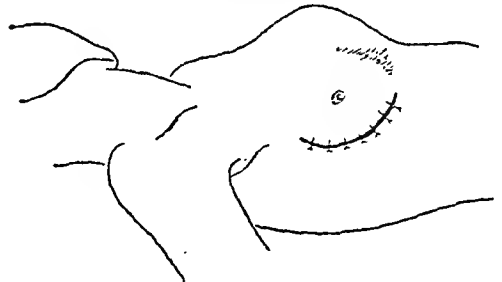


FIG. 7.—The skin sutures.

edge of the great pectoral muscle, and follows downwards the curved outline of the breast for the requisite distance according to the freedom of access required. If the tumour is near the lower edge of the breast the incision will follow the submammary sulcus. The incision is deepened down to but not through the deep fascia, and then, partly by blunt dissection, the breast is raised from the fascia until the tumour can be felt through its posterior surface, which is turned over until the tumour presents. An incision is now made through the posterior surface of the breast, the tumour exposed and enucleated, and the cavity obliterated as already described (Fig. 6). The breast is turned back into position and a drainage-tube inserted after careful haemostasis. Only few skin sutures are necessary (Fig. 7), and healing is usually rapid and satisfactory.

The weakness of the Gaillard-Thomas method is that if the tumour proves after all to be malignant a subsequent satisfactory radical operation is made difficult or is impossible. This incision should not be used if there is any doubt as to the diagnosis.

Pathological Examination Essential

Cases are on record in which, after the removal of a fibro-adenoma, carcinoma has appeared beneath the scar within a few months. The supposed fibro-adenoma, if microscopically examined, would almost certainly have proved to be a carcinoma. Remembering such facts, no conscientious surgeon will remove a portion of tissue from the breast without sending it for microscopical examination. To this rule there should be no exception, for carcinoma has been found in the interior of an apparently undoubted fibro-adenoma.

Doubtful Breast Swellings

The condition which most often arouses suspicion of early carcinoma is chronic mastitis, especially of the cystic variety. Chronic mastitis has already been considered.* This condition affects the breast by lobes, attacking certain lobes and often sparing others. The upper and outer quadrant is the most common site, as for carcinoma. Chronic mastitis, especially of the cystic variety, is a pre-cancerous condition, though it may be many years before the change to cancer supervenes, and that change may never occur. The swellings of chronic mastitis are vague, mobile, finely granular, sector-shaped, and free from adhesion to skin or fascia. The lymphatic glands may be enlarged and tender, but they are elastic and not hard. Swelling and tenderness of the breast are maximal just before the period starts, and rapidly subside once it has begun.

In its typical form, and especially under the age of 40, mastitis is best dealt with by a short course of x rays to the breast, and the question of surgery will not arise. But in women who have reached the cancer age mastitic swellings should be examined every three months, even after x-ray treatment has been given.

A watch should be kept for certain danger signals which indicate the likelihood of early supervision of carcinoma. These are:

1. The appearance of multiple hard lumps, probably cysts or fibro-adenoma, in the mastitic area.

2. Deviation of the axis of the nipple on the affected side.—The normal nipple looks forwards, downwards, and outwards. Fibrous tissue occurring in the mastitic area tends to tilt the nipple in the direction of that area. Thus in mastitis of the upper and outer quadrant the nipple is likely to point forwards and outwards, not forwards, outwards, and downwards.

3. Duct retraction.—This sign must not be confused with retraction of the nipple. Upon the normal nipple there are fifteen to twenty openings, one for each lobe of the breast. If one of the lobes becomes fibrotic the contraction of the new fibrous tissue pulls upon the corresponding duct, which then appears as a tiny depression upon the surface of the nipple. Several such depressions may be present.

4. Elevation of the nipple may occur owing to the pull of mastitic fibrous tissue upon it as a whole.

5. Incipient adhesion of skin to the lump.

6. Incipient retraction of the whole nipple.

If some of these signs appear it may be necessary to advise the removal of a portion of the breast for microscopical examination, preferably by frozen section, with leave to proceed to a mastectomy if necessary.

* See article by Mr. Cecil Rowntree in the *Journal* of November 12.

Technique of Biopsy

Under proper aseptic conditions, with preparation of the skin by painting with iodine or mercurochrome, the suspected area is isolated by sterile towels and an incision about an inch long is made, mainly with the point of the knife, deeply into the breast tissue of the suspected area. The knife must go right through the subcutaneous fat and well into the breast tissue, which can be recognized by its more fibrous and resistant quality. The knife is not removed from the incision, but is used as a guide to introduce a pair of toothed dissecting forceps which seize one edge of the incision in the breast tissue deep down in the wound. Traction is now made on the forceps by lifting it up towards the surface and, without removing the knife, cutting is resumed. The knife is carried in a circle round the point of the forceps and the forceps comes away with a wedge-shaped piece of breast tissue. While this is being examined by the pathologist the cavity of the wound is washed out with 1 in 1,000 perchloride of mercury to coagulate any loose epithelial cells. A single deep suture may be inserted in the breast tissue to approximate the sides of the small cavity in it and to arrest haemorrhage. The wound is then closed.

It is a common fault to make too long an incision for a biopsy. The smaller the incision the better, provided an adequate piece of breast substance can be reached.

Though, as an ideal, immediate radical operation, with a fresh set of towels, instruments, gloves, and swabs, should follow a pathological report of carcinoma, this is not absolutely essential. If the services of a pathologist skilled in the interpretation of frozen sections are not to be had the biopsy specimen may be sent away to a laboratory for a paraffin section and further operation deferred until the report is received.

It was formerly believed on Bloodgood's authority that this more leisurely procedure would seriously increase the risks of recurrence if carcinoma were found to be present. There would appear to be no sufficient ground for this belief: nevertheless the interval between exploration and radical removal should not exceed a week.

THE PECKHAM HEALTH CENTRE

A Three-years Survey

The words "annual report" on the face of a document induce a sinking feeling in the heart of a reviewer, and generally the more worthy the organization the greater the depression. But about the Pioneer Health Centre at Peckham, whose "annual" report dealing with three years' work has now been issued, there is something indefinitely different. There is something different about the place itself, about the 600 to 1,000 people who go there every day, about the people in the gymnasium and the swimming pool. The visitor feels at once the atmosphere of social health. Moreover, many of these people suggest that they have got rid of some incubus, have found some new vitality, have released some hidden spring. Partly it is to be explained by the fact that they and their families have had a health overhaul, during which many of those minor maladies, not considered important enough to go to a doctor about, but nevertheless a drag on the wheels of life, have been discovered. They have been told what is wrong with them as a first step to getting it right. They are not treated at the Centre. The two medical directors and the medical consulting staff regard themselves as health advisers: their province is to examine and warn, but to concentrate on health and not on sickness, and not to duplicate the treatment services already provided. Up to

the middle of this year over 1,100 families had been examined, and in about 83 per cent. of the individuals something was found which needed treatment or correction—perhaps only a trivial ailment, or, it may be, the pre-clinical stage of some more serious malady, such as anaemia, hyperpiesis, or kidney disorder. One of the doctors remarked that among the women she examined when they first came to the Centre only about two were really fit, but on a second overhaul the vast majority had improved physically to a marked degree. The result is best described in the mechanical analogy adopted in the report itself—the feel of a motor car after decarbonization, adjustment of valves, setting of the jet, clearing the sump and renewing the oil, greasing the springs, taking up the slack in the steering gear, and adjusting the brakes. And, not least, refurbishing the coach-work!

That stimulating pamphlet *Biologists in Search of Material*, reviewed recently in these columns, was in effect the scientific report of the work of the Centre. But the Centre ranges over the whole field of living. It has given the opportunity to a section of London suburban population—perhaps the loneliest, least communal society in the country—to find social opportunities, companionship, and an outlet for unexpected faculties. For example, 157 married women, most of them middle-aged and astonished at their own achievement, have learned to swim. The value of it all is to be measured not in the pleasant glass-fronted building off a Peckham side street but in some hundreds of surrounding homes. The interest of the Centre in the family, which is its unit, begins while the family is still prospective. Young people about to marry are given a complete overhaul and a pre-marital consultation. When motherhood is expected particular attention is given to ensure as rich as possible an intra-uterine environment for the coming child. A number of women who had decided to have no more children are said to have changed their minds with the new outlook on maternal and family vitality which at the Centre no one can avoid, but have gone through their pregnancy not only with courage but with enjoyment. Provision for their confinement is arranged, if necessary, at local hospitals, and when they return to the Centre they are built up and instructed and looked after. The Centre is aiming at a membership of 2,000 families, but in the early years this remarkable sociological experiment depends on as much generous outside help as can be afforded to keep it going on an expenditure of £7,000 a year.

in the service of numerous voluntary nursing associations which are participating in the national service of salaried midwives.

The St. John's School in Poplar

It is therefore a satisfaction to record the establishment of a new post-certificate school in Poplar by the Nursing Sisters of St. John, which was opened by Sir George Newman on October 31 last. St. John's is a voluntary nursing organization which has been working in the east and south of London for exactly ninety years, and has, since the beginning of the present year, been responsible, under contract with the L.C.C., for the domiciliary midwifery of the whole of the Metropolitan Borough of Poplar. It is the intention of St. John's to reserve the whole of this area for the purpose of post-certificate training. Until a few months ago St. John's was associated with the General Lying-in Hospital in the conduct of the well-known Camberwell School for refresher courses, and it therefore brings considerable experience to the new centre.

St. John's Post-certificate School for Midwives is situated in the East India Dock Road, in the heart of a large industrial population. Study-bedrooms are provided for ten resident pupils; the services of well-known obstetricians as lecturers have been secured, and instruction will be given in the ante-natal clinics of three neighbouring hospitals through the most valuable co-operation of the L.C.C. and of the Royal College of St. Katharine. The large number of domiciliary cases which are available will allow of direct personal supervision of the pupils while actually engaged in the conduct of a confinement and in the management of the puerperium. This is a feature to which great importance is attached by St. John's, who hold that the full benefit of refresher courses cannot be obtained except through personal contact between teacher and pupil, and by supervision of the pupil when actually performing the duties of a midwife.

This effort of a voluntary organization to show how the new requirements of Parliament and the Central Midwives Board can best be met deserves recognition and welcome. Post-certificate teaching, organized in the manner proposed by the new school, should do much to maintain the efficiency of an important branch of the maternity service.

Reports of Societies

POST-CERTIFICATE TRAINING FOR MIDWIVES

One of the most useful provisions of the Midwives Act (1936) was that which gave the Central Midwives Board the power, not hitherto possessed by it, to require midwives whose names appeared on the Roll to take refresher courses from time to time. With welcome promptitude the Board proceeded to exercise these powers, and in April, 1938, it issued regulations requiring all midwives, with a few specified exceptions, as from January 1, 1939, to take a refresher course at intervals not exceeding seven years. It was laid down that these refresher courses should be of one month's duration, and should be residential, the student devoting the whole of her time to the work. The Act further provided that it should be an obligation of "every authority"—that is, every Local Supervising Authority—to provide, or to arrange for the provision of, these courses of instruction for the midwives practising in its area. At the time the Act of 1936 was passed facilities for the post-certificate training of practising midwives were non-existent over the greater part of the country, and even in London they were quite inadequate to provide for the large numbers who would become subject to the new requirements. Up to the present the Local Supervising Authorities have given little indication of an intention to establish centres at which post-certificate training could be given, either to their own salaried midwives or to those

RECTAL REACTIONS FOLLOWING IRRADIATION OF CERVIX

At a meeting of the North of England Obstetrical and Gynaecological Society in Manchester on October 14 Mr T. F. Todd (Manchester) read a paper on rectal ulceration following irradiation treatment of carcinoma of the cervix.

Mr. Todd discussed the incidence, pathology, and treatment of rectal reactions following irradiation. His material was studied at the Christie Hospital and Holt Radium Institute during the tenure of a research fellowship. Interest was aroused because these reactions were so often not recognized; several cases were referred after previous radium treatment elsewhere for further radiation of a reaction misdiagnosed as a rectal carcinoma. The literature was very scanty; such reactions had seldom been reported and nowhere was the pathology described.

Rectal reactions might be early, as acute proctitis, or late, as chronic ulcers with a distinct resemblance to rectal cancers; thirty-four chronic rectal reactions had been seen in approximately 800 treated cases. Morphologically chronic rectal reactions assumed one of two types. The first was a lesion restricted to the anterior rectal wall,

usually at the level of the cervix uteri, and forming a mobile ulcerated mass, some 3 to 5 cm. in diameter, resembling an operable carcinoma. The second consisted of a rectal ulceration similarly situated, but accompanied by gross perirectal induration, and the formation of a hard fixed mass enveloping the rectum, anchoring it to the sacrum, and resembling advanced inoperable cancer with an extensive extrarectal spread.

Symptoms and Aetiology

The onset was usually six to nine months after treatment. The symptoms included tenesmus, melaena, and often severe pain. The prognosis varied with the severity and type of the reaction. Spontaneous healing was the rule, but stenosis might occur and require colostomy. The aetiology of the condition was discussed in detail. Two factors were proven: that of local accidental over-dosage, as happened when the radium applicators slipped and were approximated to the rectum in the posterior fornix; and that of retroversion, which allowed the intra-uterine applicator to project against the rectum. Mr. Todd considered that the main aetiological factor was obliteration of the blood vessels in the posterior segment of the pelvis as a result of general high dosage. In one case coming to necropsy (the only one recorded) the rectal ulceration was shown to be due to mucosal necrosis. A perirectal mass was present and was composed of avascular fibrous tissue showing widespread vascular occlusion and histologically marked endarteritic changes.

The treatment of chronic reactions and their complications was described. Presacral neurectomy was done in four cases for the relief of pain and the acceleration of healing; the rationale of this operation was discussed. The incidence of rectal reactions could be minimized by preventing any misplacement of vaginal applicators, nursing patients in the prone position, and avoiding over-dosage. Presacral sympathectomy might be a prophylactic against massive perirectal fibrosis by reason of its vasodilator effect.

Unusual Cases

Professor DANIEL DOUGAL (Manchester) described a case of adrenal virilism. The patient was aged 49 and was referred to Professor Dougal by a radiological colleague who had been treating her for facial hirsuties. The undue growth of hair first appeared two months after the cessation of the menses. The patient's general condition was poor. The liver was enlarged. A laparotomy disclosed the presence of an adrenal tumour with multiple visceral metastases, and she died forty-eight hours later. The primary tumour proved to be a highly malignant tumour of the right suprarenal gland. The lungs were filled with secondary deposits, although these had been quite symptomless.

Professor MILES H. PHILLIPS (Sheffield) described a case of acute prolapse of the urethra. The condition occurred in a doctor's wife, aged 70 or more, who had had for many years a procidentia, for which she had refused all treatment other than a pessary. At no time had she had any urinary symptoms. She suddenly noticed a little blood on her clothes shortly after micturition. An examination disclosed a dusky-red elongated and almost insensitive swelling over one inch in length protruding from the vestibule, with the tell-tale orifice at its apex disclosing its true nature. The prolapse was easily dealt with by excision and suture, and she recovered completely. This was the fourth case of acute prolapse Professor Phillips had seen. He was surprised to find that no such case had been recorded in the *Transactions of the London Obstetrical Society* or in the *Proceedings of the Royal Society of Medicine* between 1859 and 1938. Possibly this was because the condition had not been thought worthy of record. On the other hand, this would be the thirteenth such case reported to the North of England Obstetrical and Gynaecological Society. It would appear that urethral prolapse occurred in either young children or old women. Excision always effected a cure, although the late Professor Leith Murray recorded four

cases which were successfully treated by digital replacement after the application of adrenaline.

Dr. MARY EVANS (Manchester) described a case of spontaneous rupture of the uterus. The patient had been delivered of her first child by craniotomy. She was well in her second pregnancy until the eighth month, when she came into labour prematurely, and after a labour of six hours was delivered normally of a living male child. Two hours after delivery she suddenly collapsed: the placenta was still retained and shoulder pain was very severe. Laparotomy disclosed a haemoperitoneum and a small rupture of the fundus. A total hysterectomy was performed, and showed an irregularly shaped placenta still *in situ* with a rupture of the uterine wall in the placental site.

Dr. J. W. BRIDE (Manchester) showed a specimen of a malignant melanoma of the left labium minus with secondary deposits in the inguinal glands. In view of the patient's age and poor condition radical treatment was impracticable, and all that could be done was a wide vulvectomy with removal of the larger glands. Dr. Bride then discussed a case of adenocarcinoma of the body of the uterus. The patient had had 110 mgm. of radium inserted for twenty-two hours four years ago on account of post-menopausal bleeding for which no cause could be found. The uterus was very much more enlarged than was usually the case in carcinoma corporis, and the cavity was very distended. Dr. Bride considered it unlikely that the growth was present four and a half years ago, and was of the opinion that the malignant change was probably due to the irritation of secretions retained in the uterus as a result of stenosis of the cervix following the radium treatment.

EXPERIMENTAL ASPECTS OF STREPTOCOCCAL INFECTION

At a meeting of the Aberdeen Medico-Chirurgical Society on November 3, with the president, Dr. H. E. SMITH, in the chair, Dr. JAMES HOWIE read a paper on some experimental aspects of streptococcal infection.

Dr. Howie emphasized that experimental streptococcal infections in laboratory animals, especially in mice, were of two varieties: either a trifling local lesion appeared, which rapidly resolved, or else the animal was overwhelmed by a septicaemic infection without any local tissue reaction at the point at which the organisms were injected. In man, on the other hand, while rapid invasion of the blood stream occurred in very virulent infections, this event was normally either averted or much delayed by a well-marked local tissue reaction. It was decided to attempt to produce in mice a streptococcal infection presenting the main characters of the human disease. To this end attempts were made to reduce the virulence for mice of a well-known laboratory organism—Aronson's streptococcus. This was a capsulated streptococcus of great virulence and stability; minute doses of culture, containing four or five organisms, regularly killed mice in twenty-four to forty-eight hours. This degree of virulence was associated with smooth colonies and with short-chained capsular forms.

Rough Variant of Aronson's Streptococcus

The organism was with difficulty induced to grow in media containing a concentration of 1 in 25,000 acriflavine. This concentration of the antiseptic was equal to forty times the maximum amount which normally permitted growth. Under these conditions the organism underwent rough variation and produced long-chained forms without capsules. In this condition it became entirely avirulent for mice: $\frac{1}{2}$ c.cm. of undiluted culture, containing 2,500 million organisms, was without effect. Virulence had been abolished rather than merely diminished. Kept under ordinary conditions this rough variant reverted gradually to the original form. In the phase of partial reversion its virulence was examined. Here it was found that the individual animal played the leading part

in determining the result; either the animal was overwhelmed by a streptococcal septicaemia or it remained indifferent to the injection of organisms. This method of approach to the problem, therefore, did not achieve the desired result, but it showed: (1) that antiseptics may abolish virulence in bacteria without actually killing them; and (2) the remarkable stability of virulence of Aronson's streptococcus—a biological phenomenon the reverse of that exhibited by ordinary strains of streptococci.

The next approach to the problem was made along the lines of work recently reported by Gay and his colleagues in America. Without discussing their experiments or conclusions in detail, it might be said that their belief was that macrophages were more important cells in tissue defence than were polymorphonuclear leucocytes. Workers in this country—notably McLeod—had criticized their contentions on the ground that they were testing the resistance to infection not of the body as a whole but of an area of granulation tissue which was able mechanically to exclude invasive organisms. Using Gay's technique extensive macrophage infiltrations were produced in the abdominal walls, omental sacs, and peritoneal cavities of mice. Virulent streptococci isolated from human lesions were injected intraperitoneally into these mice and into an equal number of normal controls. All the controls died in from twenty-four to forty-eight hours with an overwhelming septicaemia. In about half the experimental animals the fatal issue was delayed for from three to five days, but it was never averted. In only two animals did "abscesses" form in the peritoneal cavity. On section these "abscesses" presented appearances which supported McLeod's view that there was merely mechanical obstruction to the invading agent and not an enhanced resistance in any true sense. It was evident that this approach to the problem would not yield the results desired and other methods were investigated.

Mechanism of Infection

One method which was in some ways successful, Dr. Howie continued, and which yielded results of interest, was by the production of areas of "sterile inflammation" by calcium chloride. Virulent streptococci isolated from human lesions were injected into the peritoneum in mice with "calcium chloride inflammation" of their abdominal walls. Eighteen normal controls were also injected. All the controls died in from twenty-four to forty-eight hours; six of the experimental animals survived, and the rest died at times varying from two to sixteen days after injection. The mechanism of infection was studied. Streptococci rapidly entered the blood from the peritoneal cavity. In twenty-four hours they had localized in large numbers at the site of "calcium chloride inflammation." Here they produced well-marked abscesses and areas of cellulitis almost identical with those found in human infection. Reinfection of the blood stream occurred before death, presumably from these abscesses. The lesions produced were, on an average, about 20 by 15 mm., compared with lesions of about 5 by 3 mm. produced by streptococci alone. These areas thus behaved as "fixation abscesses," and apparently saved the lives of one-third of the animals injected, besides delaying the progress of infection in the others.

Conclusions and Clinical Applications

From these experiments, Dr. Howie said that three conclusions might be drawn: (1) organisms in the blood might localize in areas of reacting tissue; (2) this occurrence might favour the host's chance of survival, as in the experiments quoted; or (3) on the other hand, it might determine a severe and even fatal infection. It was, of course, dangerous and controversial to apply these experimental conclusions to clinical practice, but two questions seemed to arise. First, why would surgeons in this country not investigate the fixation abscess as a therapeutic measure in pyogenic infections not responding

to other forms of treatment? There was need for such investigation. Many French authors wrote favourably of the method, but more exact data were required than were given in the literature. Secondly, it was now known that bacteraemia was commoner than was formerly believed. Therefore, was it not probable in many of the *Cl. welchii* infections following operation, or even subcutaneous injection, that it was the patient who infected himself? The nurse or the catgut was usually blamed. But these experiments showing how organisms localized in areas of tissue reaction suggested that a similar mechanism might operate in human cases.

Local News

ENGLAND AND WALES

Croydon Epidemic of Typhoid

In the introduction to his annual report for 1937 as medical officer of health for the county borough of Croydon, Dr. Oscar M. Holden makes the following reference to the local epidemic of enteric fever:

"The health record of the year was unfortunately marred by an outbreak of typhoid fever in parts of Croydon supplied by the high-level water supply. A full report on the outbreak will be made at a later date. This outbreak, though not so excessive as an outbreak in another southern town in 1936, obtained very great publicity. Upon representations made by a group of citizens, who formed the South Croydon Typhoid Outbreak Committee, the Minister of Health decided to hold a public inquiry into the causes giving rise to, and the steps taken to combat, the outbreak. This inquiry is the first of its kind to be held. It opened on December 6, when an adjournment was made until December 21, from which date it continued until January 12, 1938. The holding of so comprehensive an inquiry, for which much detailed information had to be compiled, and at which many criticisms had to be met and combated, during the actual course of a serious outbreak of epidemic disease, placed heavy additional burdens upon the department, already working at high pressure to deal with the outbreak. It says much for the energy and loyalty of the staff of the department that both burdens were shouldered successfully. The findings of the Commissioner are now too well known to need any reiteration, but it is justifiable to inquire, first, if the inquiry could have been held just as usefully after the outbreak had been dealt with; and, secondly, if the findings could not have been arrived at as efficiently and more expeditiously by methods of a less elaborate and costly nature. If this procedure is to form a precedent, then medical officers of health will in future, when called upon to tackle an outbreak of epidemic disease, also have to take steps to protect themselves at the public inquiry held therein."

Child Guidance Conference

A preliminary programme has now been issued for the fourth Biennial Child Guidance Inter-church Conference to be held on Friday, January 27, and Saturday, January 28, 1939, at British Medical Association House, Tavistock Square, London, W.C. This conference is for representatives and professional members of staffs of child guidance clinics in Great Britain. On January 27, at 10 a.m., the president, Lord Blanesburgh, will give an opening address in the Great Hall, followed by a session on "Treatment of Parents." In the afternoon there will be a public meeting on "Juvenile Delinquency" under the chairmanship of Lord Alness; members of the public may be admitted to this by ticket, price 2s. 6d. The conference dinner will take place at the Café Royal that evening. On January 28 there will be three concurrent morning sessions: one for psychiatrists in the Council Chamber to discuss personality deviations and the diagnosis of psychoses, one for administrative representatives in the Hastings Hall to discuss the findings of the Feversham

Report on the voluntary mental health services, and one for psychologists in Committee Room A to discuss the scope of the educational psychologist working in the schools. The afternoon session in the Great Hall will be devoted to a discussion on "Substitute Homes." Inquiries about the conference should be addressed to the Child Guidance Council, Woburn House, Upper Woburn Place, W.C.1.

Kettle Memorial Lecture

In May, 1937, an appeal was issued to friends and admirers of the late Professor E. H. Kettle, M.D., F.R.S., for subscriptions towards a memorial fund. More than £730 was received; this has been invested and a trust fund set up, with Professor J. H. Dible, Dr. W. E. Gye, Professor G. Hadfield, Professor W. D. Newcomb, and Colonel A. H. Proctor as trustees. It was decided that the best way of commemorating Professor Kettle would be by an annual lecture to be delivered in rotation in the medical schools with which he had been associated—namely, the British Postgraduate Medical School, St. Bartholomew's Hospital Medical College, the Welsh National School of Medicine, and St. Mary's Hospital Medical School. It was further decided that the choice of lecturers and arrangements for the lecture in any year should be made by the school at which the lecture would be delivered. The inaugural lecture will be given on Thursday, November 24, at 5 p.m., by Professor W. W. C. Topley, M.D., F.R.S., in the large theatre of the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., by courtesy of the Board of Management. It is entitled "The Place of Pathology among the Medical Sciences," and the chair will be taken by Sir John Caulcutt, K.C.M.G., chairman of the Governing Body of the British Postgraduate Medical School.

Correspondence

Estimation of Blood Vitamin B₁

SIR,—I have read the paper by Drs. Eirwyn N. Rowlands and John F. Wilkinson in the *Journal* of October 29 (p. 878) with interest because I have just submitted for publication a paper in which I conclude that Meiklejohn's modification of Schopfer's method does not give a quantitative estimate of the vitamin B₁ in blood.

Rowlands and Wilkinson state that they have established the fact that the test gives a fairly reliable method of estimating the vitamin B₁ in blood. They say: "The only factor other than vitamin B₁ that has been shown to affect the mould growth is the concentration of nitrogen in the medium; allowance can be made for this." I should be interested to know how this allowance can be made when blood is present, because I have had difficulty in eliminating the adjuvant action of sources of nitrogen in blood. In addition, the first part of this statement is open to criticism. First, substances other than vitamin B₁ and its disintegration products are known to act as growth factors for the fungus. Secondly, a host of substances are known to affect its growth; for instance, if the authors will add a pinch of chalk to their modified Schopfer's medium (which is in many respects a poor medium) they will obtain, I suspect, an increase of perhaps 50 per cent. in the growth produced by either 0.1 µg. or excess vitamin B₁. They state (perhaps following Meiklejohn) that addition of small amounts of vitamin B₁ to blood usually increases the growth by the expected amount. I should be interested to know how often this result has been obtained, because I found that in 150 1-ml. samples of blood from different cases addition of 0.1 µg. of vitamin B₁ produced an increase of 50 per cent. or more over the expected amount in 63 per cent. of cases; in fifty experiments addition of excess vitamin B₁ to 1 ml. of blood invariably produced a greater growth than in the control with

excess vitamin B₁ alone (the average increase being 78 per cent.). They also state (perhaps again following Meiklejohn) that samples of 1, 2, and 3 ml. of blood give values in the ratio 1:2:3. I have tested this upon 235 different samples of human blood and find that in 155 the 3 ml. value (expressed in µg. per 100 ml. blood) has been one or more µg. higher than the 1 ml. value; in twenty-two samples the growth with 3 ml. of blood was greater than that given by excess vitamin.

My own doubts about the reliability of the test have been expressed only verbally in the presence of both authors; they are no doubt justified in disregarding them. But there can be no justification for ignoring statements of other authors that are not in agreement with them. Williams, who first suggested the use of a micro-organism for the assay of vitamin B₁, has stated in connexion with *Phycomyces* that "the use of fungi in quantitative testing for vitamin B₁ in extracts appears hazardous in the extreme." Van Veen in a Dutch journal concluded that in testing impure extracts (including blood) by Schopfer's method "the results were far from reliable; in fact, that they were at times entirely unserviceable." Schopfer himself has stated that the best way to use the method is first to isolate the vitamin by adsorption on fullers' earth. These statements demand attention.

With great diffidence I communicated last June (see *Quart. J. Med.*, October, 1938, 7, 591) the results of estimations by a slightly modified method of the apparent vitamin B₁ in only 200 different cases. I found significantly low values in cases of "alcoholic" (three cases), gastrogenous, and nutritional polyneuritis; in some cases of idiopathic hypochromic anaemia; and in scurvy. I found normal values in pernicious anaemia with or without subacute combined degeneration of the cord. My results were not published in print because I had then done determinations on only twenty-six normal controls; these gave a mean of 11.5 µg. per 100 ml., and a statistical analysis showed that there is one chance in 100 of an observation falling below 7.7 or above 15.2. Although the authors have reached the same conclusion about different diseases from their total of forty-eight cases, it is not justified by the results they publish. On the basis of only eight normal controls they consider the normal range to be 6.5 to 16.5 µg. per 100 ml.; a statistical analysis of their data will show that there is one chance in twenty that a determination will fall below 0.94 or above 16.5. Not a single one of their determinations is significantly low when judged by these standards, and yet they regard 5.5 µg. per 100 ml. as "gross deficiency." This figure, 5.5, is scarcely different from their lowest normal, 6.5, since "the error of the test is apparently less than 10 per cent." Further, in Fig. 3 they show two "specimen normal curves" in which the blood figures, after the injection of vitamin B₁, rise before falling rapidly "to normal levels" within an hour; in one of these two normal curves the level starts at a little over 5 µg. per 100 ml. (about 5.2) and is back at the same figure in two hours. Surely a mistake has crept in, because if 5.5 is "gross deficiency," why is 5.2 regarded as a "normal level"?

There are other points that I should like to raise, but I have already taken up too much of your valuable space. I do wish to emphasize, however, that the results Drs. Rowlands and Wilkinson publish are statistically worthless.—I am, etc.,

Oxford, Oct. 29.

H. M. SINCLAIR.

Medical Research in England

SIR,—The Harveian Oration prompts me to make a few comments on the difficulties and necessity of maintaining research work in the teaching hospitals.

After spending some seven months in German hospitals and university clinics I came away, like most English visitors, impressed by the intensity of their tradition of investigation. Good work is continually being turned out by young men of no outstanding abilities, and this all in the day's routine. Sir Edward Mellanby has touched on the organization that makes this possible. Our own teaching hospitals have no such strong tradition

and their organization is the very opposite of what is desirable for this sort of work. They are chiefly concerned with the practice of medicine and the education of good doctors. In this they excel. But their organization makes research work (other than purely clinical investigation) extremely difficult. The staff are chosen in most cases for their ability as doctors. Those who are appointed because of the original work they have done often find their careers as investigators automatically ended. On the other hand the younger men who have time and a fixed salary too often produce nothing. They lack "directors." It is abundantly clear that they cannot be expected to hit on useful and workable investigations; at any rate, in the long run they do not. In Germany they are not expected to—they are told what to do and how to do it. In England the seniors may give verbal encouragement, but they cannot set an example, and in most cases they have never themselves had the experience necessary to give advice.

Outside the teaching hospitals there are other places much better suited for this type of work. There are, of course, the special research institutes created for the purpose. Presumably they are as suitable as they can be made. There are also the large county council hospital systems, which are built on a plan very similar to the German model. They are comparatively affluent. They have a permanent salaried staff which is interchangeable with any hospital within the group. The superintendent has enough control to unify and co-ordinate the work. As yet they have made no use of these possibilities, and for this there are many good reasons. For one thing they have still less tradition of research than the teaching hospitals. But the most important is that there are not enough men in England with the right technical training and above all with the right habit of thought to seize these opportunities. The frame of mind that can deal satisfactorily with sick people is quite different from that which contributes to the science of medicine. We cultivate chiefly the former and the Germans the latter. But they are both susceptible of cultivation, and since we need more men with a scientific bent we must turn once again to the places where these trends are determined.

It is clear that whatever research institutions one may design the staff must be recruited from the students and housemen in the teaching hospitals. At the moment we depend on some idealists and a few who fear the more boisterous competition of practice. These may be very good, but they are not enough. If the average capable man is to be attracted to this work he must see it going on around him as often as he now sees good medicine, and he must have the opportunity of imitating it in the same way. The difficulties and fascinations of their own investigations must become as much "shop" in the common-room as are their triumphs and failures in medicine. It is useless from this point of view to create centres at Hampstead and Mill Hill. Their very prestige and success increase their remoteness when the student cannot see the first steps that lead there. Investigation, therefore, must be brought into the daily routine of the young man and held there despite all discouragement.

This organization must not be judged solely by the work it produces, for it will be continually hampered by the constant change of new recruits. It should be judged by the men it turns out, just as to-day the *raison d'être* of the teaching hospitals is not so much the quantity of medicine that is practised within their walls as the quality of the doctors they send throughout the land.—I am, etc.,

London, W.1, Nov. 6.

J. B. HARMAN.

Congenital Deformities of Hands and Feet

SIR.—I have recently seen a girl aged 9 years suffering from a condition similar to that described by Mr. Henry Poston in the *Journal* of November 12 (p. 991). The radiographs of her hands are almost identical with those illustrating his case, and her mother's hands show a similar lesion, evidently healed and resulting in marked deformity of the fingers. Dr. Norah Walker drew my attention to the following references which deal with the condition: *Year Book of Radiology*, 1935, p. 60; and 1937, p. 56. Apparently the disease is fairly common in certain parts of East Russia (Transbaikalia), where it is called Urov, or Kashin-Bekov, or Kaschin-Beck disease. Its causation is unknown, but injury is unlikely to be responsible because the bone changes are usually widespread. This is well illustrated in the original paper by W. Graziansky (abstracted in the first of the references quoted above).

Through the kindness of Mr. C. Thurstan Holland and Dr. J. H. Mather I have seen radiographs of two other cases, both living in the Liverpool district.—I am, etc.,

NORMAN B. CAPON, M.D., F.R.C.P.

Liverpool, Nov. 14.

SIR.—In the *Journal* of November 12 (p. 991) Mr. Henry Poston publishes an interesting example of epiphyseal deformity. This deformity usually involves the middle phalanx and leads to stunted development of the affected phalanges. It has been recorded in the middle phalanges of the second, third, and fourth fingers, and a few months ago Dr. Levi submitted radiographs to me of the same condition, with, in addition, changes at both extremities of the diaphysis of the first metacarpal.

It appears to be a congenital familial defect, for it has been noted in a father, three brothers, a sister, and in former paternal generations. All the cases recorded show the condition to be bilateral. It has been found in boys and girls ranging in age from 7½ to 19½ years. The lesion has been described in a number of journals by Thiemann, Esau, Ryffel, Boldero, Shore, and Weil.

The congenital deformities of the hands and feet observed by Mr. E. N. Callum are identical with the condition described by K. Pearson under the title "split foot or lobster claw" (descendants of "Cleppie Bells"). Lewis and Embleton considered 180 cases of "split foot," and point out that the hands, which have never been recorded as affected in the absence of a foot lesion, show one or two main types of deformity. Either it is analogous to the foot lesion, the defect falling mainly upon the centre of the hand, or it affects the pre-axial border of the hand. As a rule the phalanges of at least two or three digits are absent. In the presence of foot malformation one or both hands may escape entirely. The deformity of the hands described by Mr. Callum may occur without the split foot; I published an example of such a deformity in the *British Journal of Radiology* of April, 1936 (p. 265).—I am, etc.,

Birmingham, Nov. 14.

JAMES F. BRAILSFORD.

Control of Small-pox in India: A Suggestion

SIR.—No one familiar with the small-pox mortality figures for British India will dispute that the measures hitherto taken to control small-pox in that country have signally failed. Year after year the ravages of the disease continue to be appalling. During 1936 the deaths from small-pox in Bengal numbered no fewer than 46,267, and in Calcutta alone there were 4,382 deaths. The amount

of sickness and suffering, not to mention the economic loss, which these figures represent is incalculable but can be imagined.

For many years the authorities have pushed vaccination as far as ever it was practicable to do so. I have seen it suggested (and I think it was in an official report) that vaccination would seem to be less effective in protecting the individual in a hot country like India than in temperate climes. However that may be, the effect of vaccination in protecting the community in India has obviously been a lamentable failure.

What a contrast with the state of affairs in our own country! Here the mortality from small-pox has been reduced practically to *nil* since the variety of small-pox known as variola minor came to this country and "took the place" of variola major. In the memorandum on small-pox recently issued by the Ministry of Health (Memo. 215, Med.) it is stated: "The years 1920-1 mark the virtual end of the incidence of variola major as a serious administrative problem, and the beginning of the rise of the minor variety to epidemic proportions."

Now my suggestion is this: that the authorities in India should deliberately introduce and encourage the spread of variola minor in India. This could be done by substituting inoculation with the virus of variola minor for vaccination with calf vaccine. There should be no insuperable practical difficulty. Special legislation might be necessary, and it would probably be wiser to call for volunteers rather than resort to compulsion. Each case inoculated would probably give rise to several other cases, and these in turn would "hand on the torch" to others. There would be no real risk attaching to the experiment, for clinically variola minor is little, if at all, more serious than vaccination. The protection conferred by variola minor against variola major is probably as great as, if not greater than, that conferred by vaccination. The great difference is that the one is infectious while the other is not, and herein would lie the great advantage of variola minor over vaccination in a country like India. Provided the disease could be persuaded to establish itself there is good reason to think that it might oust variola major. If the experiment failed no harm would have been done, while if it succeeded it might be the means of saving countless lives and untold suffering.—I am, etc.,

Leicester, Nov. 11.

C. KILLICK MILLARD.

Decline of Breast-feeding

SIR,—When Dr. Ronald Carter (*Journal*, November 12, p. 1013) states that breast-feeding is the best possible method of infant feeding, his opinion would be accepted in respect of a large number of cases. But the doctor in general practice knows that this does not apply to a considerable proportion of the patients whom he has to deal with. There are patients who, in spite of every encouragement, supplementary feeding, and all the other usually employed devices, prove themselves beyond any doubt incapable of supplying in the natural way any useful contribution to the baby's daily needs. One may speculate on why this should be so. Modern conditions, unsuitable environment, or lack of vitamins in the mother's diet may all have something to do with it. With regard to the last-mentioned possible cause, Dr. Carter says that "there is no shred of evidence to support this hypothesis," but in the leading article on food and nutrition in the *Journal* of October 29 (p. 895) it is pointed out in regard to the

working classes that "practically all its members fall very considerably short in their intake of . . . vitamins."

If the infant normally obtains its supply of vitamins, pre-natally and post-natally, from its mother, and if it be agreed that a serious diminution of vitamins may account for a lessened vitality of the infant, is it unreasonable to suggest this as a cause for the failure of many infants to thrive under modern conditions? So long as routine advice to continue breast-feeding is given to every mother, so long will there be delay in many cases before those responsible bow to the inevitable and permit the long-suffering infant to receive adequate nourishment from another source.—I am, etc.,

HORACE A. NATHAN,
Honorary Secretary.

Kensington Division, British Medical
Association, Nov. 12.

SIR,—The recent correspondence in the *Journal* has proved of great interest to me, but I have refrained from contributing to it in the hope that some expert in milk production would give the benefit of his experience.

Some years ago I was greatly concerned with the difficulties which many women appear to have in feeding their infants in the way that Nature intended they should be fed. I read most of the medical authorities on the subject, but my results continued to be bad, though I carefully carried out their instructions. Thoroughly discouraged as I was, I felt inclined to subscribe to the belief that civilization and the mental make-up of the "modern mother" were inimical to breast-milk production, but I then consulted the real experts on milk production—the dairy farmers—whose living depends upon the mammary output of their cows. Practical knowledge of milk production is possessed by thousands of dairy farmers, and we ought not to allow prejudice or pride prevent us from going to them for information and instruction. The farmer knows well that the cow requires a daily ration of food adequate to maintain health and working capacity. This is known as the maintenance ration; but he gives in addition a milk-producing ration calculated at so many pounds of food per day per gallon of milk yield. This addition to the maintenance ration has a high protein content, for protein is one of the keys to milk production.

A pint of human milk contains about 12 grammes of protein, and this protein can only be obtained from one source—namely, the protein in the mother's diet. The human body is not a perfect biochemical factory and requires approximately 24 grammes of protein intake for an output of 12 grammes of milk protein. Much of the 24 grammes should consist of protein of high biological value. The study of family budgets of unemployed and lowly paid families makes it abundantly clear that many women are unable to purchase even a minimum adequate protein maintenance ration. Is there any wonder, therefore, that they are unable to spare sufficient protein for milk production?

Realization of the basal fact that the woman's diet must contain adequate quantities of protein and the other materials (calcium, etc.) necessary for the manufacture of milk solved the problem of breast-feeding. Very few women on an adequate milk-producing ration fail to feed their infants at the breast, and the disinclination and aversion to doing so change rapidly, when the diet is properly adjusted, to a contented pleasure in the performance of a natural duty towards their offspring.—I am, etc.,

Stockton-on-Tees, Nov. 14. G. C. M. M'GONIGLE, M.D.

Prevention of Breast Infection

SIR.—I have read with great interest Mr. Charles Donald's article on acute infections of the breast (*Journal*, November 5, p. 954). In it he states that the nipple should be washed with warm boric solution immediately before the child is put to the breast. I would suggest that it would be advisable to wash the nipple free from boric solution, with sterile water, before feeding the baby.—I am, etc.,

Dublin, Nov. 9.

ROBERT M. CORBET.

Prognosis of Anxiety States

SIR.—Dr. Frederick Dillon (*Journal*, November 12, p. 1014) is no doubt very adept at reading the unconscious mind, but I feel that he should refrain from attributing to me opinions concerning the value of treatment in anxiety states which I have never expressed and do not hold. It appears to me that the treatment given is only one of the factors of prognostic significance in anxiety states, and not necessarily the most important—a very different thing from saying that it is of no importance whatever. Dr. Dillon's argument seems to be that one is not in a position to draw conclusions about any of these factors unless one can estimate them all—a view that would invalidate practically every prognostic criterion in medicine and surgery. For example, if one were studying the effect of age on the mortality of pneumonia, one's findings would be of no value unless one also obtained details of the types of pneumococci, methods of treatment including nursing, race and physique of the patients, state of nutrition, and so on *ad infinitum*. If one could assess every factor in a case accurately one could be certain of one's prognosis, but it is a commonplace that this ideal state of affairs is rarely attained. Nevertheless, we venture an opinion in most cases.

In my paper I tried only to express views which were supported by facts ascertained by the inquiry, and will repeat that no reliable conclusions concerning the value of treatment could be deduced from the data at my disposal. All the patients received some psychotherapy, even if only the reassurance accompanying the history-taking at the preliminary interview, but prolonged analysis was only given in three cases.—I am, etc.,

London, W.1, Nov. 12.

ARTHUR HARRIS.

Sulphonamide Chemotherapy in Surgical Infections

SIR.—In his articles on sulphonamide chemotherapy in surgical infections (*Journal*, October 22, p. 845; October 29, p. 901) Mr. A. J. Cokkinis emphasizes the need for waiting for "immunity" to develop before therapy is begun in gonococcal infections, does not advocate such a delay in streptococcal infections of the hand, and ignores the fact in other infections. It would appear necessary to know the time taken for "immunity" to develop in certain cases, and it would be interesting to learn how this is estimated. I have used the sulphonamide group of drugs extensively, but unfortunately without elaborate laboratory control. Therapy was started immediately upon admission or as soon as indicated. In approximately 200 cases of diagnosed gonorrhoea in the female various preparations and dosages were employed. In nearly 90 per cent. of the cases the discharge either ceased or was apparently free from the gonococcus in three weeks. Proseptasine was eventually standardized with the following dosage:

Four tablets four-hourly for four days (32 grammes); then three tablets three times a day for three days (13.5 grammes); then one tablet three times a day for eight days (12 grammes). This gives a total dosage of 57.5 grammes.

Practically every case, whatever the preparation or dosage, developed some toxic manifestations, however slight, such as nausea, vertigo, headache, epistaxis, ulnar paraesthesiae, and in one or two cases a heliotrope coloration. One pregnant woman inadvertently received a full dose of magnesium sulphate and developed a deep heliotrope coloration within twenty-four hours. This persisted without any other sign or symptom for some days until her uneventful delivery. It is impossible to categorize relapses, as most of them were probably re-infections. Two cases of gonococcal vaginitis in children aged 9 and 11 did not respond. Cases of streptococcal tonsillitis received one tablet of proseptasine to suck four-hourly upon admission, and recovered rapidly. No response was noted in a number of cases of infective polyarthritis or after the external application of powder or solution to cases of impetiginous infections.—I am, etc.,

Albrighton, Nov. 7.

FRANK R. NEUBERT.

The Occipito-posterior Case

SIR.—When teaching students concerning the use and abuse of obstetric forceps one has usually stressed certain provisos—among others that the occiput must be in an anterior position, the os fully dilated, and the uterus contracting. Dr. David Price (*Journal*, September 17, p. 638), using his reversible pelvic curve forceps, seems to be a law unto himself in this matter. He is apparently quite happy to apply forceps to a head in any position, with os incompletely dilated and in the absence of "pains." When gently rebuked by Dr. B. E. Meek (October 29, p. 919) he shows no sign of penitence, but even appears to revel in his sins (November 5, p. 968). He even goes so far as to state his belief that application of forceps without full dilatation will be a cardinal procedure to the obstetrician of the future.

Why interfere at all? Why not give Nature a chance? She will often succeed where man has failed—and did so in fifty-eight out of 314 cases of "failed forceps" sent into St. Mary's Hospitals, Manchester, during the last ten years. I suggest that the next time Dr. Price is tempted to interfere he should give the patient $\frac{1}{4}$ grain of morphine instead. The result might surprise him.

I have a second bone to pick with Dr. Price. I received the other day from a firm of instrument makers a leaflet advertising a "reversible pelvic curve forceps with jointed pelvic blades designed by Dr. David Price." The forceps is described in some detail and instructions are given as regards application. The last paragraph reads as follows:

"When a large caput succedaneum has formed in a delayed second stage of labour the position of the occiput is not easily ascertained. If application of the forceps, followed by traction, produces no perceptible advance, press upwards and try rotation in the easiest direction. Rotation accomplished, if the occiput is now anterior, it will be found that advance is at once possible and, with the handles well carried forward, a rapid extraction can be made.

"If rotation is not easily accomplished or if, when rotation is accomplished, no advance still occurs, the position of the occiput must be diagnosed by insertion of the whole hand." [The italics are mine.]

Really, Dr. Price, this is going a little too far. In the first place, in my humble opinion, an instrument maker's advertisement is a most unsuitable medium for the

expression of one's views on obstetrics, particularly views so unorthodox as these. Secondly, it is surely a basic principle that diagnosis should precede treatment, and not vice versa.—I am, etc.,

Manchester, Nov. 8. E. A. GERRARD, M.D., M.C.O.G.

Air Raid Precautions

SIR,—I read with interest your leading article in the *Journal* of October 8 (p. 749) and the ensuing correspondence. Emptying hospitals, under instructions from the Ministry of Health, was surely right during the recent crisis, but the idea of treating casualties in vulnerable buildings showed extreme folly and complete ignorance of the effect of modern aerial warfare on present-day masonry. A study of the fighting in Spain and China goes to prove that the effects of incendiary or gas bombs are insignificant when compared with those of the heavy high-explosive variety.

Dr. Clement Francis (October 22, p. 862) undoubtedly, in my opinion, strikes the nail on the head. He says "it is useless to provide the most efficient medical service conceivable if the number of casualties is going to be tens of thousands, all occurring in the space of a few minutes." The chief aim should be to limit in every way the number of casualties. This can only be done by the provision, so far as possible and as soon as possible, of bomb-proof shelters for our civil population. Until some new method of dealing with bombing planes is found which will be so efficient as practically to preclude the risk of aerial bombardment entirely, provision of these shelters must be of paramount importance. Passive resistance to aerial warfare must, in a protracted struggle, be of almost as great importance as the possession of great powers of aerial offence. The fighting forces depend on adequate civil backing. Unless the civilian is trained to resist passively by safeguarding himself or herself, the fighting forces will suffer in efficiency and offensive power. All must serve in a time of national emergency, so the safety and efficiency of the individual is of prime import.

I agree with Dr. W. G. Booth (October 22, p. 862) that control of emergencies should be local, and think that it should be vested in the air raid wardens. Wardens should have prearranged parties ready to deal with gas, fire, or casualties caused by high explosives. While the medical profession must co-operate in all these services, it is mainly with casualties of the latter variety that we are concerned. Doctors and first-aid squads will, of course, be very necessary, but much more than that will be required. Many injured will be buried under fallen masonry, beams, joists, and even steel girders. Skilled artisans must be available who have technical knowledge of building construction—for example, masons, bricklayers, carpenters, and oxy-acetylene cutters—complete with tools, saws, pickaxes, crowbars, levers, ladders, etc., to release casualties buried in the debris of buildings. There must be rapid means of transport: for artisans and tools, lorries; for first-aid squads, motor ambulances. Casualties should be dealt with swiftly and temporarily and conveyed immediately to properly prepared hospitals.

Such hospitals should be bomb-proof even to direct hits. The present hospitals might easily be completely wrecked, with further suffering to the already wounded and the loss of important surgeons, doctors, and nursing staff. The medical services will be invaluable to the State in the event of war, and to do their best work they should be able to operate free from anxiety. These hospitals would be entirely of a surgical nature, and should be looked on as casualty clearing stations. Casualties must not remain

in them for any length of time. As soon as possible they should be evacuated by motor convoy to large decentralized hospitals in wide rural areas where the risk of bombing would be slight compared with that in built-up places. Country mansions with a system of sandbagged hutments spread round would be excellent, as would shooting-lodges in Scotland.—I am, etc.,

Grantown-on-Spey, Oct. 24.

D. M. MARR, M.D.

SIR.—It seems certain that unless an alternative scheme is put forward by an authoritative body wholesale billeting will be the method selected for evacuation of the civilian population in time of war. Although the nation is prepared to accept necessary evils, the people are entitled to ask whether a better alternative cannot be found, even if only for a proportion of the population. To be satisfactory—that is, efficient and economical—an evacuation scheme should: (1) make use of such collective grouping of the population as normally exists; (2) utilize existing buildings and other facilities; and (3) not require constant revision. Taking these points in order, it is obvious that the children attending national schools form groups which it would be desirable to maintain as units under the control of their own teachers. If they are distributed in twos and threes among the inhabitants of country districts supervision and general care must be haphazard, apart from the serious difficulties caused to the households receiving them. Refugee camps have been suggested, but in winter, at any rate, life under canvas, with its problems of water supply and sanitation, presents serious problems.

In many country districts there are large national school buildings which could be adapted as hostels. This would interfere with local education; but in many cases there are church halls which could be utilized as classrooms, failing which it would be easier to erect temporary wooden buildings for this purpose than for living accommodation, owing to the greater requirements of the latter in regard to sanitation and water supply. Billeting arrangements as at present suggested would need constant revision, as households vary from time to time in the number of inmates, and therefore in their billeting capacity, whereas the capacity of the national school buildings remains constant.

The scheme advocated would require a central district committee to select those schools most suitable as hostels, bearing in mind the need of facilities for an augmented food supply. Schools having been inspected and dormitory accommodation determined, the city school personnel (teachers and children) could be allocated according to numbers, dividing the sexes when the numbers are too large to be accommodated as one unit. Subcommittees would be required to deal with problems of equipment, provisioning, and transport; local committees should be formed to co-operate with these subcommittees. Additional staff would be needed, part of which could be recruited locally—for instance, cooks and cleaners. If the national school children were dealt with in this way children attending other day schools might be accommodated in those country houses which have been empty for years, and are likely to remain so, chiefly on account of their size. Youth hostels might house some of the older boys. The schools vacated in the cities would make admirable first-aid posts and clearing hospitals (apart from vulnerability), and could quickly be adapted for this purpose at short notice if each had been individually inspected and if plans had been drawn up for decontamination rooms, etc., and all materials assembled for gas-proofing.—I am, etc.,

Edinburgh, Nov. 8.

ESMÉ HILL.

SIR.—I entirely agree with Mr. A. G. Dickens's letter in the *Journal* of November 5 (p. 965). I have advocated bomb-proof shelters from the first as the only basis for A.R.P., and I would like to urge the leaders of our profession to bring pressure on the Government to put through a scheme without delay and regardless of legitimate expense in London and other big towns. Medical men cannot possibly give adequate attention to casualties unless really safe bomb-proof shelters are provided for them and their patients. If sufficient accommodation is forthcoming for all those who are not likely to be evacuated the majority of casualties will be prevented and the threat of bombing will lose much of its terrors. Mr. Dickens has asked those who are interested to write to him at Keble College, Oxford, and I hope there will be a big response.—I am, etc.,

London, W.14, Nov. 7.

C. WATNEY ROE.

Universities and Colleges

UNIVERSITY OF OXFORD

On November 7 Jean Orr-Ewing, B.M., was elected to an official Fellowship at Lady Margaret Hall.

UNIVERSITY OF CAMBRIDGE

On the nomination of the Faculty Board of Medicine Dr. A. N. Drury, F.R.S., Huddersfield lecturer in special pathology, has been appointed assessor to the Regius Professor of Physic for the year 1939.

UNIVERSITY OF LONDON

Sir Girdling Ball, F.R.C.S., has been elected Dean of the Faculty of Medicine for the period 1938-40.

Sir Ernest Graham-Little, M.P., has been re-elected for the seventeenth consecutive year chairman of the Council for External Students of the University of London.

UNIVERSITY COLLEGE

A special University Lecture on "Intermolecular Forces and Infra-red Spectroscopy" will be given at University College, Gower Street, W.C., by Dr. Jacques Errera, professor of physical chemistry in the Université Libre de Bruxelles, on Monday, November 28, at 5.30 p.m. The chair will be taken by Sir Robert Robertson, F.R.S. The lecture, which will be delivered in English and illustrated with lantern slides, is addressed to students of the University and to others interested in the subject. Admission is free without ticket.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

THE BUCKSTON BROWNE DINNER

The eleventh annual Buckston Browne dinner to Fellows and Members of the Royal College of Surgeons was held at the College on November 10, with the President, Mr. Hugh Lett, in the chair. Reviewing the activities of the College during the past year the President said the chief event had been the opening of the Bernhard Baron Research Laboratories. Experimental research had become an increasingly important part of the activities of the College during the last ten years. Six years ago it received a great stimulus by the magnificent gift and endowment by Sir Buckston Browne of the Research Farm at Downe, but the laboratories at the Royal College were unworthy of that great institution. Although the College did not know where the money might come from they hopefully drew up plans and prepared estimates of cost. Their hope was justified, for Sir Alfred Webb-Johnson conjured the splendid gift of £30,000 from the Bernhard Baron Trustees. Building was begun in January, 1937; the fourth and fifth floors were reconstructed, and a sixth floor added, and the new laboratories were opened by the Earl of Athlone last December. The excellence of the work that had been done at the Buckston Browne Farm and during the last eleven months in these laboratories must give much satisfaction to the generous donors. Most of the research had a direct bearing on surgical treatment, diagnosis, or pathology.

The College was grateful, Mr. Lett continued, for grants for its research workers from outside bodies, particularly the Medical Research Council, the Rockefeller Institute, and the British Medical Association. These grants were a source of

much satisfaction, not only as a recognition and appreciation of the quality of the work that had been done and the facilities the College could offer, but as a tribute to the Director of Research and Professor of Experimental Surgery, Dr. John Beattie, who, well known for his original work in the field of physiology, was now recognized for his gifts in initiating and directing research. Good progress had been made in the Museum under the direction of the Pathological Curator, Dr. L. W. Proger, and the Assistant Conservator, Dr. A. J. E. Cave. Many valuable specimens had been added, particularly in the sections of osteology and pathology. The pathological work of the Radium Beam Therapy Research had been entrusted to the College, and the secretariat of the Imperial Cancer Research Fund had been transferred there. Mr. Lett acknowledged the College's gratitude to Mr. Braithwaite for securing the bust of Thomas Wormald, who was President in 1865, and to the Middlesex Hospital Medical School for the gift of a fine bust of John Whitaker Hulke, President from 1893 to 1894. In conclusion he referred to the need for cleaning and restoring the College's pictures. The recent alterations to the building and the increasing cost of the Museum and Research Departments had made it impossible to draw on general funds for the purpose, but Sir Alfred Webb-Johnson had put the College still further in his debt by announcing a gift of five hundred guineas from an anonymous donor.

Sir Buckston Browne, replying to the toast of his health, said that it had been his privilege to live through exactly the last half of the nineteenth century, that wonderful century which had done more for the alleviation of man's physical miseries than all previous centuries put together. With this achievement the names of Jenner, Pasteur, and Lister were immortally associated; they were the emancipators of the human body. But above them all was the great figure of Charles Darwin, the emancipator of the human mind. Darwin taught man where he came from, what he was, and what he might reasonably expect to be if he studied the great truths of Nature and the laws of her operations. The call of Darwinism was to the unity of all mankind in a struggle to conquer the evils which menaced its existence and destroyed its happiness—disease and war. As the dinner was a special occasion, a father-in-law entertained by his son-in-law, Sir Buckston asked each guest to accept a silver snuff box, and assured them that a daily pinch of snuff reduced the risks of a cold in the head and other respiratory troubles to their minimum.

The following Fellows and Members were present:

Council.—Professor G. Grey Turner and Professor R. E. Kelly (vice-presidents), Mr. Ernest W. Hey Groves, Sir Cuthbert Wallace, Mr. W. Sampson Handley, Mr. Wilfred Trotter, Professor A. H. Burgess, Mr. Victor Bonney, Professor Graham Simpson, Sir James Walton, Sir Alfred Webb-Johnson, Mr. G. Gordon-Taylor, Sir Charles Gordon-Watson, Mr. R. C. Elmslie, Mr. L. R. Braithwaite, Mr. H. S. Soutar, Sir Girdling Ball, Mr. Seymour Barling, Mr. C. Max Page, Mr. W. H. Ogilvie, Mr. Cecil P. G. Wakeley, and Mr. L. E. C. Norbury.

Fellows.—Dr. Tom Bates, Mr. Lancelot Bromley, Mr. W. Derrick Coltart, Mr. D. R. Davies, Mr. John Foster, Mr. R. H. Franklin, Sir Francis Fremantle, Mr. R. Affleck Greaves, Mr. H. E. Harris, Mr. Kenneth James, Mr. Geoffrey Jefferson, Mr. R. Scott Mason, Mr. T. W. Mimspriss, Mr. Erichsen S. Page, Professor C. A. Pannett, Mr. Bertram A. Pidcock, Mr. A. McKie Reid, Mr. J. E. H. Roberts, Mr. A. E. Roche, Sir Leonard Rogers, Mr. F. F. Rundle, Mr. A. Simpson-Smith, Mr. A. S. Till, Mr. A. Glandon Williams, and Mr. C. P. Wilson.

Members.—Dr. Heward Bell, Dr. D. E. Bedford, Surgeon Rear-Admiral C. M. Beadnell, Dr. H. E. Blake, Dr. H. E. A. Bolders, Dr. C. P. F. Boulden, Dr. E. L. Blount, Dr. Judson S. Bury, Dr. Frank Clayton, Mr. T. V. L. Crichton, Mr. F. N. Doubleday, Dr. F. R. Eddison, Mr. B. J. Frankenberg, Dr. Beaufort Fraser, Dr. S. E. Furber, Dr. T. H. Gardner, Mr. W. Cliff Hodge, Mr. L. D. A. Hussey, Dr. R. C. Jewsbury, Mr. C. E. M. Jones, Dr. W. E. Joseph, Mr. F. G. Layton, Commander Murray Levick, Mr. Windsor Lewis, Mr. A. F. Morcom, Dr. W. D. Newcombe, Mr. E. E. Pochin, Dr. A. E. Potter, Dr. L. W. Proger, Mr. W. Bentley Purchase, Mr. Walton R. Read, Dr. G. R. Rossdale, Dr. Gordon Simpson, Dr. A. W. Stott, Mr. T. Y. Simpson, Mr. W. J. Susman, Dr. J. W. de Wit, Gray Thornton, Mr. T. H. E. Taylor-Jones, Dr. P. H. Whitaker, Mr. Cecil Wilsoo, Sir Charles Wilson, Mr. H. B. Wilson, Dr. J. A. Young, Dr. A. H. Zair.

Also present were Professor R. J. S. McDowall, Professor John Beattie (Director of Research), Mr. Kennedy Cassels (Secretary), Dr. A. J. E. Cave (Assistant Conservator), and Mr. W. F. Davis (Assistant Secretary).

An ordinary council meeting of the Royal College of Surgeons of England was held on November 10, with the President, Mr. Hugh Lett, in the chair.

The following were appointed assessors for the Primary Fellowship examinations to be held over-seas in 1939: at

Lahore, January 2: *Anatomy*, Lieutenant-Colonel F. J. Anderson, M.C., F.R.C.S., I.M.S., professor of surgery in the University of Calcutta; *Physiology*, Lieutenant-Colonel H. S. Anand, M.B., Ch.B.Ed., D.P.H., I.M.S. At Cairo, January 13: *Anatomy*, Professor D. E. Derry, M.B., Ch.B. *Physiology*, Professor Gleb von Anrep, M.D., D.Sc., F.R.C.S.

Dr. A. J. E. Cave was appointed representative of the College on the British National Human Heredity Council, and Mr. C. Max Page on the Fracture Subcommittee of the Voluntary Hospitals Committee for London.

Miss Collard and Dr. H. N. Goadby were appointed Mackenzie Mackinnon Research workers and Mr. G. M. Hill was reappointed for the third year.

Diplomas

Diplomas of Membership and Diplomas in Public Health were granted to the candidates whose names were published in the report of the meeting of the Royal College of Physicians of London in the *Journal* of November 12 (p. 1023).

The following hospitals were recognized under paragraphs 21 and 23 of the Fellowship regulations:

London Homoeopathic Hospital, house-surgeon.
Cornelia and East Dorset Hospital, Poole, recognition extended to July 31, 1941.

The Services

No. 14 STATIONARY HOSPITAL DINNER

The nineteenth annual dinner of the medical officers of No. 14 Stationary Hospital will be held on Thursday, December 8, at the Trocadero Restaurant, Piccadilly, W., at 7.15 for 7.45 p.m., with Colonel C. R. Evans, D.S.O., in the chair. The price of the dinner is 12s. 6d. exclusive of wines. The honorary secretaries are Major-General H. M. Perry and Dr. H. L. Tidy, 39, Devonshire Place, W.1.

Medical Notes in Parliament

The House of Commons this week completed the debate on the Address in reply to the King's Speech and also discussed motions proposed by private members.

New Bills

The Housing (Financial Provisions) (Scotland) Bill was presented on November 9 by Mr. Colville. The same Minister presented on November 10 the Reorganization of Offices (Scotland) Bill. This latter Bill gives effect to the Report presented in 1937 of the Committee on Scottish Administration. The Bill will vest in the Secretary of State for Scotland the functions of the Department of Health for Scotland. One clause provides for the reorganization of the General Board of Control for Scotland.

The Criminal Justice Bill was introduced by Sir Samuel Hoare on November 10. Two of its objects are "to provide new methods and to reform existing methods of dealing with offenders and persons liable to punishment" and "to amend the law relating to the management of prisons and other institutions."

Private Members' Bills were presented in the House of Commons on November 11 by members successful in the ballot. Dates chosen for second reading, titles of Bills, and members introducing are:

November 18, Workmen's Compensation Bill, Mr. Ridley.

November 25, Public Health (Coal Mine Refuse) Bill, Mr. Lawson.

December 9, Workmen's Compensation Acts (1925 to 1934) Amendment Bill (to amend the Workmen's Compensation Acts with respect to miners' nystagmus; to provide for the establishment of medical tribunals of appeal; to make sundry alterations in medical procedure, etc.), Miss Ward.

December 16, Adoption of Children (Regulation) Bill, Miss Horsbrugh.

December 16, Contraceptives (Regulation) Bill (to regulate the public display of contraceptives, etc.), Mr. Simmonds, sup-

ported by Sir Francis Fremantle, Sir Joseph Leech, Sir Henry Morris-Jones, Major Neven-Spence, and Dr. Salter.

February 3, Charitable Collections (Regulations) Bill, Mr. Craven-Ellis.

February 3, Voluntary Hospitals (Relief from Rating) Bill, Mr. H. G. Williams.

The text of the Workmen's Compensation Bill, introduced by Mr. Ridley, was issued on November 15. It includes a provision to substitute for medical referees under the Workmen's Compensation Act a medical board appointed in accordance with regulations to be made by the Home Secretary.

Debate on the Address

The debate on the Address in the House of Commons was continued on November 14 on a Labour amendment. Moving this, Mr. PETHICK-LAWRENCE said that the Labour Party welcomed the announcement of the new cancer campaign, but thought that a still more urgent need was to take drastic steps to cure the cancer in the body politic of the State itself. There was an artificial shortage, exclusive of supplies from abroad, a limitation of home output, and, in some cases, a deliberate destruction of food. He paid a tribute to the scientific men who had brought the question of malnutrition to the front. They had done valuable service to mankind, and had made a lasting contribution to the progress of the world. Dr. M'GONIGLE, the medical officer of health for Stockton-on-Tees, who had been engaged on a study of the health of children of the better-off classes compared with that of city children, had said that the latter were five times as great sufferers from anaemia as the children of the professional classes. In the case of bronchial troubles, city children were ten times more liable to disease than children of the professional classes. He had been amazed at the statistics of Sir John Orr with regard to stunted growth. He had shown that if one compared the average height of a large sample of boys taken from the public schools with a similar large sample of boys from the elementary schools there was a difference of no less than six inches between the one and the other. Mortality figures for this country, given in a book published by the League of Nations, showed that the prosperous districts had a corrected death rate 30 per cent below the average, whereas the poorer districts showed a figure 40 per cent higher than the average. He did not think that anyone denied that malnutrition was largely responsible for these differences. The Prime Minister, last week, had referred to nutrition, and used words which, if they meant anything, surely meant that one of the main causes of malnutrition was not lack of purchasing power but ignorance and possibly negligence on the part of the mothers in the spending of their money. That was a very comfortable doctrine, but the statements of medical officers did not substantiate it. As he (Mr. Pethick-Lawrence) understood it, the position of the Government in regard to the condition of the people was that it was a question of expenses, and that at the present time when money had to be expended on rearmament there was necessarily a conflict between guns and butter.

THE CANCER CAMPAIGN

Dr. ELLIOT said that the Government proposed shortly to introduce a Bill which would make provision for extended arrangements for the treatment of cancer. They anticipated that modern methods of diagnosis and treatment, either by x rays or by operation, would thus be made available to all who suffered from or—and this was an even larger group—who feared this disease. At present only about one-quarter of the cases which might benefit by treatment were receiving treatment on modern lines. Assurances had been received recently that the great research organizations not only would continue their efforts to acquire as much knowledge as possible as to the cause of the disease but would increase them. How to get the early cases to attend the centres was one of the difficulties those administering the schemes would have to face, but, as public opinion had been altered in its attitude towards tuberculosis by national and local schemes, he hoped that people would be persuaded to take advantage of this new scheme, because an early cure would often lead to a complete cure.

Money would be made available to enable the National Radium Trust to acquire more radium, so that the necessary treatment could be given. He had been able to assure the Chancellor of the Exchequer that the life of radium was 2,500 years, making it a fit subject for a small loan. He was at present closely engaged in discussing details of the proposed measure with the various organizations concerned, and he hoped to be able to place the Bill before the House before the Christmas recess.

Referring to nutrition, Dr. Elliot said the number of free solid meals provided by the local education authorities had been more than doubled in the last ten years. The milk-in-schools scheme had proved a success. During last year 200,000 more children had been drinking milk under the scheme, of whom 50,000 or more had been getting it free of charge. There was also the question of the wise choice of food. The injudicious choice of food had done great damage to many sections of the community, and not to the poorer sections alone. A knowledge of the right kind of food, how to choose food, and how to cook food was a very important factor.

Turning to physical education, Dr. Elliot said that new schools and playgrounds were growing up all over the country. The National Fitness Council had now allotted grants amounting to nearly £750,000 to schemes for youth movements, for developing leadership, and for doing by voluntary means what other nations were doing by compulsory means.

With regard to maternal mortality, he had followed with interest the spectacular results that had been obtained by new methods of treatment, but he realized the number and complexity of the problems still calling for investigation. As a result of the Act which the House passed in 1937, nearly 7,500 whole-time midwives were now employed by local authorities in England and Wales, and it had been possible to make orders against any persons who were not certified midwives or registered nurses in forty-four out of 188 areas. In 1937 the maternal mortality rate went down to 3.13, which was a low record.

Mr. COVE said that, reading the reports on nutrition made by the medical officers of health, he got the impression that a large number gave no evidence that they knew the real condition of the nutrition of the children. He might be unfair and unjust, but he got the impression that in some cases at least the reports were written to please the authorities.

Medical News

Air Vice-Marshal Sir David Munro, K.C.B., F.R.C.S.Ed., was elected Rector of St. Andrews University on November 12 with a majority of 118 votes. The other candidate was Admiral of the Fleet Sir Roger Keyes.

The Council of the Royal Society has recommended the following for election as officers at the anniversary meeting on November 30: President, Sir William Bragg; Treasurer, Sir Henry Lyons; Secretaries, Professor A. V. Hill and Professor A. C. G. Egerton; Foreign Secretary, Sir Albert Seward. The following members of the medical profession are among those recommended for election to the Council of the Society: Professor Major Greenwood, Professor John Mellanby, and Professor W. W. C. Topley.

The next course of lectures on tropical hygiene for men and women outside the medical profession proceeding to the Tropics will be given by Mr. H. H. Clay, Professor R. T. Leiper, F.R.S., and Sir Malcolm Watson at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., from Monday, November 28, to Friday, December 9 (Saturday and Sunday excepted), from 4 to 5 p.m. Applications for admission to the course, the fee for which is £1 1s., should be made to the secretary of the London School of Hygiene and Tropical Medicine.

The British Postgraduate Medical School announces that Professor W. W. C. Topley, F.R.S., will deliver the Kettle Memorial Lecture on "The Place of Pathology among the

Medical Sciences" at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Thursday, November 24, at 5 p.m.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, Cavendish Square, W., on Thursday, November 24, at 2.30 p.m. At 3 p.m. the nineteenth Maudsley Lecture on "A Revaluation of Psychiatry" will be delivered by Professor D. K. Henderson at 26, Portland Place, W.

The annual clinical "At Home" of the Royal Dental Hospital of London will be held on Saturday, November 26, at 3 p.m., and the dinner of the past and present students of the hospital will be held at the Trocadero at 7.30 p.m.

The first winter meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W., on Friday, November 25, at 8.30 p.m., when Colonel L. W. Harrison and Dr. Margaret Rorke will speak on "Venereal Disease Control in Scandinavian Countries."

The annual meeting of the British Health Resorts Association will be held at 28, Portland Place, W., to-day (Friday, November 18), at 4 p.m., with the president, Lord Meston, in the chair.

A joint meeting of the Medico-Legal Society and the Section of Psychiatry of the Royal Society of Medicine will be held at 26, Portland Place, W., on Thursday, November 24, at 8.30 p.m., when a discussion on "The Place of the Psychiatrist in Relation to the Administration of the Criminal Law" will be opened by Dr. R. D. Gillespie and Dr. Denis Carroll (for the Royal Society of Medicine) and Mr. Roland Burrows, K.C., Recorder of Cambridge, and Dr. Letitia Fairfield (for the Medico-Legal Society).

In view of recent developments in methods of treatment of respiratory paralysis the London County Council has decided to hold a demonstration of various types of cabinet and other respirators in the conference hall, County Hall, Westminster Bridge, S.E., on Wednesday, November 23. Any members of the medical profession will be welcome to attend the demonstration between the hours of 10 a.m. and 1 p.m. and 2 p.m. and 4 p.m.

The following medical men were elected mayors on November 9: Dr. H. C. Barraclough (Lowestoft); Mr. S. A. Boyd (Hampstead); Dr. W. E. Moore Ede (Worcester); Alderman I. Flaek (Radcliffe); Dr. B. L. Hodge (Malmesbury); Alderman C. L. Katal (Finsbury); and Dr. R. W. Pearson, M.C. (Arundel). Dr. Moore Ede was re-elected.

The King has approved recommendations by the Council of the Royal Society for the award of the two Royal Medals for the current year to Dr. Francis William Aston, in recognition of his discovery of the isotopes of non-radioactive elements, and to Professor Ronald Aylmer Fisher, in recognition of his important contributions to the theory and practice of statistical methods.

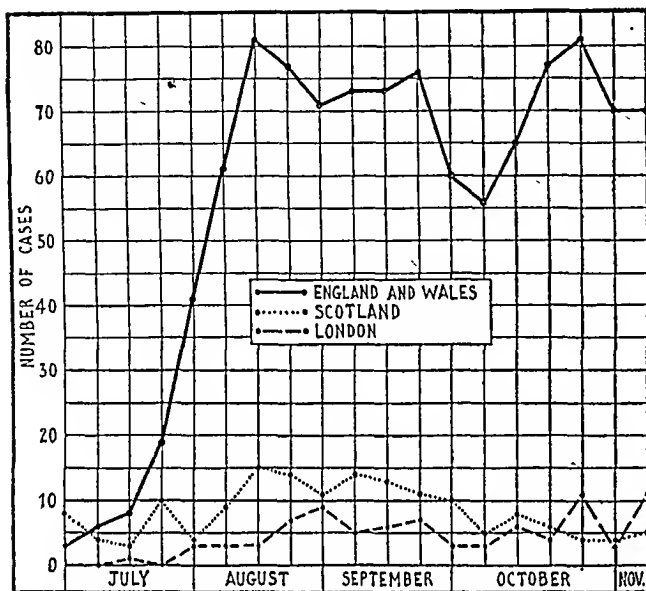
EPIDEMIOLOGICAL NOTES*

Acute Poliomyelitis

The fall in the incidence of poliomyelitis in England and Wales recorded last week has been maintained but not increased, the number notified remaining at 70. In London notifications rose from 4 to 11, and in Scotland from 3 to 5. The counties chiefly affected were London 11 (Battersea, Lewisham, Westminster, and Woolwich 2 each; Chelsea, Kensington, and Wandsworth 1 each); Lancaster 6 (Liverpool 2, Eccles, Lancaster, Manchester, and Urmston 1 each); Essex 5 (Harwich 2, Wanstead, Tendring, Braintree rural 1 each); Glamorgan 5 (Cardiff 2, Penarth 2, Cowbridge rural 1); Lincoln 5 (Gainsborough, Gainsborough rural, South Kesteven, Scunthorpe, Spilsby 1 each); Oxford 4 (Oxford 2, Bullington and Witney 1 each); Southampton 4 (Portsmouth 1, Winchester 2, Ringwood and Fordingbridge 1). The 5 cases in Scotland occurred in Lanark County 2, Edinburgh 2, and Dumbarton 1.

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

In the accompanying graph are given the numbers notified each week in England and Wales, London, and Scotland respectively from July 3 to November 5. The average number notified weekly in the immediately preceding four-week period was England and Wales 3, London 1, and Scotland between 1 and 2. The rapid rise in incidence in England and Wales suggested an outbreak of greater magnitude than is usual in this country, but by the middle of August it had reached its peak. Contrary to expectation there was a recrudescence of the disease in the early weeks of October, culminating in a second peak in the third week equal in height to the August



Weekly notifications of acute poliomyelitis from July 3 to November 5, 1938.

peak. The occurrence of two periods of maximal incidence of acute poliomyelitis in England and Wales is unusual and may conceivably be related to the abnormal spell of hot dry weather experienced in October. The distribution of the disease at that time was fairly widespread: while Essex remained the chief endemic focus, fresh outbreaks were being reported in Glamorgan, Yorkshire, and Sussex.

In London the same explosive character was not encountered, although there were two periods of maximal prevalence, the first showing a lag period of fourteen days after that of England and Wales and the second coinciding with it. (The height of the second peak for the whole country was largely due to the increase in London.) The incidence curve for Scotland conforms more or less to the London curve, except that there was no recurrence in October save for a trifling rise in the week under review, while its rather flattened peak coincided with that for the whole country, not with that for London.

In Holland the number of cases in the week ended October 29 fell from 33 to 19: of those 11 were in the Province of South Holland (4 in the district of Rotterdam). In France 164 cases were recorded in September, compared with 81 in August and with 105 in September, 1937. In the first fortnight of October 110 cases were reported in Finland as against 92 in the preceding two-week period.

Enteric Fever

In England and Wales notifications of enteric fever rose from 19 to 21 and in London from 1 to 4 (Chelsea 2, Hackney 1, Lewisham 1). While no fresh outbreaks have to be recorded the sporadic cases have occurred over a wide area. Only in three towns—London 4, Liverpool 2, Boston 2—have more than one case been notified during the week. There was one death in the 126 Great Towns (at Croydon). The two cases recorded in Scotland were in Dunfermline and Lanark county and there was one death in Glasgow.

Primary and Influenzal Pneumonia

A slight increase was recorded for England and Wales, 583 as against 578; and for London, 75 as against 65. The main counties affected were: Lancaster 84 (Manchester 31, Liverpool 10); Yorks (West Riding) 51 (Sheffield 19, Leeds 7); London 75 (Poplar 9, Islington 8, Bermondsey 6, St. Pancras and Woolwich 5 each); Warwick 37 (26 in Birmingham); Durham 34 (12 in Sunderland); Stafford 30 (Walsall 5, Wolverhampton 6). Of deaths from influenza in the Great Towns 7 were in London, 3 in Rochdale, and 2 each in Oldham and Walthamstow; of the 272 cases of primary pneumonia in Scotland 183 were in Glasgow. The single death from influenza occurred in Glasgow. Of the 33 inmates of a nursery at Hexham (Northumberland) 6 died from bronchopneumonia and the remainder have been isolated at the Walkergate Isolation Hospital in Newcastle whilst the nursery is being disinfected in readiness for reopening. It has not yet been disclosed what the causative organism was or why the infection was so lethal.

Diphtheria and Scarlet Fever

A small increase in notifications of diphtheria was reported for England and Wales, and a small decrease for London. In Scotland notifications decreased from 274 to 253. Towns chiefly affected were: London 145 (Poplar 16 (13), Islington 19 (9), Southwark 10 (4)), Liverpool 48 (59), Bristol 33 (23), Leeds 31 (19), South Shields 25 (21), Sheffield 26 (37), Birmingham 24 (38), Leicester 22 (15), Manchester 20 (28). Of the 19 deaths in the Great Towns 2 each were in London, Plymouth, and Stoke-on-Trent, and 1 each in Croydon, Bolton, Bournemouth, Bootle, Cheltenham, Leeds, Liverpool, Leicester, Great Yarmouth, Merthyr Tydfil, Sheffield, Smethwick, and West Ham. Of the 4 deaths in Scotland 3 were in Glasgow and 1 in Edinburgh. At the time of going to press reports indicate a continued increase of diphtheria of a virulent type in Glasgow and Bristol. Of the 25 cases notified in South Shields 9 were carriers: there were no deaths during the week (2 in the previous week). To date this year there have been 476 cases of diphtheria with 58 deaths recorded in South Shields.

Notifications of scarlet fever rose from 2,000 to 2,040 in England and Wales, but fell from 192 to 168 in London. In Scotland notifications fell from 411 to 403. The principal towns affected were: Liverpool 62 (50), Manchester 28 (56), Birmingham 38 (29), Bristol 33 (44), Newcastle 29 (14), Leeds 28 (35), Sheffield 25 (37), Nottingham 25 (19), West Ham 22 (18), York 20 (11). Of the 168 cases in London 13 (10) were in Islington, 13 (3) in Stepney, 13 (26) in Wandsworth, 16 (9) in Poplar, and 12 (11) in Battersea. In the Great Towns of both countries there was 1 death (in Edinburgh).

Measles and Whooping-cough

Of the 22 cases of measles notified in London there were 4 each in Stepney and Lambeth and 2 each in Fulham, Westminster, Islington, Shoreditch, and Southwark. The single death recorded occurred at Wolverhampton. Of the 14 cases of measles reported in Scotland 3 were in Orkney. There were no deaths. In London 141 (146) cases of measles were notified, chiefly in Battersea 18, Kensington 11, Southwark 11, Finsbury, Islington, and Hackney 10 each. There were 4 deaths (1 each in London, Heston and Isleworth, Reading, and Leicester). In Scotland notifications rose from 178 to 203, of which 158 (134) were in Glasgow, 15 (12) in Lanark county, 11 (4) in Edinburgh, and 11 (6) in Paisley. There was one death in Glasgow.

Cholera and Plague

During the week under review there were 418 (568) cases of cholera and 229 (282) deaths in the Central Provinces of India, 324 (270) cases and 136 (128) deaths in Bombay Presidency, and 104 (218) cases and 51 (97) deaths in the United Provinces.

In India during the same week there were 155 (43) cases of plague and 13 (6) deaths in the Central Provinces, 30 (47) cases with 15 (23) deaths in Bombay Presidency, 17 (11) cases and 17 (8) deaths in Madras Presidency, and in Burma 43 (67) cases with 31 (65) deaths.

INFECTIOUS DISEASES AND VITAL STATISTICS

No. 44

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended November 5, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths recorded under each infectious disease, are for: (a) The 126 great towns (124 in 1937) in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash—denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 13 | 3 | 7 | 2 | — | 8 | 1 | 6 | 2 | 1 | | |
| Deaths | — | — | 1 | — | — | — | 1 | — | — | — | | |
| Diphtheria | 1,457 | 145 | 253 | 88 | 23 | 1,698 | 220 | 295 | 61 | 50 | 1,276 | 220 |
| Deaths | 19 | 2 | 8 | 2 | — | 42 | 5 | 8 | — | 1 | | |
| Dysentery | 34 | 9 | 15 | — | — | 118 | 20 | 45 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Encephalitis lethargica, acute | 4 | — | 2 | — | — | 4 | 1 | 2 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Enteric (typhoid and paratyphoid) fever | 21 | 4 | 2 | 6 | 2 | 36 | 3 | 2 | 5 | 2 | 34 | |
| Deaths | 1 | — | 1 | — | — | — | — | — | — | — | | |
| Erysipelas | — | — | 80 | 10 | 7 | — | — | 96 | 9 | 5 | | |
| Deaths | — | 1 | — | — | — | — | 1 | — | — | — | | |
| Infective enteritis or diarrhoea under 2 years | 33 | 12 | 6 | 3 | 5 | 44 | 11 | 10 | 2 | 10 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Measles | 1 | 26 | 14 | — | 1 | 18 | — | 160 | 1 | 33 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Ophthalmia neonatorum | 82 | 9 | 20 | — | — | 86 | 8 | 29 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Pneumonia, influenzal† | 583 | 75 | 6 | 4 | 5 | 812 | 79 | 8 | 2 | — | 816 | 79 |
| Deaths (from Influenza) | 37 | 7 | 1 | 2 | 1 | 38 | 6 | 5 | 1 | — | | |
| Pneumonia, primary | — | 19 | 272 | 9 | 10 | — | 13 | 329 | 4 | 9 | | |
| Deaths | — | — | — | 16 | — | — | — | — | 14 | — | | |
| Polio-encephalitis, acute | 3 | — | — | — | — | 1 | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Polio-myelitis, acute | 70 | 11 | 5 | — | — | 26 | — | 1 | — | 2 | | |
| Deaths | — | 1 | — | — | — | — | — | — | — | — | | |
| Puerperal fever | 5* | 5 | 13 | 3 | — | 5* | 5 | 20 | 1 | 1 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Puerperal pyrexia | 155 | 7 | 22 | — | 5 | 180 | 18 | 22 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Relapsing fever | — | — | — | — | — | — | — | 1 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Scarlet fever | 2,040 | 168 | 403 | 83 | 111 | 2,574 | 202 | 652 | 114 | 114 | 2,588 | 347 |
| Deaths | — | — | 1 | — | — | 2 | — | 1 | — | — | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Whooping-cough | — | 141 | 203 | — | 9 | — | 1 | 65 | — | 5 | | |
| Deaths | 4 | 1 | 1 | 1 | — | 8 | 1 | 1 | — | 1 | | |
| Deaths (0-1 year) | 267 | 40 | 65 | 33 | 23 | 313 | 41 | 86 | 27 | 26 | | |
| Infant mortality rate (per 1,000 live births) | 44 | 33 | — | — | — | 52 | 34 | — | — | — | | |
| Deaths (excluding stillbirths) | 4,380 | 841 | 617 | 207 | 144 | 4,455 | 867 | 656 | 153 | 149 | | |
| Annual death rate (per 1,000 persons living) | 10.8 | 10.7 | 12.6 | 14.0 | 12.8 | 11.0 | 10.9 | 13.4 | 10.4 | 13.2 | | |
| Live births | 6,677 | 1,275 | 836 | 257 | 204 | 6,474 | 1,134 | 810 | 302 | 225 | | |
| Annual rate per 1,000 persons living | 16.4 | 16.2 | 17.0 | 17.4 | 18.1 | 16.0 | 14.3 | 16.6 | 20.6 | 19.9 | | |
| Stillbirths | 266 | 36 | — | — | — | 287 | 49 | — | — | — | | |
| Rate per 1,000 total births (including stillborn) | 38 | 27 | — | — | — | 42 | 41 | — | — | — | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Letters, Notes, and Answers

LETTERS, NOTES, ETC.

A Jubilee Volume

We have received from Bayer Products Ltd. a copy of a jubilee volume entitled *Fifty Years (1888-1938) of Bayer Remedies*. The volume is beautifully produced and the illustrations are particularly noteworthy. Much information of general historical medical interest is given regarding the development of the synthetic drugs which to-day are of such dominant importance in therapeutics. The development in this field has been so rapid that everyone has been too busy testing new discoveries to spare time to write the history of their origin. This volume contains many interesting notes regarding the early work of Behring and of Ehrlich, laboratory notes on the discovery of plasmoquine and atabrin, the struggle attending the introduction of local anaesthesia, etc. Phenacetin was the first synthetic preparation introduced into medical science bearing the name of Bayer, and it is an interesting fact that only fifty years separates these early stages of synthetic organic drugs from the recent triumphs of organic chemistry in the synthesis of vitamins and hormones.

Tuberculosis and Post-partum Haemorrhage

Dr. J. M. MACPHAIL (Middlesbrough) writes: I have noted that women who are not themselves tuberculous but who belong to a tuberculous family readily succumb to post-partum haemorrhage, or puerperal septicaemia, a short time after a confinement. To all appearances they may have been in perfect health, and this makes their deaths all the more tragic. I refer here not to the patients with an acute pleurisy which is the beginning of an acute tuberculosis, but to the apparently healthy young women who suddenly and unexpectedly succumb. Those who scoff should remember that irregular menstruation is very common in young tuberculous people.

Diagnosis of Malaria

Dr. J. E. FOLEY (Sandown) writes: We have all our own methods for the diagnosis and treatment of malaria, but I would like to stress the importance of not placing too much faith in a negative blood slide and of remembering that each attack must be followed up with adequate treatment, irrespective of how much annoyance, unpopularity, and criticism one lays oneself open to. In cases in which a blood film is negative quinine is too often withheld or not given in adequate dosage. We have specific remedies for malaria, and it is of the utmost importance that these drugs should be administered as early as possible; malaria is, in fact, our most urgent medical emergency in the East.

Choice of Careers

The Ministry of Labour has published new editions of the pamphlets on Librarianship (No. 11), Nursing (No. 17), and Secretarial Work for Women (No. 19), which are part of the series entitled *Choice of Careers* compiled by arrangement with the Incorporated Association of Headmasters and Headmistresses of Public Secondary Schools. Each of the pamphlets sets out the nature of the work, the qualifications needed, the methods and cost of training, and the prospects in the various branches of the occupation. They may be obtained from H.M. Stationery Office or through any bookseller, price 3d. (Nos. 3, 11, and 19) and 4d. (No. 17).

The Ostermilk Book

The Glaxo Laboratories, Ltd., of Greenford, Middlesex, announce a new and revised edition of *The Ostermilk Book*, the third since its first appearance just over eighteen months ago. It is intended for the guidance of mothers in the care of themselves and their infants. Copies of the book will be sent on request to any medical practitioner.

Corrigendum

Surgeon Lieutenant S. GAY FRENCH, R.N., writes: I much regret that through an error of typing the paper by Surgeon Lieutenant-Commander Horan and myself published in the *Journal* of November 5 (p. 942) was headed "Sulphonamide in the Treatment of Acute Mastoiditis." As the context of the paper shows, the heading should have been "Sulphonamide in the Prevention of Acute Mastoiditis." We know of no treatment of the acute disease, except the usual surgical measures. I apologize to any reader whom this error may have misled.

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS.—All communications should be addressed to the Advertisement Manager (office hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House.

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QUERIES AND ANSWERS

Case for Diagnosis

Dr. E. S. HAWKES (Budleigh Salterton) writes: I should be grateful for any suggestions as to diagnosis and treatment of the following case. A schoolgirl aged 16½ years has for ten months been running a temperature of 99.2° to 100.2° F. about the middle of the day; the temperature then drops to about normal. There are no other physical signs, except a slight decrease in superficial and deep reflexes. The girl looks ill and has extreme lassitude. I am quite satisfied that there is no question of neurasthenia. A consultant physician and a skilled pathological examination failed to reveal any sign of disease; yet the girl is obviously ill.

Varicose Veins

"M.E.D." writes: A female patient of mine has had large varicose veins in both legs injected on about twelve occasions without any result. The solution used was quinine and urethane. Can anyone suggest the reason for this, and if it would be advisable to try some other solution?

Cattle Ringworm in Man

Dr. E. S. HAWKES (Budleigh Salterton) writes in reply to Dr. Stewart (*Journal*, November 12, p. 1027): Most of these cases can be cleared with ung. cuprosal (Duncan Flockhart and Co.) More severe lesions, with secondary sepsis, should be cleaned with frequent applications of eusol by day, the ointment being used at night. The only case that I have had that failed to respond to this treatment yielded to ultra-violet irradiation in increasingly strong doses.

Protection of Eczematous Face

Dr. R. V. MONAHAN (Navan) writes in reply to Dr. D. Braham (*Journal*, November 12, p. 1027): I would suggest that a close study of these cases will in most instances reveal some evidence of a lack of thyroid secretion—dandruff, dry or falling hair, outer half of eyebrows missing or badly nourished; dry, pale, thick, inelastic skin; slow pulse, etc. These patients will do remarkably well when the deficiency is corrected and they are kept on a maintenance dose of thyroid. I give them a three-weeks course, repeated indefinitely with an interval of one week between each course. The necessary dose of thyroid varies, but the pulse rate should be pushed to the region of 80 a minute and should never be allowed to exceed 90 a minute. A daily dose of 5 to 10 grains of fresh gland extract will usually be sufficient; later, when the symptoms of eczema have disappeared, a smaller dose will suffice to keep the patient at a normal level; possibly 1 or 2 grains a day will be ample.

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Deutsche Medizinische Wochenschrift

Berlin vol. 64 September 2, 1938

- Significance of Case History in Diagnosis of Brain Tumours. P. Voelz—p. 1277.
Lactation Capacity and Prevention and Treatment of Mastitis. R. K. Kerp.—p. 1281.
*Treatment of Haemophilia with Female Sex Hormones. A. Kees and A. Haslo—p. 1284.
Pathogenesis of Transient Esotropia. R. W. Müller.—p. 1286.
Treatment of Post-encephalitic States with German Belladonna Root. W. Herz.—p. 1287.
Iodine Silver in Treatment of Wounds. F. Kirsch.—p. 1289.
Physical Hyperthermia by Short Waves and Hot Baths. H. G. Scholtz.—p. 1290.
Interpretation of Pathologically Changed ST Interval in Electrocardiogram. E. Danks and C. Kern.—p. 1291.
Invalid Diet and Science of Nutrition. A. Ohly.—p. 1294.
Medicine in Cologne. F. Lejeune.—p. 1297.

Haemophilia.—According to this study, which comes from a pharmacological institute in Budapest, the administration of an ovarian hormone by the mouth, and by subcutaneous and intramuscular injection, prevents or arrests the severe haemorrhage of haemophilia.

Gazette Hebdomadaire des Sciences Médicales de Bordeaux

Bordeaux vol. 59 August 28, 1938

- Histamine Treatment of Gastro-duodenal Ulcer. J. Dubarry and G. Frapin.—p. 515.

Bordeaux vol. 59 September 4, 1938

- Mean Arterial Pressure and Double Curve. H. Harlé.—p. 527.
*Surgical Treatment of Puerperal Infection. P. Ballard.—p. 529.

Surgery of Puerperal Infection.—After a discussion of medical treatment, in which vaccines are not praised but rubiazol is commended, Ballard decides against curettage for metritis and in favour of laparotomy for generalized peritonitis following puerperal infection. The merits of hysterectomy and of the venous ligature operations are examined; the former is thought to have some place in cases of infected myomata, uterine infarction after abortion, or in repeated post-partum haemorrhage.

Bordeaux vol. 59 September 11, 1938

- Anaesthesia in Infants: I. H.-L. Rocher.—p. 539.

Bordeaux vol. 59 September 18, 1938

- Anaesthesia in Infants: II. H.-L. Rocher.—p. 550.

Indian Medical Gazette

Calcutta vol. 73 August, 1938

- Leptospirosis in India. B. M. Das Gupta.—p. 449.
Peptic Ulcer in Northern Circars. M. N. Rao.—p. 454.
Vitamin B and Peptic Ulcer. M. N. Rao.—p. 457.
Treatment of Phrynoderma by Vitamin A Concentrate. M. V. R. Rao.—p. 461.
Studies on Potency of Prophylactic Vaccine: I. Cholera Vaccine. C. L. Pasricha, D. N. Chatterjee, and B. M. Paul.—p. 463.
Spontaneous Subarachnoid Haemorrhage. R. N. Chaudhuri.—p. 466.
Illustrations explaining an Article on *Siphuncula funicola* (Eggs) M. M. Syddiq.—p. 466.
Effect on Rats of supplementing a North Indian Diet with Vegetable Proteins and Calcium. R. K. Pal and N. Singh.—p. 469.
Volvulus as Cause of Intestinal Obstruction. M. G. Kim and D. V. Rao.—p. 471.
Spinal Anaesthesia. C. H. Bliss.—p. 474.
Incidence of Pulmonary Tuberculosis in Punjab Villages. B. L. Kamra.—p. 477.
Two Cases of Treponemal Infection treated with Paritran Preparations. A. N. Mukherji and P. C. Sanyal.—p. 478.
Lymphosarcoma of Bladder. J. F. Henriques.—p. 479.
Case of Extensive Scalding treated with Cod-liver Oil Dressing. K. P. Hare.—p. 479.

Journal of the American Medical Association

Chicago vol. 3 September 3, 1938

- Opportunities in Pediatric Practice. C. Sweet.—p. 592.
Treatment of Addison's Disease. E. Bywater.—p. 597.
Anatomical Factors in Pathogenesis and Treatment of Urethrocystitis and Cystitis. A. Curtis, P. Amos, and C. McVay.—p. 593.
Levels of Control in Treatment of Diabetes Mellitus. J. Boyd and P. Jackson.—p. 595.
Gastro-duodenostomy for Certain Duodenal Ulcers. H. Chase and J. Sprague.—p. 599.
Pathological Effects of Elster of Sulphanilamide Poisoning. E. Gelling and P. Cannon.—p. 519.
Vitamin B₁₂. H. Munsell.—p. 527.

Klinische Wochenschrift

Berlin vol. 17 September 2, 1938

- Lactoflavine and Cellular Breathing: Investigation on Peripheral Nerves. K. Weidner.—p. 1241.
Content of Active Belladonna Alkaloids in Galemda Stomachica. W. Heubner.—p. 1241.
Relation between Vitamin B₁₂ and Thyroid Gland. G. Gentzen and T. Mehr.—p. 1242.
Densitometric Test. A. Jenzler.—p. 1245.
Quantitative Photometric Determination of Vitamin B₁₂ in Body Fluids by Means of Step-photometer. H. Otto and F. Rühmke.—p. 1246.
*Results of "Tetraphan" Therapy of Post-diphtheritic Paralysis. F. Teulenz.—p. 1247.
Pernicious Anaemia and Gastric Carcinoma considered as Stages of Chronic Gastritis. W. Thiele.—p. 1253.
Experiments on Animals with Orally Administered Anaesthetic Substances acting on Peripheral Circulation. F. Hauschild.—p. 1257.
Pathogenic Pasteurella Bacteria in Man. T. Wohlfiel.—p. 1259.
Passage of Antineoplastic Vitamin B₁₂ into Cerebrospinal Fluid. M. Kasahara, T. Kakumori, and S.-S. Nan.—p. 1259.
Adrenaline Hyperglycaemia in Animals suffering from C-h polyvitaminosis. M. Kasahara, Y. Nishizawa, H. Hone, and S. Hirao.—p. 1260.
Practical Instruction of German Medical Students at Medical Schools of Montpellier (Historical). F. Weindler.—p. 1260.

"Tetraphan" Therapy of Post-diphtheritic Paralysis.—The best results were obtained from injections by lumbar puncture. The results were particularly good in severe cases of muscular hypotonia without respiratory or pharyngeal paralysis. The drug was useless as a prophylactic.

Lancet

London vol. 2 September 3, 1938

- Iron-deficiency Anaemias. R. B. Scott.—p. 549.
Angle of Abduction of Hip after Subtrochanteric Osteotomy. H. J. Sedden.—p. 552.
Experimental Exchange Transfusion using Purified Heparin. W. Thalheimer, D. Y. Solandt, and C. H. Best.—p. 554.
*Synthetic Desoxycorticosterone Acetate in Addison's Disease. S. L. Simpson.—p. 557.
Acute Ulcerative Stomatitis. E. W. Fish.—p. 558.
Hyperplastic Tuberculosis of Calcium: Radiological Diagnosis. F. G. Wood and M. C. Wilkinson.—p. 560.
Anti-bacterial Power of Blood of Patients receiving 2-(p-aminobenzene-sulphonamido)pyridine. A. Fleming.—p. 564.
Rheumatoid Arthritis treated by Multiple Anthroscopy and Lavage. O. A. Savage.—p. 567.
Bone Abscess caused by *Bacillus aertrycke*. D. L. Stevenson.—p. 569.
Repair of Fistula of Penile Urethra. H. L. Attwater and J. R. Hughes.—p. 569.

Addison's Disease.—Synthetic desoxycorticosterone acetate, which differs from corticosterone in the absence of a hydroxyl group, is synthesized from stigmastanol and has been proved effective in adrenalectomized rats. Simpson reports its successful use in two cases of Addison's disease.

Medical Journal of Australia

Sydney vol. 2 July 30, 1938

- Mental Hygiene of Pre-school Child. J. Williams.—p. 145.
Nutrition of Pre-school Child. V. Scantlebury.—p. 148.
Training of Pre-school Child. C. Heinig.—p. 155.
Haematuria. K. Kirkland.—p. 159.
Goutre and Thyrotoxicosis. A. Lee.—p. 162.
Deaths from Arterial Spasm. J. Cade.—p. 168.

Sydney vol. 2 August 6, 1938

- Chemistry and Medicine. A. Walker.—p. 186.
Some Common Eye Injuries and Disorders. B. Moore.—p. 191.
Blood Supply of Visual Pathways. A. Abbie.—p. 199.
Probable Vector of Endemic Typhus in New Guinea. C. Gunther.—p. 202.
Case of Aberrant Renal Vessel. R. Flynn.—p. 205.
Pathological Reports from Children's Hospital, Melbourne. R. Webster.—p. 205.
Incontinence of Urine Treated Surgically. P. A. Stevens.—p. 207.

Medizinische Klinik

Berlin vol. 34 September 2, 1938

- Chemotherapy of Gonorrhoea. O. Grütz.—p. 1147.
Treatment of High Blood Pressure with Drugs. O. Eichler.—p. 1150.
Cause of Summer Diarrhoea in Infants. H. Schonfeld.—p. 1154.
Causation and Therapy of Nocturnal Enuresis in Children. F. G. von Stockert.—p. 1156.
Cold-water Therapy. H. Malten.—p. 1159.
Clinical Manifestations of Affections of Respiratory Tract. R. Schmidt.—p. 1162.
Treatment of Cranial Injuries. J. G. Knothach.—p. 1164.
Value of Functional Test and of Electrocardiogram for Determination of Functional Capacity of Heart. F. Pfeffer.—p. 1166.
Thrombopenia and its Treatment. K. Kummerling.—p. 1167.
German Medical Practice in West Indies. F. Koch.—p. 1176.

Medizinische Welt

Berlin vol. 12 August 27, 1938

- Differential Diagnosis of Gastro-intestinal Diseases. S. Lauter.—p. 1233.
Early Diagnosis of Cervical Carcinoma. M. Lindgren.—p. 1238.
Treatment of Gonorrhoea and Staphylococcal Diseases with Uleron. H. Grastner.—p. 1241.
Treatment of Atrophic Gastritis. A. Mahlo.—p. 1246.
Acute Benzol Poisoning and its Prevention. H. Symanski.—p. 1248.
"Mensorm." A. Wagner.—p. 1250.

Berlin vol. 12 September 3, 1938

- Differential Diagnosis of Gastro-intestinal Diseases. S. Lauter.—p. 1269.
X-ray Therapy in Dermatology. P. Keller.—p. 1274.
New Results in Treatment with Synthetic Male Sex Hormones. G. Venzmer.—p. 1278.
Focal Infection and Bladder. E. Meyer.—p. 1281.
Disturbances of Sympathetic Nervous System and their Treatment with "Uleron." K. Koch.—p. 1284.

Nature

London vol. 142 September 3, 1938

- Eye and Brain as Factors in Visual Perception. R. H. Thouless.—p. 418.
Preparation of 2,8-diamino-acridine. A. Albert and D. K. Large.—p. 435.
Effect of Desoxycorticosterone and its Esters. K. Miescher, W. H. Fischer, and E. Fehopp.—p. 435.
Heights and Weights in a Girls' Public School. R. Jacob.—p. 436.
Possible Genetic Mechanism in Heterotomic Growth of Limbs of Carite. G. Pontecorvo.—p. 437.

London vol. 142 September 10, 1938

- Development and Evolution. H. H. Swinnerton.—p. 459.
Metallic Compounds of Protein. F. Lieben.—p. 463.
Isolation of Progesterone and Allotegnanone from Adrenal. D. Beall and I. Reichstein.—p. 479.
Changes in Lymph Glands of Tumour-bearing Mice. D. Parsons.—p. 480.
Assay of Thyrotropic Hormone. E. M. Mason.—p. 480.
Cholinesterase at End-plates of Voluntary Muscle after Nerve Degeneration. R. Couteaux and D. Nachmansohn.—p. 481.
Vernalization of Excised Embryos. F. G. Gregory and R. S. de Ropp.—p. 481.

London vol. 142 September 17, 1938

- Effects of Be-D Radiations upon *Vicia faba*. M. Nakazumi and K. Murati.—p. 534.
Isotopic Constitution of Potassium in Normal and Tumour Tissue. A. Lasnik and A. K. Brewer.—p. 538.
Active Group of Papain. C. V. Ganapathy and B. N. Sastri.—p. 539.

- Excretion from Leguminous Root Nodules. G. Bond.—p. 539.
British Association Discussions—Supplement:
Significance of Swanscombe Skull.—p. 509.
Ritual.—p. 511.
Animal Locomotion.—p. 513.
Mechanism of Evolution.—p. 514.
Repercussions of Synthetic Organic Chemistry on Biology and Medicine.—p. 524.

Nordisk Medicinsk Tidskrift

Stockholm vol. 16 September 3, 1938

- *Study of Hospital Dietary of Stockholm, with Special Reference to Vitamins. E. B. Salén and M. Öllén-Löfgren.—p. 1367.
Case of Porphyria: Acute Attack after Head Injury. R. Strömme.—p. 1372.
Case of Toxic-reactive Reticulo-endothelial Splenomegaly with Pulmonary Tuberculosis. V. Olsen.—p. 1375.

Hospital Dietary.—The hospital dietary of Stockholm showed a deficiency of vitamins A, B₁, and B₂ as well as of C. Proposals are made for remedying these defects.

Presse Médicale

Paris vol. 46 August 31, 1938

- *New Method for Measuring Haemo-bactericidal Power; Its Practical Applications. Jeanneney, Castanet, and Cator.—p. 1305.

Haemo-bactericidal Power.—The authors describe in detail their technique, which consists essentially in placing known dilutions of a standard organism in contact with measured quantities of citrated blood on a series of slides and observing the effect on the organisms through the microscope. They claim that this method provides a means for estimating the resistance of the body to infections.

Paris vol. 46 September 3, 1938

- *Blue Phlebitis (Phlegmasia Caerulea Dolens). R. Grégoire.—p. 1313.
*Observations on Some Grave Cases of "Pulmonary Embolism." J. Fauvet and A. Monsaignon.—p. 1315.

Blue Phlebitis.—Grégoire describes a case of his own and mentions several others. He considers that the gravity of this condition is not usually sufficiently appreciated, for it is essentially a complicated phlebitis, since the arterial system is involved as well as the venous, so that in addition to the ordinary dangers of embolism the possibility of gangrene due to arterial spasm and arrest of the arterial blood flow may arise.

"Pulmonary Embolism."—The authors describe sixteen cases of "pulmonary embolism" so called, or, as they prefer to regard them, sixteen cases of "dramatic and unexpected post-operative accidents" usually attributed to pulmonary embolism. Of these ten died: three immediately—that is, before treatment of any sort could be applied; four in a few minutes; and three after a longer period, during which various forms of treatment (atropine, morphine, adrenaline, ephedrine, injection of stellate ganglion) had been tried without avail. Six cases were cured, five permanently; the sixth died in coma the day after apparent cure, without any further signs in the lungs.

Proceedings of the Staff Meetings of the Mayo Clinic

Minnesota vol. 13 August 31, 1938

- Regional Enteritis: Roentgenological Manifestations. H. M. Weber.—p. 545.
Regional Enteritis: Diagnosis, Complications, and Medical Suggestions. J. A. Borgen.—p. 550.
Surgical Treatment of Regional Enteritis. C. F. Dixon.—p. 552.
Establishment of "Mayo Foundation House" and its Purpose. W. J. Mayo.—p. 553.
Clinical Use of Neoprontosil (Oral). W. E. Herrell and A. E. Brown.—p. 555.

Minnesota vol. 13 September 7, 1938

- Neoprontosil (Oral) in Treatment of Chronic Ulcerative Colitis. A. E. Brown, W. E. Herrell, and J. A. Borgen.—p. 561.
Transperitoneal Repair of Vesico-vaginal Fistula. J. W. Hubby and J. C. Masson.—p. 565.
Anaesthetic Procedures used at the Mayo Clinic: IV. For Operations on Breast, Chest, and Abdomen. E. B. Tuohy.—p. 570.
Actions of Digitalis and Indications for its Use. F. A. Willis.—p. 572.
Cerebral Manifestations of Digitalis Intoxication. H. L. Smith.—p. 574.
Usual Manifestations of Digitalis Intoxication. T. J. Dry.—p. 575.

Minnesota vol. 13 September 14, 1938

- Acute Gonococcal Perihepatitis. C. S. Hertz.—p. 577.
 Encapsulated Myosarcoma of Female Pelvis. C. F. Dixon and J. L. Deuterman.—p. 581.
 Duplication of Pelvis, Calicles, and Ureter of Right Kidney with Extravesical Inversion of Ectopic Ureter: Heminephrectomy: Case Report. J. A. Herdrick.—p. 584.
 Pulmonary Emboli: Consideration of Clinical Diagnosis and Possibilities for Trendelenburg Operation. K. K. Nygaard.—p. 586.
 Carcinoma of Prostate Gland. J. E. Kahler.—p. 589.

Minnesota vol. 13 September 21, 1938

- Atypical Mastoiditis: Case in which Persistent Pain was Only Symptom. P. N. Pastore and B. E. Hempstead.—p. 593.
 Malignant Cells in Serous Effusions. J. R. McDonald and A. C. Breders.—p. 596.
 Experimental Production of Chronic Obstructive Pulmonary Emphysema in Animals. H. E. Hershaw.—p. 599.
 Some Recent Advances in Knowledge of Vitamins. H. R. Butt.—p. 601.

Schweizerische Medizinische Wochenschrift

Basle vol. 63 August 27, 1938

- Labour in Cases of Contracted Pelvis. H. Wespi.—p. 1005.
 Organization of Scientific Balneology. O. Veraguth.—p. 1012.
 Schiller-Christian Disease. M. Eisner.—p. 1014.
 Drug Sensitivity. N. Markoff.—p. 1016.

Basle vol. 63 September 3, 1938

- Pathogenesis of Neurasthenia according to Janet's Theories: I. L. Schwartz.—p. 1025.
 Combination of Vitamin C with Heudine in Treatment of Gastro-duodenal Ulcer. M. Demole and P. Guye.—p. 1028.
 Benzodrine in Treatment of Post-encephalitic Parkinsonism. M. Dressler.—p. 1031.
 Cautation of Cyanosis. K. Lenzgenhaert.—p. 1032.
 Advances in Diagnosis of Gonorrhea in Female Urogenital Organs. M. Spitzwe.—p. 1038.

Science

New York vol. 88 September 2, 1938

- Question of Seasonal Sterility among Eskimos. W. L. Whitaker.—p. 214.
 Rod-cone Dark Adaptation and Vitamin A. S. Hecht and J. Mandelbaum.—p. 219.
 New Observations on Vitamin K Deficiency of the Chick. S. Ambacher.—p. 221.

New York vol. 88 September 9, 1938

- Scientific Approaches to Study of Human Mind. A. Gesell.—p. 225.
 Isolation of Urasil from Liver. D. W. Woolley.—p. 239.
 Induction by Fast Neutrons of Mutations in Antirrhinum and Mycosis. R. M. Chatters.—p. 241.

- Reversible Inactivation of Phosphatase. M. Kiese and A. B. Hastings.—p. 242.
 Isolation of Crystalline Compound with Vitamin K Activity. S. A. Itayer, D. W. MacCorquodale, S. B. Binkley, and E. A. Dury.—p. 243.

New York vol. 88 September 16, 1938

- Animal Experimentation in Biology and Medicine. A. J. Carlson.—p. 245.
 Capillary Polysaccharide of Type XIV Pneumococcus and its Relationship to Specific Substances of Human Blood. C. L. Heagland, P. B. Eichen, and W. F. Goebel.—p. 261.
 Ultra-violet Absorption Spectrum of Catalase. K. G. Stern and G. I. Lavin.—p. 263.
 Antizemic Stability of Western Equine Encephalomyelitis Virus. C. E. Beck and R. W. G. Wyckoff.—p. 264.

South African Medical Journal

Capetown vol. 12 August 27, 1938

- Pancreatitis. A. Radford.—p. 555.
 Pellagra. L. R. Brumberg.—p. 557.
 Malinal Pyrotherapy for Syphilis Disease of Central Nervous System. D. S. Huskisson.—p. 559.
 Insulin Therapy. J. A. Higgs.—p. 590.
 Colicospasm. R. Schaffer.—p. 594.

Capetown vol. 12 September 10, 1938

- *Rickettsioses of South Africa. A. Pyper and C. G. Crocker.—p. 613.
 Measles. S. Stretcher. G. A. Park Reiss.—p. 620.
 Onchocerca Form of Purpura occurring in Tropical Africa. J. Gear.—p. 632.
 Bantu Syphilis. S. W. Humphries.—p. 637.
 Amaas. G. G. Hay.—p. 639.
 Position of General Hospitals in South African Health Organization. H. S. Gear.—p. 642.
 Note on *Anopheles gambiae* Giles and *Anopheles coustani* var. *tenetibus* Denitz from Southern Africa. B. de Meillon.—p. 648.
 Heredity in Nervous and Mental Disease. S. Berman.—p. 651.

Rickettsioses in South Africa.—This is an important paper dealing mainly with the serological characteristics of the three South African rickettsioses (tick-bite fever, sporadic typhus, and louse typhus). There is evidence that these three diseases form a group by themselves, having closer affinities with one another than with the rickettsioses of other countries.

Ugeskrift for Laeger

Copenhagen vol. 100 September 1, 1938

- *Is Primary Epidemic Alveolar Pneumonia Identical with Psittacosis? R. K. Rasmussen.—p. 559.
 Case of Paroxysmal Myoplegia. J. E. Poulsen.—p. 568.
 Case of Plummer-Vinson's Syndrome. H. Vildebeck.—p. 1001.

Pneumonia and Psittacosis.—Rasmussen is inclined to answer this question in the affirmative because of the many clinical and epidemiological similarities he has found.

SPECIAL JOURNALS

American Journal of Surgery

New York vol. 41 September, 1938

- Supravaginal Hysterectomy: Review of 535 Consecutive Personal Cases. W. T. Dammreuther.—p. 373.
 *Intradermal Chancroid Bacillary Antigen Test as Aid in Differential Diagnosis of Venereal Bubo. R. B. Greenblatt and E. S. Sanderson.—p. 384.
 Rhythmic Surgery. W. H. Lawrence and C. H. Berry.—p. 393.
 Effect of Ether and Sodium Amytal Anaesthesia on Blood. P. W. Searles.—p. 399.
 Report on New and Effective Cast Material. T. H. Peterson.—p. 405.
 Miller-Abbott Double Lumen Tube in Intestinal Obstruction: Preliminary Report. R. A. Wise.—p. 412.
 Effect of Perforation on Peptic Ulcer Results. E. L. Eliason and G. M. Thilgen.—p. 419.
 Perforated Peptic Ulcer: Analysis of 100 Cases. L. S. Fallis.—p. 427.
 Surgery of Rectal Diseases by Electrothermic Methods: 1,100 Cases. D. Warshaw.—p. 437.
 Urinary Antiseptics, with Special Reference to Clinical Study of Benzochrome. A. Decker and M. Texon.—p. 449.
 Heart Disease in Pregnancy: Obstetrical Aspects. T. R. Turino and A. T. Antony.—p. 453.
 Advances in Rapid Tissue Section Methods: Evaluation of More Recently Developed Techniques. W. E. B. Hall.—p. 458.
 Experimental Investigation of Evisceration. J. Kross.—p. 462.

- Surgical Treatment of Chylous Mesenteric Cyst by Marsupialization. M. A. Slocum.—p. 454.
 Organic Brain Disease and Gastric Ulcer. J. K. Miller.—p. 474.
 Dressing for Reduction and Fixation of Fractures of Radius and Ulna. V. Carabba.—p. 480.
 Neuroblastoma of Small Intestine. S. A. Ritter.—p. 486.
 Post-operative Evisceration. H. Bellin.—p. 484.
 Intestinal Obstruction Following Webster-Baldy Operation for Uterine Retroversion. L. E. Arnold.—p. 488.
 Surgical Treatment of Delayed Ulnar Neuritis. J. R. Regan.—p. 501.
 Repair of Hernia with Ribbon-gut: Twenty-six Cases. G. A. Haase.—p. 509.
 Malignant Fatty Tumours of Retroperitoneal Region: Two Cases. C. W. McLaughlin and J. C. Sharpe.—p. 512.
 Capillary and Cavernous Haemangioma of Spleen (Telangioma): Case Report. I. Akakoyunlu.—p. 519.
 Special Article.—Further Studies of Krukenberg Tumour of Ovary. J. Jarcho.—p. 537.

Intradermal Chancroid Bacillary Antigen Test.—This test is of value only if repeated negative results are obtained, thus excluding chancroid disease. Since infections are often multiple, a positive reaction does not exclude a second type of infection, and the test should therefore be combined with other routine investigations, such as the Wassermann and Frei reactions.

Archiv für Ophthalmologie

Berlin vol. 139 September, 1938

- Studies with Neutral-light Testing Apparatus. A. Tschermak-Seysenegg.—p. 181.
 Mixing of Spectral Light with Double Slit System with Double Wavelengths. A. Tschermak-Seysenegg.—p. 232.
 Photokinetic Theory of Shadow Test. K. E. Haass.—p. 247.
 Sodium Light in Examination of Malingers. A. Bakker.—p. 267.
 Unusual Pupillary Reactions. A. Bakker.—p. 273.
 Biology in Ophthalmology. F. Weckert.—p. 280.
 Experimental and Clinical Studies of Dental Focal Sepsis. P. Chojnacki.—p. 288.
 Changes induced by Ultra-violet Light in Extracted Lenses of Cattle. E. Zeiss.—p. 301.
 Plastic Conjunctival Operation for Symblepharon in Pemphigus. R. Friede.—p. 323.
 Chalazion Suture. R. Friede.—p. 325.
 Clinical and Pathological Aspects of Non-myopic Detachments. O. Kurz.—p. 326.
 Crystalline Clouds in Clear Senile Lens Nucleus. E. Partsch.—p. 355.
 Nystagmus. J. Ohm.—p. 367.
 Heredity in Myopia. L. Paul.—p. 378.
 Late Prognosis in Operations for Iridocyclitis. A. Miklos.—p. 403.

Archives of Dermatology and Syphilology

Chicago vol. 38 September, 1938

- Value and Limitations of Biopsy in Dermatology. H. Montgomery.—p. 329.
 *Treatment of Pruritus Ani by Tattoo with Mercuric Sulphide. E. Hollander.—p. 337.
 *Active Sweat Glands. Method for their Study. H. M. Buley.—p. 340.
 *Dermatitis and Stomatitis from Mercury of Amalgam Fillings. E. F. Traub and R. H. Holmes.—p. 349.
 Extragenital Granuloma Inguinale. R. Greenblatt, R. Torpin, and E. R. Pund.—p. 358.
 Trichostasis Spinulosa. E. F. Corson.—p. 363.
 Dermatophytosis of Feet: Sources and Methods of Prevention of Reinfection. D. A. Berberian.—p. 367.
 Sudoriparous Glands: II, Apocrine Glands. S. C. Way and A. Memmesheimer.—p. 373.
 Mouse Brain Lymphogranuloma Venereum Antigen: Clinical Experience at Cleveland City Hospital. G. W. Binkley and W. R. Love, with W. F. Schwartz, J. M. Hitch, jun., and G. A. Margard.—p. 383.
 Dermatological Symptoms of Vitamin Deficiencies. H. Goodman.—p. 389.
 Lichen Planus of Lips. D. W. Montgomery.—p. 401.
 "Acne Mixed": Undenatured Bacterial Antigen in Treatment of Acne Vulgaris. M. J. Castello and J. C. Washburn.—p. 405.
 Dermatitis Gangraenosa Infantum. M. L. Blitt, C. Stulik, and A. Nachman.—p. 407.
 Relapsing, Febrile, Nodular, Non-suppurative Panniculitis (Weber-Christian Disease): Two Cases. L. J. Cummins and W. F. Lever.—p. 415.
 Reliable Method of Staining *Spirochaeta pallida* in Smears. A. A. Kraffan.—p. 427.
 Folliculitis Naris Perforans: Case Report. R. B. Palmer.—p. 429.

Pruritus Ani.—E. Hollander reports a new treatment of primary pruritus ani. He states that the idea is based upon the observation that cutaneous syphilis did not involve portions of the skin that had been tattooed red with mercuric sulphide (cinnabar). The technique is fully described. It involves cleansing of the skin with metaphen, anaesthesia with procaine hydrochloride, antiseptic with phenolated petrolatum, and tattooing of cinnabar suspended in water into the skin. Twenty-six cases have benefited, two are well after one year, and the treatment has been used with success in cases of pruritus of vulva and scrotum.

Active Sweat Glands.—The secretion and function of sweat, its association with general bodily manifestations, and methods of investigation are reviewed by H. M. Buley. The difficulty of catheterization of a single sweat gland, and of deducing much from this when successful, is stressed. A small investigation chamber is described, and the results of microscopical observation of sweat production from the pores of the skin of the fingers are discussed. It appears that sweat is discharged on to the skin at irregular intervals, possibly by muscular contractions, and that a drop of a certain size must form before expulsion takes place. Too small an amount of fluid cannot be discharged and is reabsorbed into the glandular ducts by peristaltic movements.

Dermatitis and Stomatitis from Mercury Amalgam.—Traub and Holmes report two patients affected by the mercury of

amalgam fillings and indicate that, unless cheap copper amalgams are used, there is very little risk of such a stomatitis being produced by mercury in the mouth as a result of solution or vaporization from the amalgam. The authors are of the opinion that the condition is a contact dermatitis or stomatitis and is not due to the absorption of mercury. They believe that this contact occurs when the dentist squeezes out any excess of mercury while kneading the material into the cavity, the reaction following after a few hours and being localized at the contact areas. In one case the patient was also sensitive to mercurial ointment applied to the skin. The literature on the subject is reviewed, especially the observations of Fleischmann, who conducted a medical centre in Berlin specially for the study of cases of this kind. The authors are of the opinion that mercury poisoning from amalgam fillings is more likely to be detected by examination of the urine than by examination of the stools, but point out that many apparently normal persons excrete mercury in the urine.

Archives of Disease in Childhood

London vol. 13 September, 1938

- Wilms's Embryoma. R. O. Stern and G. H. News.—p. 193.
 Oesophagitis in Infancy. J. H. Ebbs.—p. 211.
 Symmetrical Degeneration of Neostriatum in Chinese Infants. W. J. C. Verhaar.—p. 225.
 *Clinical Ascariasis in Children. C. D. Williams.—p. 235.
 Precocious Puberty with Report on Case of Pincal Syndrome. A. V. Neale.—p. 241.
 Congenital Pyloric Stenosis in First and Second Cousins. A. E. Cockayne.—p. 249.
 Nutritional Oedema in Children in Egypt. H. Shukrt, M. A. Mahdi, and A. A. El Gholmy.—p. 254.
 Spontaneous Subarachnoid Haemorrhage in Children. H. G. Miller.—p. 253.
 Congenital Haemolytic Anaemia with Normal Fragility of Red Blood Cells. E. Schiff.—p. 264.
 *Hydatid Cyst of Spinal Canal successfully treated by Operation. J. S. Y. Rogers and G. R. Tudhope.—p. 269.

Ascariasis.—Williams points out that this condition is practically world-wide in distribution and abounds where sanitation is primitive and where there is a low standard of living. Infection may take place at any time after birth. The diagnosis can only be made by finding the worms or their ova in the stools. In a small baby the symptoms are generally those of enteritis, as the alimentary tract is more irritable than is the case in older children, in whom as a rule the symptoms are vague. It would seem that ascariasis may eventually produce an immunity, so that adults may harbour many worms without obvious inconvenience. Oil of chenopodium is the safest and most effective drug for children and is given with a fluid diet and magnesium sulphate.

Hydatid Cyst of Spinal Cord.—This is a description of a child, aged 9, who suffered from constant pains and weakness in the lower limbs. An x-ray examination after the injection of lipiodol into the spinal column showed a block at the level of the first lumbar vertebra. At operation a solitary hydatid cyst was removed and complete recovery followed.

Archives of Surgery

Chicago vol. 37 September, 1938

- *Phantom Limb Pain: Ten Cases treated by Injections of Procaine Hydrochloride near Thoracic Sympathetic Ganglia. W. K. Livingston.—p. 353.
 Osteomyelitis of Pelvic Girdle. A. O. Wilensky.—p. 371.
 *Studies of Hepatic Function by Quick Hippuric Acid Test: I, Biliary and Hepatic Disease; II, Thyroid Disease; III, Various Surgical States. F. F. Boyce and E. M. McFetridge.—p. 401.
 *Treatment of Intractable Bronchial Asthma by Bilateral Resection of Posterior Pulmonary Plexus. W. F. Rienhoff, jun., and L. N. Gay.—p. 456.
 Behaviour of Joint Cartilage in Late Rickets: Contribution to Question of Atrophy of Cartilage. E. Freund.—p. 470.
 Treatment of Post-operative Parathyroid Insufficiency with Dissolved Calcium Lactate. S. J. Wilson.—p. 490.
 Mechanical Intestinal Obstruction complicating Pelvic Inflammatory Disease. M. H. Levine and G. Blinick.—p. 498.
 Tuberculosis of Stomach. O. T. Clagett and W. Walters.—p. 505.

Phantom Limb Pain.—This is a description of ten cases in which the painful sensations of severe cold and muscular cramps in the ablated limb had been relieved for varying

periods by the injection of procaine hydrochloride in the region of the stellate and upper thoracic sympathetic ganglia.

Hepatic Function.—The value and limitations of the various tests for hepatic function are discussed. Evidence is advanced of the benefit resulting from dextrose therapy as a pre- and post-operative measure in patients showing impaired hepatic function. The close relationship between hepatic and renal function is emphasized. From their observations the authors conclude that post-operative thyroid crisis is associated with liver failure. The routine post-operative administration of dextrose to replace glycogen depletion, combined with lecithin if repeated sugar estimations show that the dextrose is not being absorbed, reduces the mortality from this cause. Adequate oxygenation, which can be increased by the direct administration of oxygen or by transfusion post-operatively, is also beneficial in relation to liver function.

Intractable Bronchial Asthma.—Improvement has been obtained in eleven cases, which before bilateral resection of the posterior pulmonary plexus had persisted in a condition of status asthmaticus despite thorough medical treatment and were therefore totally incapacitated. Operation is considered justifiable as a means of ameliorating the symptoms of patients in this group, and results in a reduction of the amount of sputum and a decrease in the degree of emphysema, although minor spasmodic attacks—which can be controlled by ephedrine—occur from time to time.

British Journal of Dermatology and Syphilis

London vol. 52 August-September, 1938

- *Recent Advances in Leprosy and Methods Adopted for Dealing with Problems in France. C. Flaudin.—p. 359.
- *Aetiology of Pemphigus Vulgaris and Dermatitis Herpetiformis (Dühring's Disease): Clinical Experimental Study. A. Dostrovsky, I. Gurevitch, and H. Ungar.—p. 412.
- *New Technique for Epilation of Scalp. E. H. Molesworth and H. L. Brose.—p. 435.
- Four-area Method in X-Ray Epilation of Scalp. S. Cochrane Shanks.—p. 440.
- *Match and Match-box Dermatitis. R. Klaber.—p. 451.

Leprosy.—Epidemiology, contagiousness, and early diagnosis by clinical observation and by a chaulmoogra oil intradermal injection test are discussed. The allergic factor in the disease and the importance of finding the true bacillus are stressed, and mention is made of the value of incision of the lobe of the ear in the search for bacilli and of the intravenous injection of methylene-blue as showing other parts of the skin which are heavily infected. The author recommends the intravenous injection of a colloidal suspension of a cholesterol chaulmoogra compound, the administration of which can even be continued during a feverish attack. In conclusion, he appeals for better education of the public and of lepers on leprosy in all its aspects.

Pemphigus Vulgaris and Dermatitis Herpetiformis.—This is a review of the aetiology, incubation period, and period of development in pemphigus and dermatitis herpetiformis. The authors describe their technique for injecting vesicular contents and extracts of vesicular wall into the cisterna, brains, and veins of rabbits. The symptoms of the resulting disease and those of simple brain injury in rabbits are described. The authors emphasize the difference between spontaneous encephalitis in rabbits and the disease affecting the rabbits they injected, the difficulty in correlating different results of animal experiments with apparently similar cases, and the possibility that the filter-passing virus producing the positive results in their cases is present in 43 per cent. of cases of infection.

Epilation of Scalp.—Molesworth and Brose report the results of experiments to measure the accuracy of the Adamson-Kienböck five-point method of x-ray epilation, and show that there is an error of plus or minus 20 per cent. They suggest a method based on the results of experiments with a skull on a rotating plate exposed to x rays; the patient sits on a revolving plate with the head in a rest, so that the occipital

and frontal centres of the old method lie in a horizontal plane and the vertex is the centre of rotation.

Match and Match-box Dermatitis.—The author discusses the chemistry, history, and geographical aspects of match-box dermatitis. He reports the results of patch tests on himself and another distinguished dermatologist, showing that the irritant is phosphorus sesquisulphide (P₄S₃) combined with heat, humidity, and other factors—hypersensitivity, hyperhidrosis, and handling the substance. He indicates that the areas of election are on the thighs near the pockets and on the fingers and thenar eminences, and that there is often a spread to the face and eyelids.

British Journal of Surgery

Bristol vol. 25 July, 1938

- Trephiners of Blanche Bay, New Britain: Their Instruments and Methods. I. Brodsky.—p. 1.
- *Intrathoracic Reconstruction of Lower Oesophagus. Note on an Unsuccessful Case. W. H. Osullivan.—p. 10.
- *Pathology and Treatment of Recurrent Dislocation of Shoulder-joint. A. S. Blomfield Bankart.—p. 23.
- Primary Actinomycosis of Breast. P. N. Ray and B. P. Tribedi.—p. 30.
- *Gastroscopic Appearances in Health and Disease. J. H. Hughes.—p. 35.
- Pleuro-oesophageal Fistula in Empyema. H. Blaustein.—p. 45.
- Riedel's Thyroiditis and its Treatment by Radium. J. Mill Renton, Alexander A. Charters, and J. F. Hezard.—p. 54.
- *Acute Infective Osteomyelitis of Spine. P. Turner.—p. 71.
- Intra-arterial Glycine Treatment of Elephantiasis. C. Bowersman.—p. 76.
- Plasmocytoma of Ischiomargin Bone. J. C. Leedham-Green, J. F. Bromley and J. Raban.—p. 99.
- Nerve to Extensor Carpi Radialis Brevis. C. R. Salisbury.—p. 95.
- *Urinary Calculi developing in Recumbent Patients. I. N. Pyrah and F. S. Foxworth.—p. 97.
- *Periodicity in Cancer and Other Neoplastic Diseases (450 Cases). J. H. Douglas-Webster.—p. 113.
- *Anterior Basal Meningioma. W. R. Henderson.—p. 124.
- Case of Oesophageal Polypus accompanied by Tumour of Accessory Thyroid Gland. E. C. Chubb.—p. 193.

Reconstruction of Lower Oesophagus.—A new method of anastomosis is described which avoids suture of the oesophageal wall and minimizes the risk of post-operative leakage. The oesophagus—with a flanged rubber tube inside it—is passed through an opening in the stomach wall, which is then invaginated around the outer surface of the oesophagus above the flange. The tube is brought to the surface through a gastrotomy opening and later removed.

Recurrent Dislocation of the Shoulder.—A description of the pathological basis for the author's operation, and an illustrated description of the operative technique, are given.

Gastroscopic Appearances.—This communication consists almost entirely of a series of useful illustrations of the normal and pathological appearances obtained by gastroscopy.

Infective Osteomyelitis of Spine.—This is an analysis of twelve cases. Attention is drawn to the small amount of sequestration in the type of disease affecting the neural circles and laminae and transverse processes, and the risks of misdiagnosis in this type owing to the negative x-ray appearances in the early stages, the small focus of bone involved, and the absence of new bone formation.

Urinary Calculi in Recumbency.—In aseptic cases these calculi may often be caused to fragment and disappear by the combined use of active movements and hydrotherapy together with an acidogenic diet.

Periodicity in Cancer.—Periodicity in recurrences has been traced in 282 cases of carcinoma and in thirty-four cases of sarcoma. The most usual term is eight months, though many half periods have been seen in sarcoma and Hodgkin's disease. Should a latent period occur, recurrence has followed as if the period had been active. Many patients have died at or close to a periodical maximum. It is suggested that these observations are consistent with the theory that a virus plays the part of a cell stimulant.

Anterior Basal Meningioma.—This is a description of the syndrome due to meningioma arising from the olfactory groove, the tuberculum sellae, and the inner or outer part of

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(reported in "The Analyst," 1936, Lxi, 310.)

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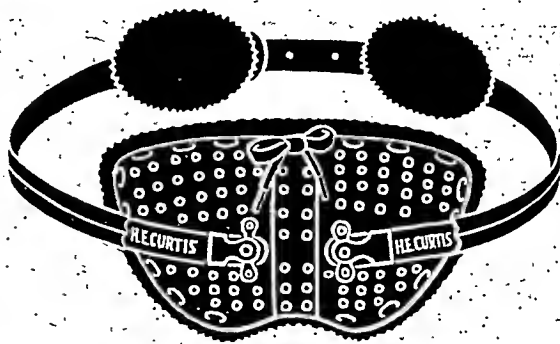
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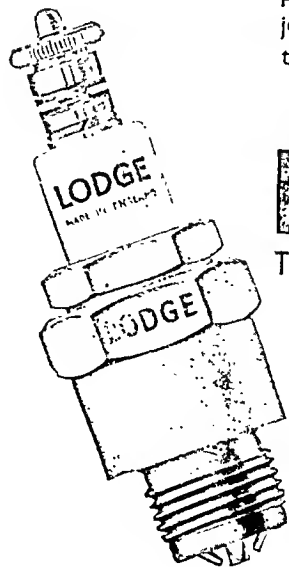
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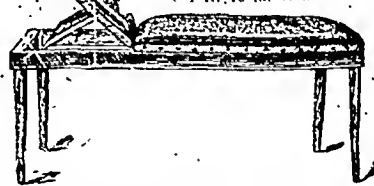
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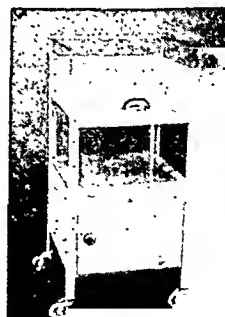
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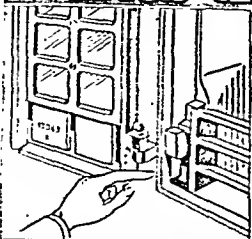
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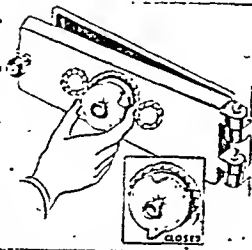
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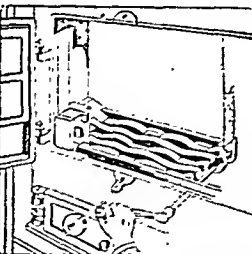
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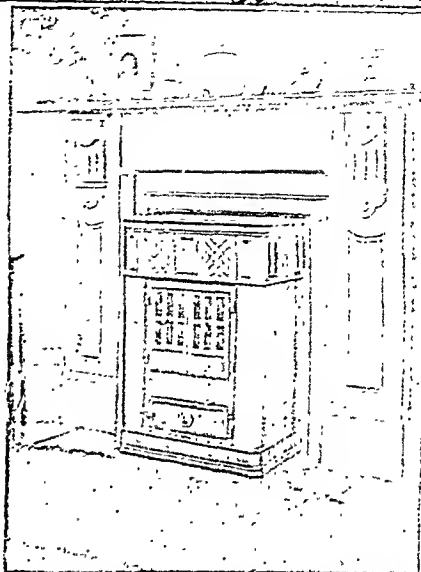
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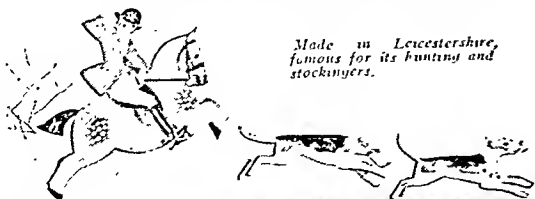
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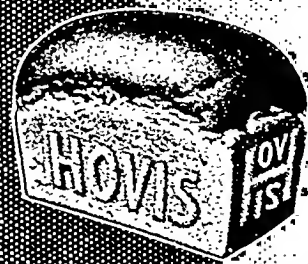
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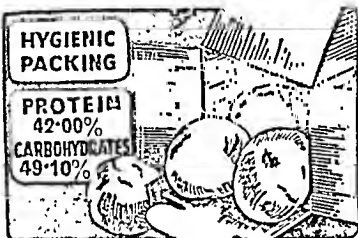
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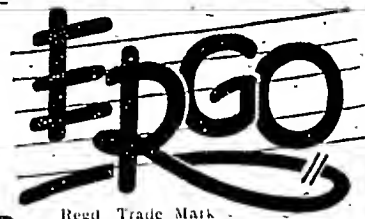


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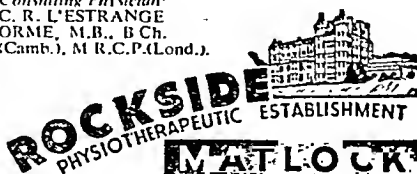
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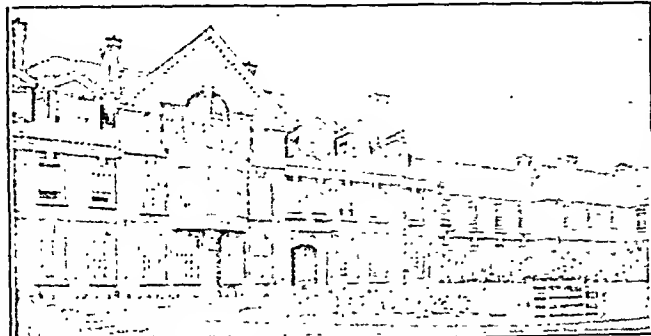
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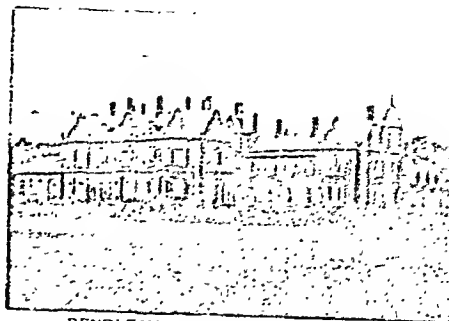
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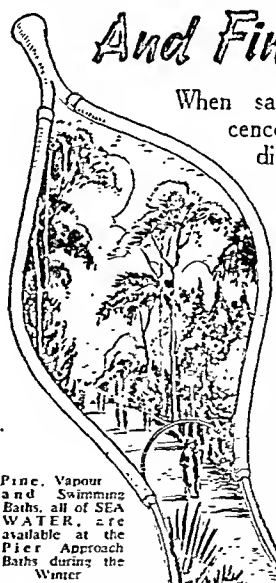
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Applications are invited for the post of ASSISTANT LECTURER AND DEMONSTRATOR in the Department of Parasitology at the above School.

Candidates should be graduates of a British or Colonial university, and must hold a medical qualification or a good degree in zoology.

Initial salary £300-£400 (according to the selected candidate's qualifications).

Applications should be made not later than December 31st, 1938, to the Secretary, School of Tropical Medicine, Pembroke Place, Liverpool, 3, from whom further particulars may be obtained.

RESIDENT PUPIL REQUIRED BY COACH (Clergyman). Triple first-class Honours. All examinations, including school certificate. Best of food and good sports facilities. Cosy world country.—Address, No. 427, B.M.A. House, Tavistock Square, W.C.1.

COACHING IN MEDICINE FOR ALL FINALs, by Physician, M.D., M.R.C.P. Recent successes. Personal tuition.—Address, No. 402, B.M.A. House, Tavistock Square, W.C.1.

MIDDLESBROUGH EDUCATION COMMITTEE

APPOINTMENT OF SENIOR ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly qualified men who have had experience of School Medical work, for the post of Senior Assistant School Medical Officer in connexion with the Medical Inspection and Treatment of School Children, and such other duties as may be required by the Education Committee. The person appointed will be responsible to the School Medical Officer.

Commencing salary £700 per annum, rising by annual increments of £25 to £750 per annum, thence by two annual increments of £50 to a maximum salary of £850 per annum.

The successful candidate will be required to devote his whole time to the duties of the office. The appointment will be subject to two calendar months' notice on either side, such notice dating from the last day of any calendar month.

Applicants must have had experience in the work of the School Medical Service and preference will be given to candidates who have had experience of Refraction work and who are recognized by the Board of Education in connexion with certification under the Mental Deficiency and Other Acts.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and to the successful candidate passing satisfactorily a medical examination.

Forms of application may be obtained from the Director of Education on receipt of a stamped addressed foolscap envelope, and these should be returned to the Director of Education, Education Offices, Middlesbrough, not later than Saturday, November 26th, 1938.

Candidates in any form will disqualify themselves. PRESTON KITCHEN, Middlesbrough Town Clerk.

November 7th, 1938.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL

DEPARTMENT OF ANATOMY

Applications are invited for the whole-time post of SENIOR DEMONSTRATOR OF ANATOMY, to be received by the Dean of the Medical School on or before Saturday, November 26th, 1938.

Salary £400 per annum, with superannuation.



Appointments for Medical Officers in the **ROYAL AIR FORCE**

Medical men are invited to apply for Short Service Commissions in the Royal Air Force. Candidates must be registered under the Medical Acts and be not more than 31 years of age on entry.

The period of service is 3 years—extendible to 5 years. A gratuity of £400 or £1,000 is payable at the termination of 3 or 5 years respectively. Permanent commissions are awarded in a number of cases. These offer a pensionable career with the opportunity of extra leave on full pay for specialised study. Applicants who hold—or are likely to hold—post-graduate appointments in civil hospitals may, on joining the Royal Air Force, be seconded until the termination of their appointments (for a period not exceeding one year). An antedate of commission up to twelve months is allowed for appointments held at approved hospitals.

*Fuller information can be obtained from The Director
of Medical Services, Air Ministry, Kingsway, London.*

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in January, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list, and periods of unemployed or half pay are very rare. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than
November 21st, 1938.

RECRUITMENT OF EUROPEAN OFFICERS

Applications should reach the India Office as soon as possible.
INDIA OFFICE. NOVEMBER, 1938.

GENERAL POST OFFICE. HEADQUARTERS MEDICAL BRANCH (Male Staff)

There is a vacancy for a MALE ASSISTANT MEDICAL OFFICER in the Headquarters Medical Branch. The appointment is pensionable and carries a salary which commences at £500 a year, and rises by annual increments of £25 to a maximum of £800 a year. The rates of salary are liable to review.

Each candidate must be a fully qualified medical practitioner, a natural-born British subject and the child of a person who is or was at the time of birth a British subject. Preference will be given to candidates under 30 who have held one or more Hospital appointments. The successful candidate will not be allowed to engage in private practice in addition to his official duties.

Applications, stating qualifications, age, etc., with copies of any recent testimonials, should be sent to the Chief Medical Officer, General Post Office, London, E.C.1, not later than December 3rd, 1938.

Political influence should not be sought in support of applications; it would prejudice rather than assist the candidature.

The Male Medical Staff at Headquarters consists at present of a Chief Medical Officer, a Second Medical Officer and four Assistant Medical Officers. Information as to the duties can be obtained from the Chief Medical Officer.

Candidates may be required to attend for personal interview in London at their own expense.

HULL CORPORATION HEALTH DEPARTMENT

ANLBY ROAD INSTITUTION (HOSPITAL)
(580 Beds)

ASSISTANT MEDICAL OFFICER

Applications are invited for the above appointment from registered medical practitioners, of either sex, under the age of 40 years.

Salary £350 per annum, rising by annual increments of £25 to £450 per annum, together with an allowance at the rate of £150 per annum for board and residence outside the hospital.

The hospital is equipped with modern X-ray and Radium Departments.

The appointment will be designated under the Local Government and Other Officers' Superannuation Act 1922.

Applications, on forms to be obtained from the undersigned, are returnable not later than 10 a.m. on Monday, December 5th, 1938.

NICOLAS GEBBIE, M.D.,
Health Department, Medical Officer of Health,
Guildhall, Hull,
November 14th, 1938.

ST. MARYLBONE BOROUGH COUNCIL. APPOINTMENT OF TUBERCULOSIS OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH

Applications are invited from duly qualified and registered Medical Practitioners for the whole-time appointment of Tuberculosis Officer and Assistant Medical Officer of Health, at a salary of £800 per annum rising, on approved service, by annual increments of £25 to £1,000 per annum.

Candidates should not exceed 40 years of age.

Form of application and further particulars and conditions of appointment can be obtained from the Medical Officer of Health, Town Hall, St. Marylebone, W.1. Applications on the official form must be addressed to "The Town Clerk, Town Hall, St. Marylebone, W.1." and delivered in sealed envelopes marked "Tuberculosis Officer" not later than December 10th, 1938.

The appointment will be subject to satisfactory medical examination and production of birth certificate.

The Council's By-laws provide that canvassing shall disqualify an applicant.

WEST SUFFOLK COUNTY COUNCIL ASSISTANT COUNTY MEDICAL OFFICER AND ASSISTANT SCHOOL MEDICAL OFFICER

Applications are invited (from men only) for the above whole-time appointments, which includes duties in School Medical Inspection, Maternity and Child Welfare, Tuberculosis, Venereal Diseases, etc. Applicants must be registered Medical Practitioners and not exceed 35 years of age holding the Diploma in Public Health. Salary £500 per annum rising by annual increments of £25 to a maximum of £700 plus travelling allowance.

Particulars of appointment and forms of application may be obtained from the undersigned, by whom applications, accompanied by copies of not more than three recent testimonials, must be received not later than December 5th, 1938. Canvassing in any form direct or indirect, will disqualify.

I. G. H. MUNSEY,
Shire Hall, Clerk of the County Council,
Bury St. Edmunds,
November 19th 1938.

COUNTY OF BRECON. ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of Assistant (male or female) Medical Officer for the County of Brecon, at a commencing salary of £500 per annum, rising by annual increments of £50 to a maximum of £700 per annum, with travelling and subsistence allowances according to the County Scale.

Applicants must be registered Medical Practitioners with at least three years' practical experience in their profession, competent to assist the County Medical Officer in the general administration of his Department, particularly in Ante-natal Clinic, Refraction work, examination of Blind Persons under the Blind Persons Acts, School Medical Inspection and Maternity and Child Welfare work, and must either possess special experience of practical midwifery and ante-natal work or have, prior to April 1st, 1930, held the appointment of Medical Officer of an Ante-natal Clinic with the approval of the Minister of Health.

Knowledge of Welsh desirable, and ability to drive a car essential.

The person appointed must be prepared to reside in or near to Brecon, will be under the direction of the County Medical Officer of Health, will be required to perform such duties as the Council may direct, and to devote the whole of his or her time to the duties.

The appointment will be terminable by three calendar months' notice on either side.

Canvassing members of the Council, either directly or indirectly, will be a disqualification.

The post is designated as an established post under the Local Government and Other Officers' Superannuation Act, 1922.

Applications must be made on forms which can be obtained from the undersigned, accompanied by copies of three recent testimonials, and must be received by me not later than November 25th, 1938.

W. F. W. BETENSON,
County Medical Officer of Health
County Health Office,
The Watton, Brecon
October 29th, 1938.

BOROUGH OF SALE. MEDICAL OFFICER OF HEALTH

The Council for the Borough of Sale invite applications from gentlemen holding the necessary qualifications for the position of Medical Officer of Health for their District.

The duties appertaining to the office will be, in all respects, those set out in Article 17 of the Sanitary Officers (Outside London) Regulations, 1935, and applicants should be registered in the Medical Register as holders of Diplomas in Sanitary Science, Public Health, or State Medicine.

The successful applicant will be required to devote the whole of his time to the duties of the office, which will include attendance at the County Child Welfare Centre, the fees in respect of which will be received by and paid into the funds of the Council; will be restricted from engaging in private practice, and will be required to enter into an agreement with the Corporation.

The inclusive salary will be at the rate of £800 per annum, rising by annual increments of £25 to a maximum of £900 per annum, together with a car allowance of £50 per annum.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, accompanied by copies of three recent testimonials, should be addressed to the undersigned, and should reach him not later than Monday, December 5th, 1938.

Town Hall, J. W. L. FOULKES,
Sale, Town Clerk.
November 15th, 1938.

CITY OF BIRMINGHAM. ASSISTANT MEDICAL OFFICER OF HEALTH.

The Public Health and Maternity and Child Welfare Committee invite applications for the post of whole-time Assistant Medical Officer of Health for general, and mainly administrative, public health duties. Candidates must be qualified medical practitioners and hold a Diploma in Public Health.

The successful candidate will be required to pass an approved medical examination, to contribute to the superannuation scheme, established under the Local Government and Other Officers' Superannuation Act, 1922, as amended by Section 82 of the Birmingham Corporation Act, 1935—Annuities for Widows—and, if under 30 years of age to join the Birmingham Municipal Officers' Widows and Orphans' Pensions Scheme.

The appointment will be terminable by one month's notice on either side. Salary £600 per annum, rising by £25 annually to £600.

Applications, endorsed "Assistant Medical Officer of Health and accompanied by copies of three recent testimonials, to be made on a form to be obtained from the Medical Officer of Health, The Council House, Birmingham, 3, and returned to him by Saturday, November 26th, 1938.

Canvassing will disqualify.
F. H. C. WILTSHIRE,
Town Clerk.

COUNTY BOROUGH OF BARROW-IN-FURNESS

Applications are invited for the appointment of MEDICAL OFFICER OF HEALTH and FURTHER MEDICAL OFFICER of the Borough, subject to the provisions of the Sanitary Officers' Order, 1926 and the Local Government Act, 1933.

Candidates must not be more than 42 years of age.

The person appointed will be required to perform all the duties of a Medical Officer of Health under relevant Acts and Orders, to act as School Medical Officer for the Borough, Administrative Tuberculosis Officer, and Superintendent of the work of the Maternity and Child Welfare Service. He will also be required to act as Medical Superintendent of the Devonshire Road Isolation and Tuberculosis Hospital.

The person appointed must reside within the Borough, devote his whole time to the duties of the office, and not engage in private practice.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922. The successful candidate will be required to pass a medical examination.

The salary to cover all duties will commence at the rate of £900 per annum, rising, subject to satisfactory service, by annual increments of £50 to a maximum of £1,050 per annum. A motor-car allowance of £50 per annum will be granted.

Applications, endorsed "Medical Officer of Health," stating age, qualifications, and experience, and accompanied by copies of not more than three recent testimonials, should reach the undersigned not later than Wednesday, November 23rd, 1938.

Canvassing, directly or indirectly, is prohibited and will result in disqualification.

Town Hall, W. LAWRENCE ALLEN,
Barrow-in-Furness, Town Clerk

GUILDFORD RURAL, HAMBLEDON RURAL, AND HASLEMERE URBAN DISTRICT COUNCILS.

APPOINTMENT OF TEMPORARY ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from registered Medical Practitioners for the appointment as Temporary Assistant Medical Officer of Health to the Guildford Rural, Hambledon Rural, and Haslemere Urban District Councils.

The appointment will be for a period of six months only, and will be subject to one month's notice on either side at any time.

The salary will be £250 for the six months, plus £75 for this period for travelling expenses.

The duties of the appointment will be full time, and under the direction of the Medical Officer of Health. Such duties will consist of general Public Health duties, as well as assistance in first aid, and in assisting with the administration of the casualty services of the Air Raid Precaution Scheme.

Applications, stating qualifications and experience, accompanied by copies of three recent testimonials, should reach the undersigned not later than Wednesday, November 30th, 1938.

Preference will be given to candidates who have had previous experience in Public Health administration; and canvassing, directly or indirectly, will disqualify.

Millmead House, E. W. SELLINGS,
Guildford, Clerk of the Guildford Rural District Council

November 14th, 1938.

COUNTY OF LINCOLN—PARTS OF LINSEY PUBLIC HEALTH DEPARTMENT.

COUNTY INFIRMARY, Louth (200 Beds)

Applications are invited from fully qualified unmarried men for the post of RESIDENT MEDICAL OFFICER at the above-named Hospital. The appointment is for six months, terminable by one month's notice on either side. Salary at the rate of £200 per annum, with modern quarters, board, laundry, etc., valued at the rate of £100 per annum. Candidates must have held a previous Postgraduate appointment in a Voluntary or Local Government Hospital.

Applications, with copies of three recent testimonials and photograph, should be received by the Medical Superintendent, County Infirmary, Louth, Lines, not later than November 28th, 1938.

MIDDLESEX COUNTY COUNCIL.

WEST MIDDLESEX COUNTY HOSPITAL, Twickenham Road, Isleworth.

ADDITIONAL VISITING OPHTHALMIC SURGEON required—should hold F.R.C.S. (Lent) or Degree or Diploma in Ophthalmology of recognized University.

Fee: 3 guineas per session. One session per week.

Non-pensionable post subject to three months' notice. Written application, giving details of age, qualifications, and experience, should be sent to the undersigned in envelope endorsed "Z—Ophthalmic Surgeon" by November 26th.

C. W. RADCLIFFE,
Clerk of the County Council,
Guildhall, Westminster, S.W.1.

METROPOLITAN WATER BOARD. APPOINTMENT OF DIRECTOR OF WATER EXAMINATION.

The Metropolitan Water Board invite applications from those possessing wide experience in the chemical and bacteriological examination of water for the position of Director of Water Examination (to succeed the late Colonel C. H. H. Harford, O.B.E., M.D., Ch.B., D.P.H.) at an inclusive salary of £2,000 per annum.

The Director will be required to give his whole time to the service of the Board; to superintend and be responsible to the Board for all examinations, analyses and experiments, and the reports thereon, concerned with the quality of the supply; and to undertake such research work and chemical analyses and investigations, whether of water or otherwise, as may from time to time be required of him. Laboratory and office accommodation, equipment and staff are provided. The appointment will be held during the pleasure of the Board, and the person appointed will be subject to the Standing Orders, regulations and rules in force from time to time.

The selected candidate will be required to pass a medical examination by the Chief Medical Officer and to undertake in addition to join the Superannuation and Provident Fund.

Applications should be made on the prescribed form, a copy of which may be obtained from the undersigned on receipt of a stamped addressed foolscap envelope; and they should be addressed, in envelopes endorsed "Appointment of Director of Water Examination," to the Clerk of the Board so as to be received not later than 10 a.m. on Saturday, December 31st, 1938.

Candidates will be held to be a disqualification Officers of the Board. R. P. MORGAN,
173, Rosebery Avenue, Acting Clerk of the Board.
November 14th, 1938.

CITY OF BIRMINGHAM EDUCATION COMMITTEE APPOINTMENT OF ASSISTANT SCHOOL MEDICAL OFFICER.

Required, to begin duty as soon as possible, an Assistant School Medical Officer (male or female). Candidates must have had at least three years' experience in the practice of their profession subsequent to obtaining a respectable qualification. Salary according to "Askwith" scale (£250 in £700) by annual increments of £25. In addition commencing salary previous service in Class II of "Askwith" scale may be taken into account. £10 per annum travelling expenses allowed.

Forms of application (to be returned not later than first post on Monday, December 5th), together with further information, obtainable from the undersigned on receipt of a stamped, addressed foolscap envelope. Communications should be endorsed "Assistant School Medical Officer." Canvassing will disqualify.

P. D. INNES,
Chief Education Officer.
Education Office,
Municipal Street,
Birmingham, 3,
November 14th, 1938.

WANTED ADVERTISEMENT COUNTY BOROUGH OF SOUTHEAST-ON-SEA. SOUTHEAST MUNICIPAL HOSPITAL

The Health Committee of the Town Council invite applications for the following appointments at their Municipal Hospital situated at Rochford, Essex. The Hospital at present comprises 400 beds, but considerable extensions are in course of erection. There is a staff of Visiting Consultants, and the Hospital is a recognized Training School for Nurses.

(a) **DEPUTY MEDICAL SUPERINTENDENT (RESIDENT).**—Commencing salary £500 per annum, rising by annual increments of £25 to a maximum of £600 per annum, together with full residential emoluments valued for superannuation purposes at £150 per annum. Candidates must hold a higher University Degree in Medicine or be a Member of the Royal College of Physicians, and must have had considerable general hospital experience, including administration.

(b) **SURGICAL OFFICER (NON-RESIDENT).**—Commencing salary £500 per annum, rising by annual increments of £25 to a maximum of £600 per annum, with a non-resident allowance of £150 per annum. Candidates must be Fellows of the Royal College of Surgeons, and must have had considerable experience in emergency surgery and the treatment of fractures.

Be appointments are designated posts under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidates will be required to pass a medical examination.

Forms of application, together with further particulars of the appointments, may be obtained from the Medical Officer of Health, Municipal Health Centre, Warren Square, South-east-on-Sea, and applications should be received by him not later than Monday, December 5th, 1938.

H. J. WORWOOD,
November 15th, 1938. Town Clerk.

COUNTY COUNCIL OF DURHAM DISTRICT TUBERCULOSIS MEDICAL OFFICER.

The County Health Committee invite applications for a District Tuberculosis Medical Officer, at a commencing salary of £400 per annum, rising by annual increments of £25 to £500 per annum. Travelling allowance will be paid by the County Council in accordance with a scale to be approved from time to time.

The appointment will be held subject to three calendar months' notice on either side, and to the following conditions:

(1) The officer appointed must be a registered medical practitioner under the age of 50 years, must devote the whole of his time to the duties of the office, and must not engage in private practice.

(2) He should have held a previous appointment as Tuberculosis Medical Officer, with the approval of the Minister of Health, or

(a) have had at least three years' experience in the practice of his profession,

(b) have spent in general clinical work a period of not less than eighteen months, of which not less than six months have been spent in a hospital.

(3) He must be a medical officer in charge of beds occupied by either medical or surgical cases, and

(4) have received special training for a period of not less than six months in the diagnosis and treatment of tuberculosis.

(5) He will be attached to the County Health Department and will, subject to the direction of the County Medical Officer, be under the control of the Central Tuberculosis Medical Officer.

(6) He will be required to reside in his dispensary area, or such other area as required by the Council.

(7) He must be prepared, if called upon to act as locum tenens to other members of the medical staff of the County Medical Officer.

(8) The holding of a Diploma in Public Health will be deemed an additional qualification for the post.

The candidate appointed will be required to pass the County Council's medical examination and will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, endorsed "District Tuberculosis Medical Officer," and accompanied by copies of not more than three recent testimonials, must be addressed to the County Medical Officer, Shire Hall, Durham, and must be received by him not later than first post on Monday, December 5th, 1938.

J. K. HOPE,
Clerk of the County Council.
Shire Hall, Durham.
November 14th, 1938.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Grade I)—Salary £350-£425, with board, lodging and washing.

(a) **ARCHWAY HOSPITAL, Archway Road, Highgate, N.19.**—Medical duties, experience in anaesthetics desirable.

(b) **ST. ALFEGE'S HOSPITAL, 48, Vanbrugh Hill, Greenwich, S.E.10.**—Surgical duties.

(c) **ST. MARY ABBOTS HOSPITAL, Marles Road, Kensington, W.8.**—Surgical duties, fracture experience essential.

ASSISTANT MEDICAL OFFICERS (Grade II)—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(d) **BETHNAL GREEN HOSPITAL, Cambridge Road, E.2.**—Medical duties, experience in diseases of children and tuberculosis desirable.

(e) **HACKNEY HOSPITAL, Homerton High Street, E.9.**—Medical duties, experience in anaesthetics desirable.

*No accommodation for a woman.

(f) **LABETH HOSPITAL, Broad Street, Kensington, W.8.**—E.I.E.—Duties mainly medical, experience in obstetrics desirable.

(g) **ST. GEORGE-IN-THE-EAST HOSPITAL, Raine Street, Wapping, E.1.**—Medical duties, experience in anaesthetics desirable.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, County Hall, S.E.1, returnable by December 5th.

Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited from registered medical practitioners of at least one year's standing, resident in the neighbourhood, for appointment as **VISITING MEDICAL OFFICER (part-time)** at Princess Mary's Convalescent Home, Margate. Salary £200 a year.

Application forms obtainable (stamped, addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, 2, County Hall, S.E.1, returnable by December 5th.

Canvassing disqualifies.

LIVERPOOL COUNTY BOROUGH. LOCAL EDUCATION AUTHORITY.

ASSISTANT SCHOOL MEDICAL OFFICER (Male)

Applications are invited for a male Assistant School Medical Officer in the Department of the Medical Officer to the Local Education Authority, at a salary of £500 per annum, rising by annual increments of £25 to £700.

(Where the successful candidate holds a similar appointment under another Local Education Authority, and receives a salary in excess of the advertised minimum, a commencing salary of not less than the salary which the candidate is receiving under his existing appointment, not exceeding the maximum under the Liverpool Scale, may be paid.)

Candidates must be registered medical practitioners and must have had at least three years' experience.

The Officer appointed will be required to reside within the city, and devote whole-time service to the Local Education Authority under the direction of the Medical Officer to the Local Education Authority, and will not be allowed to undertake any private practice.

The appointment will be subject to the Standing Orders of the City Council and to the Local Government Superannuation Act, 1927.

For consideration, which may be obtained by forwarding a stamped addressed foolscap envelope, should be returned, together with copies of three recent testimonials, to the undersigned not later than November 26th, 1938, and endorsed "Assistant School Medical Officer."

The canvassing of Members of the Education Committee of the City Council is strictly prohibited, and will be considered a disqualification.

Municipal Buildings, W. H. BAINES,
Liverpool, 2. Town Clerk and Clerk to the Local Education Authority.
November 11th, 1938.

MIDDLESEX COUNTY COUNCIL.

(1) WEST MIDDLESEX COUNTY HOSPITAL, Tucknham Road, Uxworth, Middlesex

Non-resident ASSISTANT RADIOLOGIST.—Registered medical practitioner holding D.M.R.E., experienced in diagnostic and therapeutic x-ray work.

Inclusive salary £650-£250 p.a., on pensionable staff, subject to medical examination and three months' notice. Whole-time duties under direction of Medical Superintendent and Radiologist. Any fees received payable to County Council. *Closing date December 3rd, 1938.

(2) REDHILL COUNTY HOSPITAL, Edgware, Middlesex

Resident JUNIOR ASSISTANT MEDICAL OFFICER, registered medical practitioner with previous resident general hospital service. Duties mainly obstetrical and gynaecological, qualifying appointment for M.C.O.G. and D.C.O.G.

Salary £250 p.a., with board, lodging and laundry valued at £100 p.a. Whole-time appointment, subject to medical examination is primarily for six months with possibility of six months' extension, when contribution to superannuation fund may be required. *Closing date November 26th, 1938.

Written application to the undersigned in envelopes endorsed in top left-hand corner "Z" and "W. Med. Ass. Rad." or "Redhill-Jun. A.M.O." enclosing copies of not more than three recent testimonials.

Canvassing, direct or indirect, disqualifies.
C. W. RADCLIFFE,
Clerk of the County Council.

Guildhall,
Westminster, S.W.1

SURREY COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT

KINGSTON COUNTY HOSPITAL (565 Beds)

RESIDENT ASSISTANT MEDICAL OFFICER. Applications are invited from registered medical practitioners for the appointment, which will be vacant in January, 1939, of Resident Assistant Medical Officer at the Kingston County Hospital.

The Medical Officer appointed must have had postgraduate hospital experience in the administration of Anaesthetics as his duties will be largely those of Anaesthetist.

The appointment is for a period of six months, renewable for a further period of six months, and the salary is at the rate of £250 per annum, together with full residential emoluments valued at £125 per annum.

Applications, stating age, qualifications, and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the Medical Superintendent, Kingston County Hospital, Waverley Avenue, Kingston-upon-Thames, so as to be received not later than December 3rd, 1938.

County Hall, DUDLEY AUKLAND,
Kingston-upon-Thames. Clerk of the Council.
November 14th, 1938.

HULL CORPORATION HEALTH DEPARTMENT.

DEPUTY MEDICAL SUPERINTENDENT CITY HOSPITALS AND SANATORIUM

Applications are invited from duly qualified unmarried medical men, under the age of 40 years and of not less than three years' standing in their profession, for the above-mentioned residential appointment at the Tuberculosis Sanatorium, Cottingham.

Salary £450 per annum, rising, subject to satisfactory service, by annual increments of £25 to £550, plus residential emoluments valued for superannuation purposes at £150 per annum.

Candidates must hold a registered degree or diploma in State Medicine or Public Health. Residential sanatorium experience essential; infectious diseases hospital experience desirable.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on forms to be obtained from the undersigned, are returnable not later than 10 a.m. on Thursday, December 1st, 1938.

NICOLAS GEBBIE, M.D.

Health Department, Medical Officer of Health
Guldhall, Hull
November, 1938

COUNTY BOROUGH OF HALIFAX

THE HALIFAX GENERAL HOSPITAL (405 Beds.)

JUNIOR RESIDENT MEDICAL OFFICER (Male)

Applications are invited from duly qualified registered medical practitioners for the above appointment, for duties mainly in the surgical wards.

Salary £250 per annum together with board, residence and laundry. The appointment will be for a term not exceeding twelve months and is not renewable.

Forms of application and conditions of appointment can be obtained from the Medical Officer of Health, Powell Street, Halifax.

Completed applications, together with copies of not more than three recent testimonials, endorsed "Junior Resident Medical Officer," should be forwarded to the undersigned as early as possible.

Canvassing, either directly or indirectly, will be a disqualification.

The Council has not adopted a superannuation scheme.

Town Hall, HALIFAX
PLRCEY SAUNDERS, Town Clerk
November 15th 1938

HEBBURN URBAN DISTRICT COUNCIL.

MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Urban District Council invite applications from fully qualified Medical Practitioners for the whole-time appointment as Medical Officer of Health and School Medical Officer, at a total inclusive annual salary of £800. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act 1922.

The successful applicant will be required to devote the whole of his time to the duties of the appointment and will not be allowed to engage in private practice.

Further particulars together with a form of application may be obtained from the undersigned.

Applications accompanied by copies of not more than three recent testimonials, endorsed "Medical Officer of Health" must reach the undersigned not later than November 30th, 1938.

Canvassing the Members of the Council in any form will be a disqualification.

Council Offices, ERNST FOXALL,
Hebburn Co. Durham, Clerk of the Council
November 15th 1938

THE BOLTON ROYAL INFIRMARY. (City beds including two Auxiliary Hospitals.)

ASSISTANT PATHOLOGIST

Applications are invited from qualified medical men or women for the above post. Post-graduate experience in the routine methods of a general hospital laboratory is essential.

The appointment is a whole-time one.
Salary £600 per annum.

Further information may be obtained from the undersigned to whom applications stating age, nationality and experience, and enclosing two copies of recent testimonials should be sent not later than November 25th, 1938.

H. CORLESS
Secretary

CORNWALL COUNTY COUNCIL. COUNTY MEDICAL OFFICER.

Applications are invited for the appointment of County Medical Officer of Health. Candidates must be qualified, in accordance with the Local Government Act, 1933, and the Regulations thereunder, to carry out the statutory duties of the office and such other duties as may be prescribed by the Minister of Health or the County Council. Inclusive salary £1,200 a year, with travelling allowance on the County scale.

Applications, stating age, qualifications and experience, with copies of three recent testimonials, should reach the undersigned by December 6th, 1938.

County Hall, 1 A H SHEERS,
Truro, Clerk of the County Council.
November 15th, 1938.

THE PRINCE OF WALES'S HOSPITAL, Greenbank Road, Plymouth. (Formerly South Devon and East Cornwall Hospital.) (254 Beds.)

Applications are invited for the post of RESIDENT SURGICAL OFFICER (male). Salary £225 per annum, with board, residence, and laundry.

Appointment is tenable for six months and subject to renewal. Duties to commence December 20th.

Candidates must be registered under the Medical Acts, and it is desirable they should possess the F.R.C.S. England or Edinburgh.

Applications, stating age and qualifications, together with copies of three recent testimonials, to reach the undersigned by November 30th.

ARTHUR R. CASH,
General Supt. and Secretary.

ROYAL LONDON OPHTHALMIC HOSPITAL (MOOREFIELDS EYE HOSPITAL), City Road, E.C.1.

Applications are invited for the posts of two OUT-PATIENT OFFICERS, one to attend on Mondays and Thursdays and one to attend on Wednesdays and Saturdays (mornings) each week. Candidates must be registered Medical Practitioners.

Salary at the rate of £100 per annum. The Out-patient Officers will be appointed for a period of one year and will be eligible for reappointment. Copies of regulations can be obtained on application.

Applications, with testimonials, stating age and qualifications, together with photograph, must be received by the undersigned not later than December 3rd, 1938.

A. J. M. TARRANT, Secretary.

THE ROYAL HOSPITAL, WOLVERHAMPTON (Incorporated under Charter).

HOUSE SURGEONS (General Surgery), two HOUSE PHYSICIANS.

Applications are invited for the above resident posts, which become vacant on January 1st next.

The Hospital contains 300 beds, includes the usual special departments, and is recognized by the various examining bodies for a part of the requisite attendance on Medical and Surgical practice.

Candidates must be registered under the Medical Acts and unmarried.

The appointments are for six months. Salary at the rate of £100 per annum. Board, furnished rooms, and laundry provided.

Applications with copies of testimonials, to be forwarded to the undersigned.

Wolverhampton, W. H. HARPER,
November 14th, 1938, House Governor.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Rd., N.W.1.

Applications are invited for the following post: HOUSE SURGEON Salary £100 p.a., board, residence and laundry allowance. The appointment is for a period of six months as from December 1st. Preference will be given to those who have held resident posts. Candidates must submit applications stating qualifications, age, etc., with copies of not more than three testimonials, by Monday, 28th instant, addressed to the Secretary.

WATERLOO AND DISTRICT GENERAL HOSPITAL, LIVERPOOL, 22.

HOUSE SURGEON (male) required as from January 1st next. The candidate must be fully qualified and registered. Remuneration at the rate of £100 per annum, with board, residence, and laundry.

Applications with copies of testimonials, to reach the Hon Secretary before December 15th, envelopes to be marked "Appointments."

ALEXANDRA HOSPITAL FOR CHILDREN WITH HIP DISEASE, Swanley, Kent.

(100 Beds for Children with Bone and Joint Tuberculosis and other Orthopaedic Conditions.)

Applications are invited for the post of SECOND RESIDENT MEDICAL OFFICER at this hospital, which will become vacant in January next. Candidates for the appointment must be fully qualified, and should preferably hold a higher surgical qualification, or be working for such higher qualification. The appointment is for six months, with eligibility for re-election. The salary will begin at the rate of £200 to £250 a year, according to qualifications and experience. Board and lodging are provided.

Applications, stating age and giving full particulars of qualifications and previous surgical experience, with copies of two testimonials, should be sent not later than December 14th to the undersigned at the London Offices, 107, Southampton Row, W.C.1, from whom further particulars of the duties and conditions of the appointment can be obtained.

STANLEY SMITH,
November, 1938, Secretary.

NORTH STAFFORDSHIRE ROYAL INFIRMARY, Stoke-on-Trent. (390 Beds.)

RESIDENT ANAESTHETIST.

The Committee invite applications for the above post. Salary at the rate of £150 per annum, with board, residence and laundry.

This appointment, which is recognized by the Royal College of Surgeons for the Diploma in Anaesthetics, will be made for six months, renewable.

Previous hospital Anaesthetic experience essential. Applications, stating age and experience, with copies of two recent testimonials, to be sent to the undersigned immediately.

By Order,
W. STEVENSON,
Secretary and House Governor.
November 16th, 1938

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2. (160 Beds.)

RESIDENT MEDICAL OFFICER required on January 1st, 1939.

The appointment is made for six months, and may be extended for further periods of six months, but cannot be held for more than two years.

The Resident Medical Staff consists of the Resident Medical Officer as above, two Casualty Officers, two House Physicians, and two House Surgeons.

Salary (inclusive of panel fees) £200 per annum, with board, residence, and laundry. Candidates must have held a responsible resident appointment at a recognized hospital.

Forms of application may be obtained from the undersigned, and must be completed and returned on or before December 6th, 1938.

CHARLES H. BESSELL,
November 14th, 1938, Secretary.

THE ROYAL LIVERPOOL CHILDREN'S HOSPITAL.

APPOINTMENT OF HONORARY PHYSICIAN.

The Council invites applications for the position of Honorary Physician to the Hospital, shortly to become vacant. Applications (with copies of testimonials) must be in writing and addressed to the Chairman, Royal Liverpool Children's Hospital, Myrtle Street, Liverpool, 7, by Thursday, December 1st, 1938.

A candidate may send copies of his application and testimonials to members of the Election Committee, but personal canvassing of any member will be a disqualification.

A. DORIS EILLS, Chairman

PONTEFRAC T, GENERAL INFIRMARY (YORKS).

JUNIOR RESIDENT MEDICAL OFFICER (male, unmarried), duly qualified registered Medical Practitioner. Commencing salary £150 per annum, with residence, board, and laundry.

The appointment to date for six months from January 1st, 1939.

Applications, stating age, with testimonials and nationality, to be sent to the undersigned at once.

DAVID J. RICHARDS,
Secretary-Superintendent.

THE JESSOP HOSPITAL FOR WOMEN.
Sheffield.
FIRTH AUXILIARY, NORTON.

Applications are invited for the post of RESIDENT MEDICAL OFFICER from registered medical practitioners. The appointment will be for six months commencing January 1st, 1939, subject to renewal for a further six months, with salary at the rate of £150 per annum, plus board, residence and laundry. Previous Obstetrical experience is desirable.

The Firth Auxiliary Hospital contains 47 beds, of which 23 are set apart for the treatment of Puerperal Cases, the remainder being for Ante-natal and Gynaecological cases.

Applications should be lodged with the undersigned, addressed to the Jessop Hospital for Women, Sheffield, immediately.

DAVID OSWALD,
Superintendent and Secretary

THE JESSOP HOSPITAL FOR WOMEN.
Sheffield, (151 Beds.)

The Board of Management invite applications for the post of SENIOR RESIDENT OFFICER (male), unmarried. The appointment is for six months, in the first instance, from January 1st, 1939. Salary £150 per annum, plus board, residence and laundry. Previous resident experience essential.

The duties include charge of the Maternity Department, 36 beds, and general supervision of the Gynaecological Department.

Applications, stating age and experience, with copies of recent testimonials, should be forwarded immediately to the undersigned.

DAVID OSWALD,
Superintendent and Secretary.

THE JESSOP HOSPITAL FOR WOMEN.
Sheffield, (151 Beds.)

The Board of Management invite applications for posts of HOUSE SURGEONS (male), unmarried, for a period of six months commencing January 1st, 1939. Salary £100 per annum, together with board, residence and laundry.

Applications, stating age, together with copies of testimonials, should be addressed to the undersigned immediately.

DAVID OSWALD,
Superintendent and Secretary.

THE GENERAL INFIRMARY AT LEEDS.
(673 Beds.)

RESIDENT MEDICAL OFFICER (male) required. Salary £200 p.a., with board, residence, and laundry, etc.

Candidates must be qualified Medical Practitioners and registered and have held a previous Resident Medical post.

The appointment is for twelve months, with eligibility for re-election.

Applications, together with copies of three recent testimonials, should be sent to the undersigned not later than Thursday, November 24th, 1938.

S. CLAYTON FRYERS,
House Governor and Secretary.

THE GENERAL INFIRMARY AT LEEDS.
(673 Beds.)

Applications are invited for the post of SENIOR RESIDENT ANAESTHETIC OFFICER.

Salary £149 per annum, with the usual residential allowances. The appointment is for twelve months, subject to renewal.

Candidates must be fully qualified and registered. Applications, with copies of testimonials, to be sent in at once to the undersigned.

S. CLAYTON FRYERS,
House Governor and Secretary.

ROYAL MASONIC HOSPITAL.
Ratencourt Park, W.6.

A post of RESIDENT MEDICAL OFFICER (male), preferably with M.R.C.P. qualification, will be vacant on January 1st, 1939. Salary at the rate of £300 per annum, with board, residence, and laundry. The appointment is for twelve months. Candidates must be registered, and must have held resident appointments in General Hospitals.

The Institution (145 beds at present, but to be increased) is primarily for paying patients of both sexes of moderate means usually unable to afford ordinary Nursing Home treatment, etc.

Applications, stating full particulars, to be sent on or before Monday, December 5th, 1938, to the Honorary Secretaries, from whom further information may be obtained.

NATIONAL HOSPITAL, QUEEN SQUARE, W.C.1.

RESEARCH FELLOWSHIP.

By the generosity of a private donor a FULL-TIME RESEARCH FELLOWSHIP has been created for the investigation of DISORDERS OF MUSCLE at the National Hospital, Queen Square, London, W.C.1.

The Fellowship will be open to graduates in science or medicine and is of the value of £500 per annum, tenable for one year in the first instance.

Applicants should state their previous experience and the method of investigations they propose to adopt.

Further particulars may be obtained from the Secretary, National Hospital, Queen Square, W.C.1, and applications should reach him by January 15th, 1939.

HOSPITAL FOR TROPICAL DISEASES.

RESIDENT MEDICAL SUPERINTENDENT.

The Committee of Management of the Seamen's Hospital Society invite applications for this post, falling vacant on January 1st, 1939. The appointment will be for two years. Minimum commencing salary £750 p.a., with board, residence, and laundry. Candidates must be male, single, and legally qualified and registered. Membership of the Royal College of Physicians and some knowledge of tropical medicine is desirable but not essential.

Applications, stating age, with copies of not more than three recent testimonials, to be sent on or before December 7th, 1938, to

D. A. C. PRICE,
Hospital for Tropical Diseases, Secretary,
25, Gordon Street, W.C.1.

THE KING EDWARD VII WELSH NATIONAL MEMORIAL ASSOCIATION

Applications are invited from duly registered medical practitioners (male, single) for the post of ASSISTANT RESIDENT MEDICAL OFFICER (twelve months' appointment) at the North Wales Sanatorium (247 beds for female pulmonary, and male, female and children non-pulmonary cases), Denbigh, North Wales.

Salary £200 per annum, plus maintenance. Applications, stating age, qualifications, experience, etc., together with copies of three recent testimonials, should reach the undersigned not later than WEDNESDAY, NOVEMBER 30th, 1938.

Memorial Offices, D. A. POWELL,
Westgate Street, Principal Medical Officer,
Cardiff.

THE ROYAL INFIRMARY, SHEFFIELD.

The Board of Management invite applications for the post of OPHTHALMIC HOUSE SURGEON.

The salary attached to the post is £120 per annum, with board and residence.

The successful applicant will be expected to take up his duties on January 1st, 1939.

The Ophthalmic Department contains 69 beds and an Out-patient Department which is open daily.

Applications, with copies of testimonials, to be sent forthwith to the General Superintendent and Secretary.

November 11th, 1938.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE

Applications are invited for the post of RESIDENT ANAESTHETIST AND EMERGENCY OFFICER (male). The appointment will be for three months from January 1st, 1939. Salary at the rate of £130 per annum, with board, residence and laundry.

Candidates, who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four recent testimonials, to the undersigned on or before Wednesday, November 30th, 1938.

J. A. BEARDSALL,
Secretary-Superintendent.

WORCESTER ROYAL INFIRMARY.

Applications are invited for the post of CASUALTY OFFICER. Salary at the rate of £140 per annum, including board, residence and laundry.

Applications, stating full particulars as to age, whether married or single, qualifications, etc., and accompanied by copies of three recent testimonials, should be sent to the undersigned by November 26th, 1938.

H. J. CLOUT, Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END.
Stratford, London, E 15

Applications are invited from fully qualified and registered medical men (only) for the following posts:

| | Salary. | Period |
|-------------------|-----------|----------|
| 1 HOUSE SURGEON | £120 p.a. | 6 months |
| 1 HOUSE PHYSICIAN | £120 p.a. | 6 months |
| 1 HOUSE PHYSICIAN | £120 p.a. | 3 months |

1 OBSTETRIC HOUSE SURGEON 6 months

1 OUT-PATIENT OFFICER £150 p.a. 6 months

The appointment will date from January 1st, 1939, and will be for six months except in the case of one House Physician which will be for three months. In the case of the Obstetric House Surgeon, above referred to, the appointment will be for three months as Junior at £110 per annum and for three months as Senior at £130 per annum, six months in all.

The Hospital contains 219 beds, including 50 for Maternity.

Candidates, who must be single, should send applications, accompanied by copies of testimonials, to the undersigned, not later than Wednesday, November 30th, 1938.

RAPHAEL JACKSON, Major,
Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL.
Euston Road, N.W.1

The Managing Committee invite applications from fully qualified medical women for the appointment of HONORARY PHYSICIAN to take charge of the Electro-therapy and Massage Departments. Duties to begin January 1st, 1939. Candidates are requested to apply to the undersigned for particulars of the post and to forward before Friday, December 2nd, 1938, twelve copies of application with copies of three recent testimonials for the Managing Committee. It is also necessary to send a copy of application to each member of the Honorary Medical Staff (twenty-three).

JEAN R. MURRAY,
Secretary

THE QUEEN'S HOSPITAL FOR CHILDREN.
Hackney Road, London, E.2.
(160 Beds.)

HOUSE PHYSICIAN required, January 1st, 1939.

Six months' appointment. Salary at the rate of £100 per year with board, lodging, and laundry.

Applications must be made on forms to be obtained from the undersigned, and be sent in, with copies of not more than three testimonials, on or before December 6th, 1938.

CHARLES H. BESSELL,
Secretary

THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN
Waterloo Road, S.E.1

There will be a vacancy on December 1st, 1938, for a HOUSE SURGEON (male) at the above Hospital. The appointment is in the first instance for a period of six months. Salary at the rate of £100 per annum, with board and residence.

Applications, with copies of testimonials, should be forwarded not later than Tuesday morning November 22nd, to the Secretary at the above address, from whom further particulars can be obtained.

November 14th, 1938.

PADDINGTON GREEN CHILDREN'S HOSPITAL (Incorporated).
London, W.2.

Applications are invited for the appointment of HONORARY PHYSICIAN to the SKIN DEPARTMENT. Candidates must be Members of the Royal College of Physicians, London.

Applications, stating age and qualifications, accompanied by copies of three testimonials, should reach the undersigned as soon as possible.

JAMES A. HAMLIN, Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN,
Hackney Road, London, E.2.
(160 Beds.)

REFRACTION OFFICER required for one (morning) session weekly of approximately two and a half hours. Salary £1 16s. per session.

Applications, giving qualifications and details of experience, should be sent to the undersigned as soon as possible.

CHARLES H. BESSELL,
Secretary.

November 14th, 1938.

CHARING CROSS HOSPITAL. REGISTRAR.

Applications are invited for the post of Registrar (male) to the Nose, Throat, and Ear Department. Candidates must be registered Medical Practitioners and have some experience of the specialty. Attendance, four half-days per week. Appointment tenable for one year; eligible for re-election. Honorarium £100 per annum.

Applications, in writing, stating age, qualifications, and experience, should be made to the undersigned not later than first post Monday, November 28th, 1938.

GEORGE J. JONES,
Charing Cross Hospital, Secretary.
Strand, W.C.2

CHARING CROSS HOSPITAL, W.C.2.

The Council invite applications for the post of CLINICAL ASSISTANT (male) to the Dermatological Department.

Candidates should send in their applications, together with copies of three testimonials, to the undersigned not later than first post Monday, November 28th, 1938.

GEORGE J. JONES,
Charing Cross Hospital, Secretary.
Strand, W.C.2

ALL SAINTS' HOSPITAL (FOR GENITO-URINARY DISEASES), Austral Street, West Square, S.E.11.

RESIDENT HOUSE SURGEON (male) required on January 1st, 1939, for six months, being three months as Junior House Surgeon with salary at £100 per annum, followed by three months as Senior House Surgeon with salary at £150 per annum.

Applications, giving particulars of age, experience, qualifications, and enclosing copies of three recent testimonials, should reach me not later than December 1st, 1938.

D. H. EADE,
Secretary.

CITY OF LONDON MATERNITY HOSPITAL, City Road, E.C.1.

Applications are invited for the post of MALE ASSISTANT RESIDENT MEDICAL OFFICER, vacant January 1st, next, salary £80 per annum. Three months' appointment. At the end of the period the candidate will, if satisfactory, be appointed senior for three months at £100 per annum. Forms of application, returnable not later than December 2nd, may be obtained from the undersigned.

RALPH B. CANNINGS,
Secretary.

DREADNOUGHT HOSPITAL, GREENWICH, S.E.10 (Seamen's Hospital Society)

One HOUSE PHYSICIAN and one HOUSE SURGEON required for six months from January 1st, 1939. Salary £110 per annum and a proportion of fees, with board, residence, and laundry. Candidates must be male and single.

Applications, with copies of three testimonials, to be sent in on or before December 1st to the undersigned.

T. A. LYON,
November 11th 1938 Secretary.

ENFIELD WAR MEMORIAL HOSPITAL.

Applications are invited for the post of Honorary CONSULTING ASSISTANT SURGEON to the above Hospital. A gentleman who has recently been deputising will be an applicant for the post. Applicants must be Fellows of the Royal College of Surgeons (Eng.) engaged in Consulting Practice only. Further details as to duties can be obtained upon application to the Secretary of the Hospital. Applications, together with three recent testimonials, to be sent to the Secretary by November 30th.

LONDON HOSPITAL, E1. CARDIAC DEPARTMENT

The post of PATERSON RESIDENT SCHOLAR and CHIEF ASSISTANT in this Department will be vacant on January 1st, 1939.

The salary is at the rate of £400 p.a. Applications should arrive at the Hospital not later than Saturday, December 10th.

Further particulars on request.
ARTHUR G. ELLIOTT,
House Governor

KINGS COLLEGE HOSPITAL

The Committee of Management invite applications for the post of ASSISTANT PHYSICIAN. Applications, with copies of three testimonials, should be sent before December 10th to the House Governor, King's College Hospital, Denmark Hill, S.E.1, from whom particulars of the duties may be obtained. Candidates must be Members or Fellows of the Royal College of Physicians of London.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1.

There are vacancies for the following:
A RESIDENT SURGICAL OFFICER. Duties to commence on January 1st, 1939. Salary £200 per annum.

This appointment is tenable in the first instance for one year, but may be extended for a period of one further year.

TWO RESIDENT HOUSE PHYSICIANS and ONE RESIDENT HOUSE SURGEON. Duties to commence on January 1st, 1939. Salaries at the rate of £50 per annum.

These appointments are tenable for six months.

A RESIDENT ANAESTHETIC REGISTRAR. Duties to commence on January 1st, 1939. Salary at the rate of £100 per annum.

This appointment is tenable in the first instance for six months, but may be extended for a further period of six months.

A RESIDENT MEDICAL OFFICER at the Country Branch Hospital, Tadworth Court, Tadworth, Surrey. Duties to commence on January 1st, 1939. Salary at the rate of £250 per annum.

This appointment is tenable for six months, but is renewable.

Candidates for the above appointments must be unmarried, possess a legal qualification to practise, and have held a responsible resident appointment at a General Hospital.

Applications must be received by noon on Monday, November 28th, 1938, and candidates must be prepared to attend for interview by the Joint Committee at 4.45 p.m. on Wednesday, December 7th, 1938.

Full particulars and forms of application are obtainable from the undersigned.

HERBERT F. RUTHERFORD,
November, 1938. Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1.

The post of CLINICAL PATHOLOGIST will be shortly vacant. Salary £750 per annum.

The appointment is whole-time and non-resident. Facilities, within certain limits, will be given for private pathological practice.

The successful candidate will be required to take up his duties preferably on March 1st, 1939.

Candidates must be registered Medical Practitioners with special experience in bacteriology and clinical pathology.

Applications, accompanied by not more than three testimonials given specially for the purpose, must be delivered to the undersigned not later than noon on Monday, December 19th, 1938.

Candidates must be prepared to appear before the Joint Committee on Wednesday, December 21st, 1938, at 4.45 p.m.

Forms of application and details of the appointment are obtainable from the undersigned.

HERBERT F. RUTHERFORD,
November, 1938. Secretary.

THE LONDON CHEST HOSPITAL, Victoria Park, E.2.

(Bus, Tram and Rail, Cambridge Heath, L. and N.E. Railway.)

Applications (with copies of three testimonials) are invited to be sent to the Secretary, on or before Wednesday, November 30th, 1938, for the following posts, subject to the rules and by-laws of the Hospital:

RESIDENT MEDICAL OFFICER (male) for one year from January 1st, 1939. Salary £350 per annum.

HOUSE PHYSICIAN (male) for six months from January 1st, 1939. Salary at the rate of £100 per annum.

HOUSE SURGEON (male) for six months from January 1st, 1939. Salary at the rate of £100 per annum.

Board, residence and laundry provided.

THE LONDON CHEST HOSPITAL, Victoria Park, E.2.

(Bus, Tram and Rly., Cambridge Heath, L. and N.E. Rly.)

SURGICAL REGISTRAR (Male)
(Part-time).

Applications are invited for the above post. Four sessions a week, Tuesday and Friday mornings essential. Appointment is for one year and an honorarium is attached to the post.

Applications, with copies of three testimonials, should be sent to the undersigned on or before Tuesday, December 13th, 1938.

THOMAS BROWN, Secretary.

THE SALVATION ARMY, THE MOTHERS' HOSPITAL.

Lower Clapton Road, Clapton, E.5.

Applications are invited for the appointment of a WOMAN VENEREAL DISEASES OFFICER to the Mothers' Hospital. (Salary 416 guineas per annum.)

Details of the appointment may be obtained from the Secretary-Superintendent, to whom the application, with details of previous experience and three recent testimonials, should be sent by November 30th, 1938.

FRED HAMMOND, Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL, Euston Road, N.W.1.

The Managing Committee invite applications from fully qualified medical women for the appointment of HONORARY ASSISTANT GYNAECOLOGIST. Applicants must be Fellows of the Royal College of Surgeons and Members of the College of Obstetricians and Gynaecologists. Duties to begin January 1st, 1939. Candidates are requested to apply to the undersigned for particulars of the post and to forward before Friday, December 2nd, 1938, twelve copies of application with copies of three recent testimonials for the Managing Committee. It is also necessary to send a copy of application to each member of the Honorary Medical Staff (twenty-three).

JEAN R. MURRAY,
Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL, Euston Road, N.W.1.

The Managing Committee invite applications from fully qualified medical women for the appointment of part-time ASSISTANT RADIOLOGIST with charge of the x-ray therapy. Duties to begin January 1st, 1939. Honorarium £100 per annum. Candidates are requested to apply to the undersigned for particulars of the post and to forward before Friday, December 2nd, 1938, twelve copies of application with copies of three recent testimonials for the Managing Committee. It is also necessary to send a copy of application to each member of the Honorary Medical Staff (twenty-three).

JEAN R. MURRAY,
Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL, Euston Road, N.W.1.

Applications are invited from fully qualified medical women for the part-time post of SURGICAL REGISTRAR—non-resident—honorarium £100 per annum. Duties to commence January 1st, 1939.

Particulars of the post can be obtained from the undersigned, to whom applications, with copies of three recent testimonials, should be sent before December 2nd, 1938.

JEAN R. MURRAY,
Secretary.

ROYAL CHEST HOSPITAL, City Road, E.C.1.

Applications are invited for the post of RESIDENT MEDICAL REGISTRAR (male). Candidates must be registered Medical Practitioners of at least two years' standing, and have held, at least two previous house appointments.

The appointment is for fourteen months from January 1st, 1939. Particulars concerning remuneration and emoluments (amounting to approximately £286 with board and residence), together with necessary forms of application and rules, can be obtained from the undersigned.

Applications, with copies of testimonials, should be sent by December 2nd to

GILBERT G. PANTER,
Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.2. (204 Beds)

The Board of Management invite applications for the post of EAR, NOSE AND THROAT SURGEON. Candidates must be Fellows of the Royal College of Surgeons of England, or of another recognized College. Attendance required two half-days weekly. The appointed candidate will have charge of beds. An honorarium to cover travelling expenses will be paid.

Further information may be obtained from the undersigned, to whom applications, with copies of three recent testimonials, should be sent not later than November 23rd, 1938.

CHARLES H. BESSELL,
Secretary.

THE HOSPITAL FOR WOMEN, Soho Square, London, W.1.

Applications are invited for the post of RESIDENT MEDICAL OFFICER for a period of six months commencing January 1st, 1939. The salary is at the rate of £100 per annum, with board, residence, and laundry.

Applications and testimonials must reach the undersigned by December 10th, 1938.

J. P. HEMING,
Secretary.

THE NORTH KENSINGTON WOMEN'S WELFARE CENTRE (Gynaecological and Birth Control Clinic).

12, Telford Road, Ladbroke Grove, W.10.

Applications are invited for duly qualified PART-TIME WOMAN REGISTRAR (honorarium £1 11s. 6d. for two weekly sessions) at the above clinic. Apply in writing, with particulars of experience, to the Superintendent.

ROYAL FREE HOSPITAL

Gray's Inn Road, London W.C.1.

Applications are invited from duly qualified and registered medical practitioners for the post of **ANALYTIC REGISTRAR** at the above hospital for one year from February 1st, 1939, with option to apply for reappointment for two subsequent years.

The post is a non-resident one, and carries with it a remuneration of £100 per annum.

Candidates should have had experience in all forms of anaesthetics, including dental work. They should submit applications, with copies of three recent testimonials, stating age and qualifications to the undersigned on or before December 5th, 1938.

RICHARD T. BARTLEY,
Secretary.

ROYAL FREE HOSPITAL

Gray's Inn Road, London, W.C.1.

Applications are invited from duly qualified registered medical men or women for the half-time post of **REGISTRAR in the EAR, NOSE AND THROAT DEPARTMENT**. Preference will be given to candidates with the Fellowship of England, Edinburgh, or the D.L.O. Qualification. Intending candidates should submit applications, stating age, and accompanied by copies of three recent testimonials, to the undersigned (from whom all information may be obtained) on or before December 5th, 1938. Duties to commence January 1st, 1939.

Present holder, being eligible is a candidate for reappointment.

RICHARD T. BARTLEY,
Secretary.

ROYAL FREE HOSPITAL

Gray's Inn Road, London, W.C.1.

Applications are invited for the half-time post of **GYNAECOLOGICAL REGISTRAR** from duly qualified and registered medical women. This post is reserved for former students of the London (Royal Free) Hospital School of Medicine for Women. Salary £100 per annum.

Applications, stating age, and accompanied by copies of three recent testimonials, must be sent to the undersigned (from whom all information may be obtained) on or before December 5th, 1938. Duties to commence January 1st, 1939. Present holder, being eligible, is a candidate for reappointment.

RICHARD T. BARTLEY,
Secretary.

ROYAL FREE HOSPITAL

Gray's Inn Road, London W.C.1.

Applications are invited for the post of **DISTRICT OBSTETRIC ASSISTANT**, tenable for six months in the first place at a salary of £100 per annum; at the discretion of the Professor of the Unit for a further six months at a salary of £270 per annum. Duties to commence February 1st, 1939. Candidates must be duly qualified registered medical women.

Application form may be obtained from the undersigned, and should be duly filled in and returned on or before December 5th, 1938.

RICHARD T. BARTLEY,
Secretary.

ROYAL FREE HOSPITAL

Gray's Inn Road, London W.C.1.

Applications are invited for the whole-time post of **SURGICAL REGISTRAR**. Candidates must be Fellows of the Royal College of Surgeons (England). Salary £200 per annum.

Applications, stating age, and accompanied by copies of three recent testimonials, must be sent to the undersigned (from whom all information may be obtained) on or before December 5th, 1938. Duties to commence January 1st, 1939.

RICHARD T. BARTLEY,
Secretary.

ST. JOHN'S HOSPITAL

Lewisham, S.E.13

Applications are invited to fill the appointment of **ORTHOPAEDIC REGISTRAR**. The successful candidate is required to attend the hospital on Wednesday mornings. An honorarium of 35 guineas per annum is paid.

Applications, with particulars of qualifications and experience, should be addressed to the undersigned as soon as possible.

J. C. GILBERT,
Secretary-Superintendent.

SAMARITAN FREE HOSPITAL FOR WOMEN

Marylebone Road, N.W.1.

Applications are invited for the post of **ANAESTHETIST** to attend on Tuesday mornings and Wednesday afternoons.

Applications, accompanied by copies only of three testimonials, should reach the Secretary at the Hospital before noon Thursday, December 1st, 1938.

G. H. HAWKINS,
Secretary

ROYAL FREE HOSPITAL

Gray's Inn Road, London, W.C.1

Applications are invited for the **WHOLE-TIME POST OF MEDICAL REGISTRAR**. Salary £200 per annum. Intending candidates, who must be fully qualified and registered, should submit applications, stating age, and accompanied by copies of three recent testimonials, to the undersigned (from whom all information may be obtained) on or before December 5th, 1938. Duties to commence January 1st, 1939.

RICHARD T. BARTLEY,
Secretary.

ROYAL FREE HOSPITAL

Gray's Inn Road, London, W.C.1

Applications are invited from duly qualified and registered medical men for the following post:—**RESIDENT CASUALTY OFFICER**.

Duties to commence January 1st, 1939, for six months. Salary £150 per annum.

Application form may be obtained from the undersigned, and should be duly filled in and returned on or before December 5th, 1938.

RICHARD T. BARTLEY,
Secretary

ROYAL FREE HOSPITAL

Gray's Inn Road, London W.C.1

Applications are invited from medical women of six months' or more experience for the post of **IN-PATIENT OBSTETRIC ASSISTANT** (Anaesthetic duties included). The appointment is for six months from February 1st, 1939.

Application form may be obtained from the undersigned, and should be duly filled in and returned on or before December 5th, 1938.

RICHARD T. BARTLEY,
Secretary

ROYAL FREE HOSPITAL

Gray's Inn Road, London, W.C.1

Applications are invited from duly qualified and registered medical men for the following post:—**FOURTH HOUSE SURGEON**.

Duties to commence February 1st, 1939, for six months.

Application form may be obtained from the undersigned, and should be duly filled in and returned on or before December 5th, 1938.

RICHARD T. BARTLEY,
Secretary.

CONNAUGHT HOSPITAL E.17

for Walthamston, Leyton, Wanstead, and Chingford.

(115 Beds and extending.)

Applications are invited for the post of **HONORARY DERMATOLOGIST** to the above hospital. Gentlemen desirous of applying should be Fellows or Members of the Royal College of Physicians and, preferably on the staff of a London Teaching Hospital.

Applications should be received by Saturday, December 3rd. Further details can be obtained upon application to the undersigned.

R. HALTON HARRISON, Secretary

THE PRINCE OF WALES'S GENERAL HOSPITAL

London, N.15. (235 Beds.)

Applications are invited for the posts of **HONORARY CLINICAL ASSISTANTS** in the various Departments of the Hospital (Surgical, Medical, Children, Skin, Ear, Nose and Throat, Eye, Gynaecological, X-Ray, and Electrical) for the year 1938.

Applications for appointment to any of these posts should be sent to the undersigned on or before Friday, November 25th, 1938.

J. C. BURDETT,
Director and House Governor.

EVELINA HOSPITAL FOR SICK CHILDREN

Southwark, S.E.1

Applications are invited for the post of **HOUSE SURGEON** (male) for six months from December 1st (first two months in the Casualty and last 12th first two months in the Casualty and last 12th first two months in the Casualty). Salary at the rate of £120 per annum, with board and residence.

Applications, with copies of three recent testimonials, should be sent to the undersigned, from whom particulars can be obtained, not later than first post on Tuesday, November 22nd.

W. H. SIDNELL,
House Governor.

LONDON HOSPITAL E.1

There is a vacancy for the post of **FIRST ASSISTANT and REGISTRAR** to the Neurosurgical Department. Candidates must possess the F.R.C.S. Eng. qualification.

Applications should be sent to the House Governor, from whom further particulars may be obtained, and should arrive not later than on Saturday, December 3rd.

ARTHUR G. ELLIOTT,
House Governor.

PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN

Shadwell, London, E.1
(Formerly East London Hospital for Children.)
(135 Beds.)

An **OUT-PATIENT MEDICAL OFFICER** is required on January 1st, 1939, by the above Hospital. The appointment is for six months and renewable for a further six months subject to agreement on both sides. The holder of this post will be official deputy for the Resident Medical Officer. Salary at the rate of £175 p.a. with board, residence and laundry.

Candidates who must be properly registered in this country, are invited to send in their applications addressed to the Secretary not later than first post on Tuesday, November 22nd, with copies of not more than three recent testimonials, and evidence of having held a responsible hospital appointment. Forms of application and copies of the rules may be obtained from the Secretary-Superintendent.

PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN

Shadwell, London, E.1
(Formerly East London Hospital for Children.)
(135 Beds.)

A **HOUSE SURGEON** is required on January 1st, 1939, by the above Hospital. Candidates are invited to send in their applications addressed to the Secretary not later than first post on Tuesday, November 22nd, accompanied by copies of not more than three recent testimonials, and evidence of having held a responsible hospital appointment. The appointment is for six months. Salary at the rate of £125 p.a. with board, residence, and laundry. Candidates must be properly registered in this country.

Forms of application and copies of the rules may be obtained from the Secretary-Superintendent.

PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN

Shadwell, London, E.1
(Formerly East London Hospital for Children.)
(135 Beds, and 30 Convalescent Beds at Booter's)

A **RESIDENT MEDICAL OFFICER** is required on January 1st, 1939. Gentlemen are invited to send in their applications addressed to the Secretary not later than first post on Tuesday, November 22nd, with copies of not more than three recent testimonials, and evidence of having held a responsible hospital appointment. The appointment is for one year. Salary at the rate of £240 p.a. with board, residence, and laundry. Candidates must be properly registered in this country.

Forms of application and copies of the rules may be obtained from the Secretary-Superintendent.

THE LONDON LOCK HOSPITAL

Applications are invited for the appointment of two **SURGICAL REGISTRARS** (male) to the Lock Hospitals at Dean Street (Men) and Harrow Road (Women). Candidates must be Fellows or Members of the Society of the Licenses of Surgeons of England or Surgical Graduates of a University of the United Kingdom. One candidate should preferably have had some previous obstetrical experience. The appointments are for one year in the first instance, commencing at December 1st. Honorarium at the rate of £100 p.a.

Applications, with three copies of testimonials, must be in the hands of the Secretary not later than first post on Tuesday, November 29th, from whom any further information relating to the appointment can be obtained.

25 Harrow Road, W.9.

November 4th, 1938

THE PRINCESS BEATRICE HOSPITAL

Earl's Court, S.W.5.
General Hospital.

HONORARY ANAESTHETIST.

Applications are invited from fully qualified Medical Practitioners for the post of **Honorary Anaesthetist** to the Princess Beatrice Hospital. Sessions Wednesday morning; other sessions may be required of him. Honorarium one guinea per session.

Applications, giving qualifications, age, etc., together with copies of not more than three recent testimonials, should be sent to the Secretary, The Princess Beatrice Hospital, 194, Finsbury Road, S.W.10 by November 21st, 1938.

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES, London, W.9

MEDICAL REGISTRARS

Applications are invited for two posts of Medical Registrar. The appointments will be for one year from January 1st, 1939, and are renewable for a further year. Honorarium £100 p.a.

One of the posts is for a Medical Registrar is a candidate for reappointment.

Applications, accompanied by copies of three recent testimonials, should be sent to the undersigned not later than November 25th.

L. DIXON,
Secretary and General Superintendent.

COUNTY MENTAL HOSPITAL, LANCASTER

Applications are invited for the post of ASSISTANT MEDICAL OFFICER (female). Candidates must be single and under 35 years of age. Commencing salary £550 per annum, rising to £600 after one year's satisfactory service, with further increases on promotion, subject to a deduction of 3 per cent. under the Asylums Officers' Superannuation Act, 1909. There are no emoluments.

The selected candidate will be required to live in the Hospital, and she will be provided with board, lodging, etc., for which a charge of £150 a year is made.

The possession of a Diploma in Psychological Medicine will entitle the officer to an additional £50 per annum.

Applications, giving full particulars, with testimonials (copies only), should be forwarded to the Medical Superintendent on or before November 30th 1938.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL,

Chesterfield.
(220 Surgical and Medical Beds.)

HOUSE SURGEON TO OPHTHALMIC AND EAR, NOSE AND THROAT DEPARTMENTS.

Applications are invited from fully qualified men for the above post, to commence December 1st, 1938. The appointment is for six months. Salary at the rate of £150 per annum, with board, apartments and laundry.

Applications, stating age and nationality, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

M. H. BOONE,
Superintendent and Secretary

November 7th, 1938

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL, CHESTERFIELD

(220 Surgical and Medical Beds.)

HOUSE SURGEON

Applications are invited from fully qualified men for the above post, to commence December 1st, 1938.

The appointment is for six months. Salary at the rate of £150 per annum, with board, apartments, and laundry.

Applications, stating age and nationality, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

M. H. BOONE,
Superintendent and Secretary

November 7th, 1938

THE DEWSBURY AND DISTRICT GENERAL INFIRMARY.**HONORARY VISITING SURGEON.**

Applications are invited for the above post. In accordance with the Rules of the Hospital, the Surgeon appointed must be a Fellow of the Royal College of Surgeons of England, and must also be an Honorary Assistant Surgeon on the staff of a Teaching Hospital associated with a University.

Further information as to the duties attaching to the post may be obtained from the undersigned, to whom applications should be sent before November 28th, 1938.

FRED SMITH,
Secretary-Superintendent

CHILDREN'S HOSPITAL, NOTTINGHAM.

Applications are invited for the post of RESIDENT HOUSE SURGEON (woman). The salary will be at the rate of £150 per annum, with apartments, board and laundry. The appointment will be for six months, duties to commence on January 1st, 1939.

Applications, together with testimonials, stating age, qualifications and experience, to be sent to the Honorary Secretary, 1, King John's Chambers, Bridlesmith Gate, Nottingham, on or before Tuesday, November 29th. Selected candidates will be required to attend at the Hospital for a personal interview.

COSHAM MEMORIAL HOSPITAL,

Kinswood, Bristol

A vacancy will occur at the beginning of the year for a RESIDENT MEDICAL OFFICER. Salary £120 per annum, with board and laundry; to remain for six months in the first instance.

Applicants (male) should be of British nationality, fully qualified, and registered.

Applications, with copies of recent testimonials, to be sent to the Secretary.

ROYAL LIVERPOOL BABIES' HOSPITAL,

Woolton, Liverpool

The Committee invite applications for the post of HONORARY PHYSICIAN.

Applications, with testimonials, to be sent to the Secretary of the Hospital, 9, Copperas Hill, Liverpool 3, not later than Saturday, December 3rd.

NOTTINGHAM CITY HOSPITAL.**RESIDENT ASSISTANT SURGICAL OFFICER.**

Applications are invited for the post of male Resident Assistant Surgical Officer at the above hospital.

The hospital is a general hospital of over 1,000 beds with a considerable amount of acute work.

The appointment is tenable for six months in the first instance at a salary of £250 per annum with the usual emoluments, but may be renewed for a further period of six months subject to satisfactory service.

The successful candidate will be responsible for ear, nose and throat, and general surgical cases, under the supervision of the Visiting Consulting Surgeons.

Candidates must have held previous hospital appointments and have had practical surgical experience.

Application forms can be obtained from me, and should be returned, together with three copies of recent testimonials, on or before November 25th, 1938. Canvassing, directly or indirectly, is forbidden.

Guildhall, J. E. RICHARDS,
Nottingham. Town Clerk.
November 7th, 1938.

KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL,

Maidstone, (109 Beds.)

Applications are invited for the post of HOUSE SURGEON (male) to the Ear, Nose and Throat Department, which post will be vacant on December 16th. Candidates must be duly qualified and registered Medical Practitioners, single, and of British birth and nationality, and should have had some experience in the treatment of diseases of the Ear, Nose and Throat. The Hospital is recognized by the Examining Board for the D.L.O. The appointment is for six months, but a senior post at a higher salary may be given after that period if mutually agreed upon. Salary at the rate of £200 per annum, with board, residence and laundry.

Applications, stating age, together with copies of not more than three testimonials, should be sent to the undersigned.

JOHN W. STRICKLAND, Secretary.

HILL END HOSPITAL AND CLINIC FOR THE PREVENTION AND TREATMENT OF MENTAL AND NERVOUS DISORDERS.

St. Albans, Herts.

HOUSE PHYSICIAN (male) required, age under 30 years. Appointment for six months at the rate of £165 p.a., with board and quarters, renewable for a further six months at the rate of £200 p.a.

The Hospital has over 1,000 beds and is the County Mental Hospital for Hertfordshire. Laboratory, Psychological and Child Guidance Clinic, Occupational Therapy, etc.

Application forms, from the Medical Director, to be returned with copies of recent testimonials. Duties to commence as soon as possible.

LINCOLN COUNTY HOSPITAL.

Wanted, JUNIOR HOUSE SURGEON (male, unmarried). Salary at the rate of £150 per annum, rising to £200 per annum at the conclusion of six months' approved service. Board, residence, and washing will also be provided.

Every candidate for the appointment must be registered under the Medical Acts.

Applications, stating age and other particulars, with copies of not more than three testimonials, are to be sent to the undersigned, from whom further particulars may be obtained.

Lincoln, ARTHUR MOORE,
November 11th, 1938. Secretary-Superintendent.

NUNEATON GENERAL HOSPITAL.

(105 Beds.)

Applications are invited from duly qualified Medical Women for the post of HOUSE SURGEON, vacant on December 3rd, 1938, and should be forwarded as soon as possible to the Hon. Secretary, Medical Board, at above Hospital. Appointment in the first instance is for six months. Salary £150 p.a., together with board, residence, and certain other emoluments. The successful candidate will work with a Resident Surgical Officer.

RESIDENT SURGICAL OFFICER (JUNIOR)

required on January 1st, 1939, for the PRINCESS MARGARET ROSE HOSPITAL for CRIPPLED CHILDREN, Edinburgh (125 beds). Preference given to candidates with orthopaedic experience. Initial salary at rate of £50 per annum, with board.—Apply before December 1st, with six copies of not more than four testimonials, to R. W. MARTIN, W.S., Secretary, 11, Coates Crescent, Edinburgh.

ST. PAUL'S EYE HOSPITAL, LIVERPOOL.

HOUSE SURGEON required January 1st, 1939. Six months' appointment. Salary £145 per annum, with board, residence, etc.

Applications, with copies of testimonials, should be sent to the Secretary on or before December 10th.

THE BOLTON ROYAL INFIRMARY.

(318 Beds, including Two Auxiliary Hospitals.)

Applications are invited for the following posts: RESIDENT SURGICAL OFFICER (gentleman). Resident staff comprises Assistant R.S.O., House Physician, and three House Surgeons. R.S.O. appointment is recognized by the Royal College of Surgeons of England for the Final Fellowship Examination.

Salary £250 per annum, with board, residence, attendance, and laundry.

ASSISTANT RESIDENT SURGICAL OFFICER (gentleman).

The duties of the Assistant R.S.O. comprise responsibility for the whole of the Casualty and Orthopaedic Departments and to deputise for the R.S.O. in his absence.

The post is recognized by the Royal College of Surgeons of England for the Final Fellowship Examination.

Salary £200 per annum, with board, residence, attendance, and laundry.

THREE HOUSE SURGEONS (ladies or gentlemen).

Salary £150 per annum, with board, residence, attendance and laundry.

Applications for the posts, stating age, nationality, and experience, together with copies of testimonials should be forwarded to the undersigned not later than the first post-Monday, November 21st.

Duty in each case will commence on January 1st, 1939, with the exception of one house surgeon, who will be required to commence December 6th.

H. CORLESS,

Secretary.

STANNINGTON CHILDREN'S SANATORIUM,

Near Morpeth, Northumberland.

(310 Beds.)

RESIDENT ASSISTANT MEDICAL OFFICER (Female).

Applications are invited from duly qualified medical women for the above post. Candidates must have held a resident hospital appointment since qualifying, and have had experience in the diagnosis and treatment of Tuberculosis and Bacteriology.

The Sanatorium deals with all forms of Tuberculosis, surgical and medical, in children, and is fully equipped for the work.

Salary £250-£300 p.a. according to experience, with full residential emoluments.

Applications, marked R.A.M.O., with copies of three testimonials, should be sent not later than November 30th to the Secretary, Mr. Isaac Nixon, 21, Eldon Square, Newcastle-upon-Tyne, 1.

ST. MARY'S HOSPITALS, WHITWORTH PARK, MANCHESTER.**HONORARY ASSISTANT PHYSICIAN IN THE CHILDREN'S DEPARTMENT.**

Applications are invited for the post of Honorary Assistant Physician in the Children's Department. Candidates should be Members or Fellows of the Royal College of Physicians. Applications and three testimonials, together with Certificate of Registration, should be sent to the undersigned on or before December 12th, 1938. Candidates should forward twenty copies of their application and testimonials to the undersigned, from whom particulars of duties may be obtained.

A. R. WISE,
Superintendent and Secretary

THE QUEEN'S HOSPITAL, BIRMINGHAM, 15.

A CLINICAL ASSISTANT is required for duty at the Midland Nerve Hospital.

He will be required to attend the Out-patient Department on one day a week.

Honorarium will be at the rate of £50 per annum.

The appointment will be for six months as from December 1st, 1938, and the successful candidate will be eligible for reappointment for a further six months.

Applications should reach me not later than November 19th.

November 11th, 1938. P. CROCKER,
House Governor.

DARLINGTON MEMORIAL HOSPITAL.

(200 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN (vacant on December 31st), male, British nationality, fully qualified. Salary offered, £150 per annum, with board residence and laundry.

Applications, giving full particulars, stating age, qualifications, etc., etc., to be addressed to the undersigned.

ARTHUR RIDDLE, A.C.S.,
Secretary-Superintendent.

TICEHURST HOUSE, TICEHURST,

Tunbridge Wells.

An ASSISTANT MEDICAL OFFICER at the above Private Mental Hospital is required for a period of three or four months. Single man, live in. £400 p.a., with board, rooms and washing. Apply Dr. COLIN McDOWALL, as above.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumshugh Gardens, Edinburgh).

(a) British Islands

| Town or District | Town or District | Town or District |
|---|---|--|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(cont'd) | CONTRACT PRACTICE—(cont'd) |
| ABERTYSSWG MEDICAL AID SOCIETY. (Medical Officer) | MID-RHONDDA MEDICAL AID SOCIETY (Assistant Medical Officer) | OAKDALE, MON. (Medical Officer for Medical Aid Association) |
| BLAENAVON MEDICAL SOCIETY (Medical Officer) | NORTH AND DISTRICT. (Medical Aid Association) | PUBLIC HEALTH |
| GILFACH GOCH GLAMORGAN. (Workmen's Medical Scheme) | OGMORE VALLEY, GLAMORGAN. (Wardham Colliery Medical Aid Society) (Workmen's Medical Scheme) | COUNTY OF ROXBURGH. (Assistant Medical Officer of Health) |
| LWYNSYFIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme) | | |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch |
|--|--|--|--|--|--|
| NEW SOUTH WALES (All Friendly Societies Appointments) | The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney N.S.W. | VICTORIA (All Institute or Medical Dispensaries) | The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria. | WESTERN AUSTRALIA (Contract and Lodge Practices) | The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House", 295 St. George's Terrace, Perth, Western Australia. |
| QUEENSLAND (Brisbane Associate Friendly Societies Institute) | The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17. | | | | |

November 16, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

ROYAL SUSSEX COUNTY HOSPITAL. Brighton (272 Beds.)

Required at the end of December:
ONE HOUSE PHYSICIAN.
ONE HOUSE SURGEON.
ONE CASUALTY HOUSE SURGEON.
Salary respectively £150, £150, and £120 per annum, with board, residence, and laundry.
Candidates must hold Medical and Surgical qualifications of the British Empire and be duly registered under the Medical Acts.
They must be unmarried and when elected under 30 years of age.
Applications, with copies of recent testimonials, should be sent to the undersigned.
L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

ROYAL SUSSEX COUNTY HOSPITAL. Brighton.

Applications are invited for the offices of HONORARY MEDICAL REGISTRAR and HONORARY SURGICAL, from gentlemen who hold a Medical and Surgical qualification of the British Empire and who are duly registered under the Medical Acts.
The appointments will be for a term of three years, the successful candidates being eligible for re-election at the end of that period.
Applications must reach the undersigned at the Hospital before 12 noon on November 26th, 1938.
L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

ROYAL CORNWALL INFIRMARY, TRURO. (84 Beds.)

HOUSE SURGEON (male) required with experience of Anaesthetics, to commence duties on December 1st next. Salary £170 per annum, rooms, board, and washing. Apply, with copies of three recent testimonials, to the Secretary, of whom further particulars may be obtained.
W. E. GRENFELL,
Hon. Secretary.
Truro.
November 8th, 1938.

THE ROYAL PORTSMOUTH HOSPITAL. PORTSMOUTH. (Six Resident Medical Officers.)

Applications are invited for the post of SENIOR HOUSE SURGEON (male). Salary at the rate of £175 per annum, with board, etc. Candidates must have held an appointment as House Surgeon at a General Hospital and had considerable experience, as the post is a very responsible one.
To commence December 12th, 1938. Six months' appointment, and eligible on completion of term for extension.
Applications, stating age, nationality, and full details, with copies of three testimonials, to be sent to the undersigned not later than November 30th, 1938, from whom all particulars can be obtained.
B. WAGSTAFF,
Secretary.

BOSTON GENERAL HOSPITAL. (70 Beds.)

RESIDENT MEDICAL OFFICER required to commence duty as soon as possible. Salary £150 per annum, with board, residence, and laundry. The appointment is for six months and is renewable.
Applications, stating age, qualifications, and previous experience, together with copies of three recent testimonials, should be addressed to the undersigned.
GORDON EASTO,
Secretary.

THE WARNEFORD HOSPITAL FOR MENTAL DISORDERS, OXFORD.

ASSISTANT MEDICAL OFFICER required for the above Registered Hospital. Young graduate with some General Hospital experience preferred. Opportunities for modern psychiatric practice, and ample time for reading or research in Psychiatry. Salary £350 a year, with board and lodging.
Applications, together with copies of not more than three testimonials, should be sent to the Physician Superintendent before December 10th, 1938.

ROYAL MANCHESTER CHILDREN'S HOSPITAL. Pendlebury near Manchester (232 Beds.)

RESIDENT MEDICAL OFFICER

Applications are invited for the post of RESIDENT MEDICAL OFFICER. Salary £150 per annum. The appointment is for a period of six months, commencing January 1st, 1939. Candidates must be unmarried and duly registered. Previous hospital experience essential.
Applications, stating age, and accompanied by copies of not more than three recent testimonials, to be sent to the undersigned not later than Friday, December 2nd. Canvassing, directly or indirectly may disqualify.

By Order,
H. HEARDMAN,
Secretary.

HERTFORD COUNTY HOSPITAL. (171 Beds.)

Applications are invited for the post of HOUSE SURGEON (male) (three Residents). Salary £200 per annum, with board, residence and laundry. The appointment is for six months in the first instance.
Applications, with three recent testimonials, should be sent to the undersigned not later than Tuesday, November 22nd.
PERCY G. BROOKS, Secretary.

CAERNARVONSHIRE AND ANGLESEY INFIRMARY, BANGOR. (General Hospital.)

JUNIOR HOUSE SURGEON wanted. Salary £120 per annum, with residence, board, and laundry. Duties to commence December 10th.
Applications, stating age, qualifications and nationality, with two testimonials, should reach the Secretary by November 26th.
Good opportunity for Medical and Surgical experience.

CHARGES for ADVERTISEMENTS

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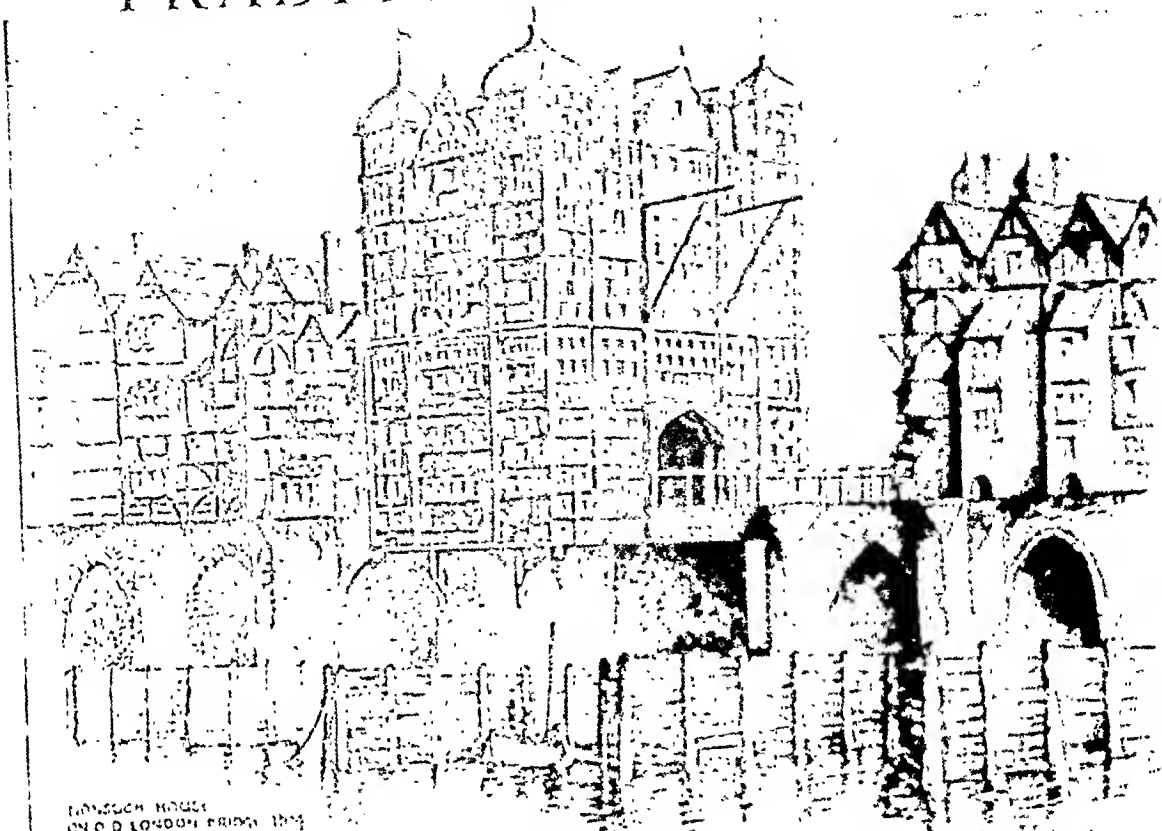
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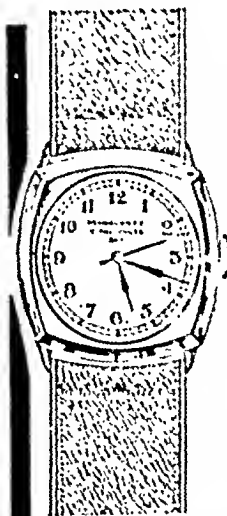
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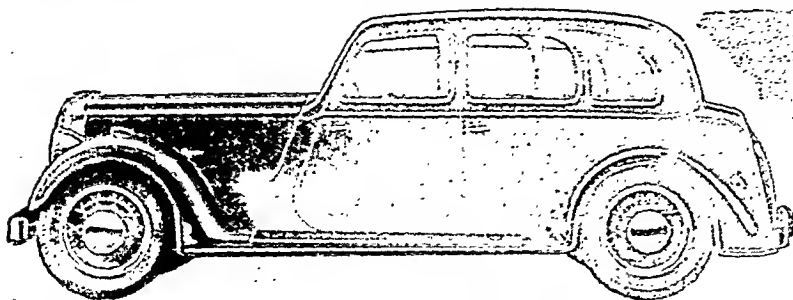
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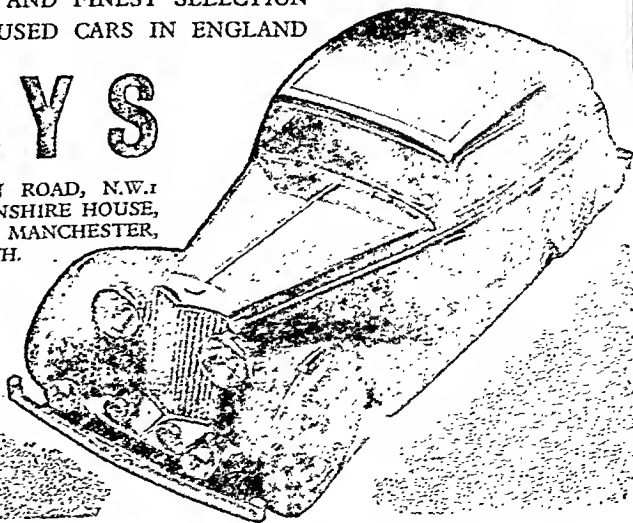
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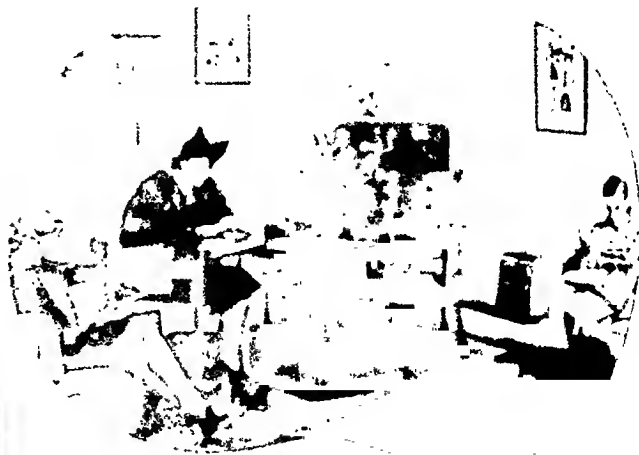
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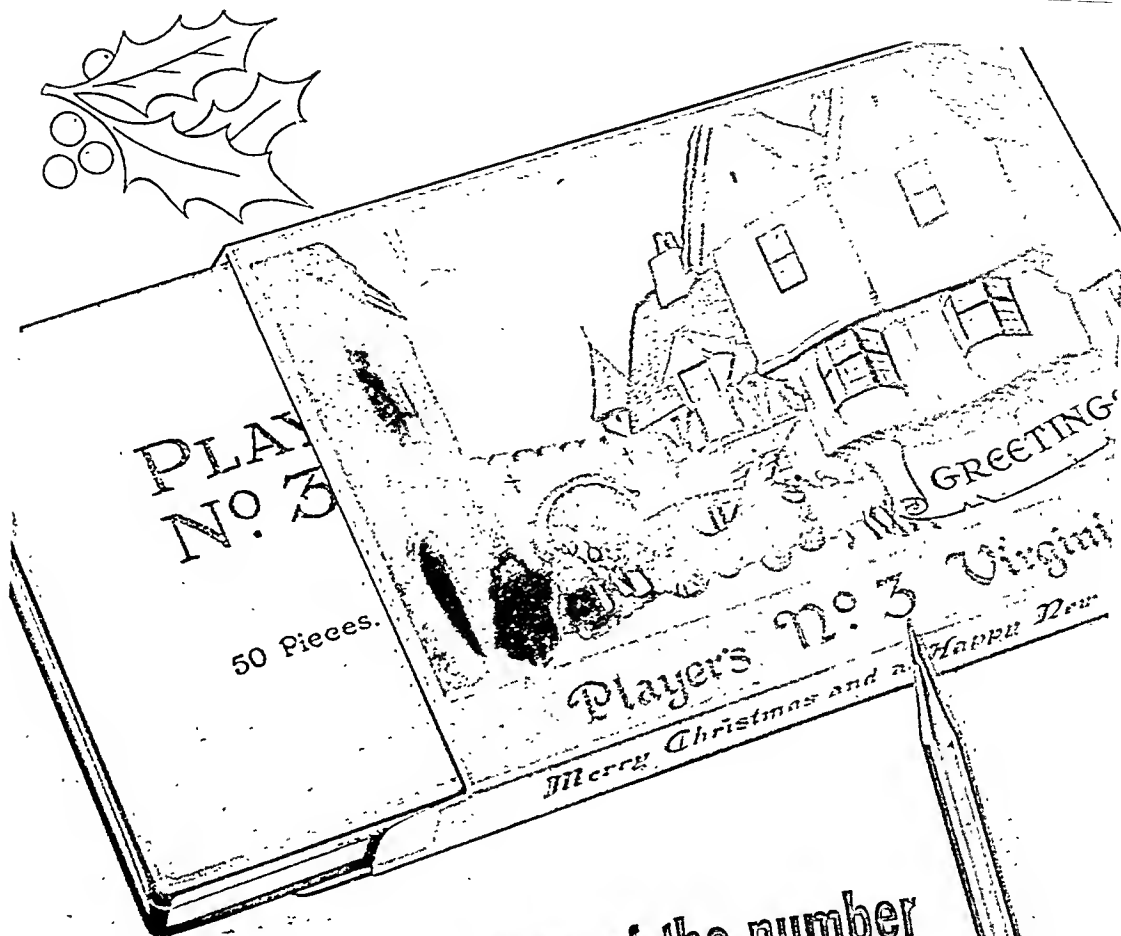
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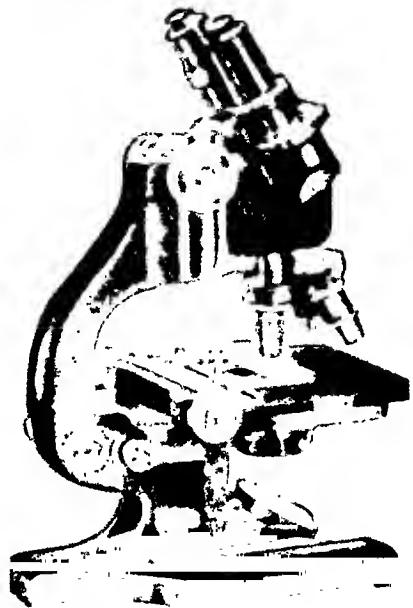
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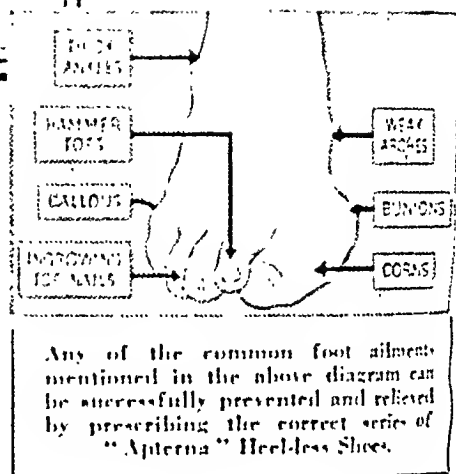
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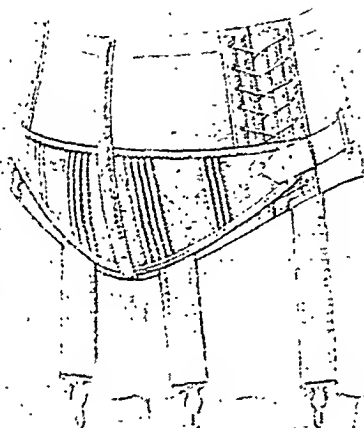
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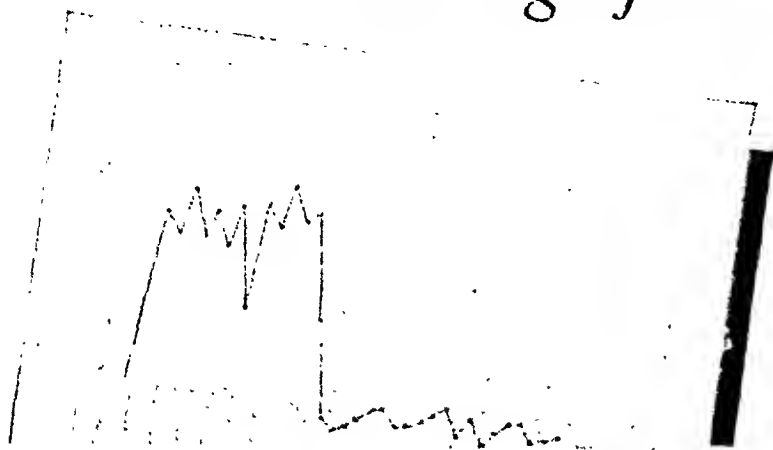
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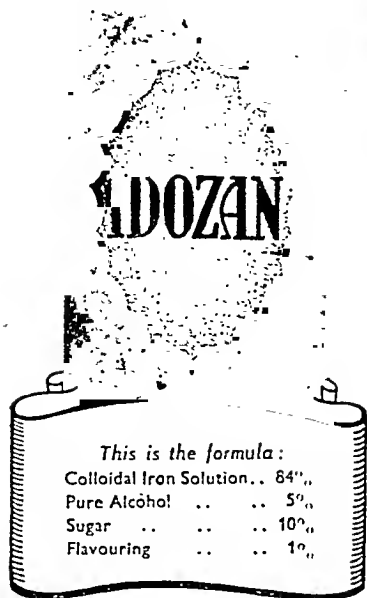
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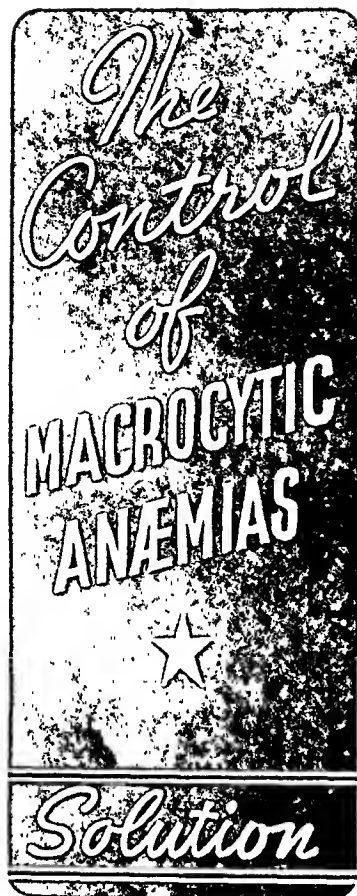
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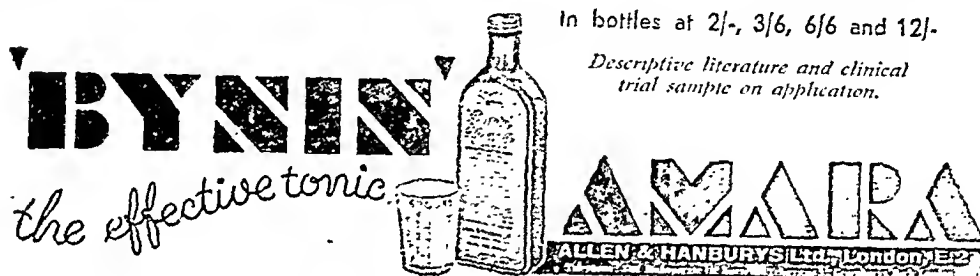
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In consequence there is a growing demand on the part of physicians and mothers for such a product that shall have the highest possible nutritive value, and complete uniformity. Their attention having been drawn to this, the H. J. Heinz Company decided that here was a legitimate extension of their services in view of their wide buying resources and long experience in the preparation of foods.


This company is accustomed to buying vegetables in those regions where they grow best, and to dealing with them within a few hours of their harvesting at the correct season of the

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The best factory practice is inevitably better than home preparation, however careful. After scrupulous cleaning, for example, vegetables are cooked in the Heinz factories under light steam pressure with exclusion of air until just soft enough to be comminuted by extrusion and cutting. The whole process is so regulated that the juices of the vegetables are retained throughout, there are no mechanical losses of mineral salts, vitamins or other soluble nutrients, and the resulting purée is adjusted to the proper consistency for satisfactory marketing.

Before filling and sealing, the product is subjected to a process for the removal of any absorbed air, and sealing takes place *in vacuo*. Finally, the sealed containers are immediately sterilised under known conditions of time and temperature. By these means are secured the high nutritional qualities, uniformity and convenience that physician, mother and patient desire.

NOTE.—Heinz Strained Foods are not packed in glass, for it has been found that light has an adverse action on vitamin content and palatability.



| | |
|------------------|--------|
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| PHOSPHORUS | 0.053 |
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All-Bran is purified wheat bran in the form of an attractively crisp breakfast cereal. It provides the same type of fibrous bulk as that derived from fruit and vegetables but has this striking advantage: the fibrous matter in bran, unlike that of vegetables, breaks down less easily during the process of digestion and is therefore far more effective in promoting regular and thorough action of the bowels.

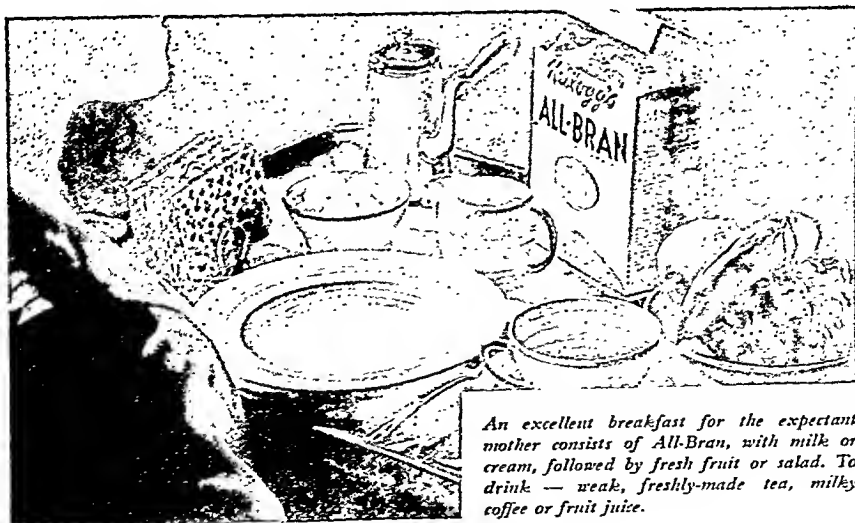
The function of All-Bran

The great value of All-Bran is that it absorbs water and softens like a sponge. This water-softened mass gently but effectively aids elimination. Eaten regularly, All-Bran promotes normal colonic peristalsis and results in easy, natural evacuation of the

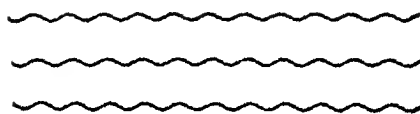
bowel contents without strain on the pelvic organs. Moreover, its Vitamin B and iron content make it a particularly valuable food during pregnancy and lactation.

Eaten daily, All-Bran ensures comfortable regularity even during the later stages of pregnancy when the tendency to common constipation is increased by growing pressure on the internal organs. During the lying-in period it is also invaluable in aiding a quick return to normal habits and as a means of avoiding harmful strain on weakened muscles.

All-Bran may be served as a cereal with milk or cream, or cooked into appetising scones, bread, etc. It may also be taken in combination with other cereals or sprinkled over salads and other foods. To ensure maximum effectiveness, plenty of fluid should be taken, preferably between meals. All-Bran is obtainable from all reliable grocers. A packet will be sent free on request to any qualified practitioner. Inquiries should be addressed to: Kellogg Company of Great Britain Ltd., Stretford, Manchester.



An excellent breakfast for the expectant mother consists of All-Bran, with milk or cream, followed by fresh fruit or salad. To drink — weak, freshly-made tea, milky coffee or fruit juice.



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In view of the widely divergent opinions expressed concerning the dosage and vitamin content of various liver oils, the proprietors of 'SevenSeaS' cod liver oil wish to remind the medical profession that on January 1, 1936, the British Pharmacopoeia Commission laid down not only a definite dosage, but also a definite standard of vitamin content for cod liver oil.

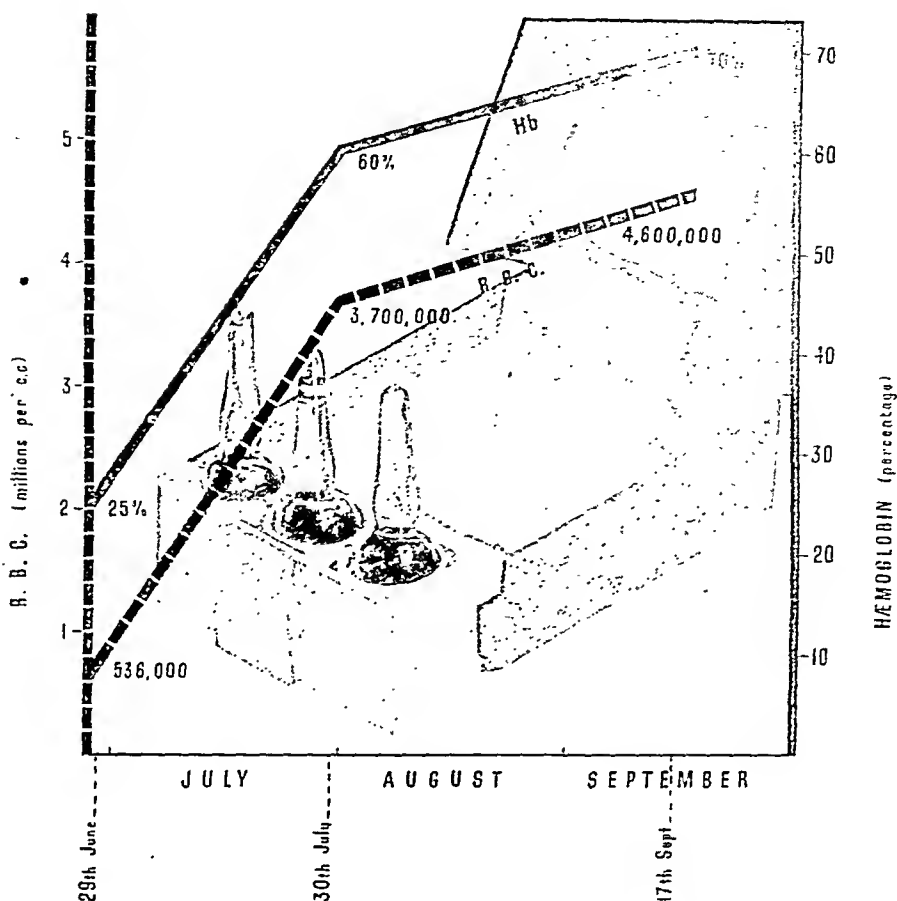
The dosage was fixed at a minimum of 15 minims (a quarter teaspoonful) three times a day, and the vitamin content was standardised at not less than 600 International Units of Vitamin A and not less than 85 International Units of Vitamin D per gramme.

In 'SevenSeaS' Standard Oil, the practitioner has at hand a cod liver oil of the highest quality, fresh, easily digestible, and with a uniform vitamin content guaranteed to conform to the standard of the British Pharmacopoeia. The oil is rendered from the livers at sea as soon as the fish are caught (a process impossible with any other fish liver), instead of waiting until the ship is back in port and the livers consequently stale. The high quality of 'SevenSeaS' cod liver oil, and the uniformity of its vitamin content arising from its method of preparation, make it possible to prescribe only small doses which cannot give rise to acidosis.

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This High Potency Oil is not reinforced or in any way treated to increase the vitamin content. It is simply pure natural oil obtained by selection from the richest livers on the best fishing grounds.

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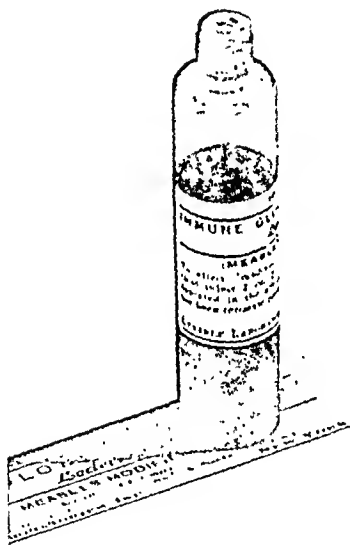
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Lederle

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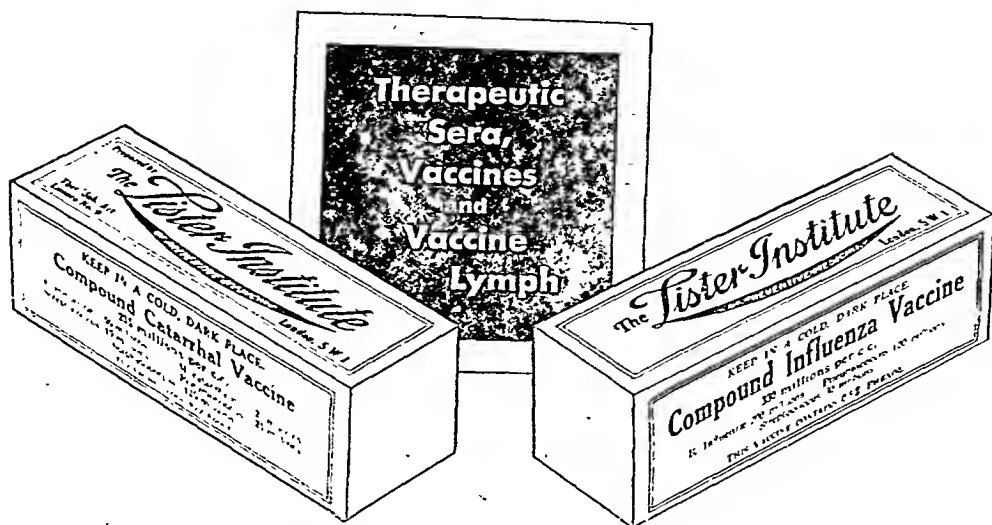
| Procedure | Cases | Per Cent. Protected | Per Cent. Modified | Per Cent. Failed |
|------------------------|-------|---------------------|--------------------|------------------|
| Adult Serum ... | 584 | 56.4 | 23.8 | 19.8 |
| Convalescent Serum ... | 1,627 | 75.4 | 16.8 | 7.8 |
| Immune Globulin ... | 1,341 | 71.5 | 23.9 | 4.6 |

Eley, R. C., N.E. Jour. Med., Aug., 1935, 213, 195

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DOSAGE. Prophylaxis: 1st dose, 50 million *B. influenzae*, 10 million *Streptococcus*, 25 million *M. catarrhalis*, 25 million *Pneumococcus*, 125 million *Staphylococcus*. Subsequent doses at intervals of 7 to 10 days, gradually rising to 8 times the original dose. Then 4 to 8 times the initial dose every 4 to 6 weeks.

Treatment. $\frac{1}{2}$ to $\frac{1}{3}$ of the prophylactic doses.

PRICES. Ampoules containing

| | |
|--------------------------------------|-----|
| 235 million organisms per c.c., each | 2/6 |
| 470 " " " " " | 2/6 |
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10 c.c. rubber-capped vials containing

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| 470, 940 or 1880 million organisms per c.c., each | 15/- |
| 25 c.c. ditto ditto, each | 25/- |

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The Compound Influenza Vaccine prepared by the Lister Institute contains the chief types of bacteria found in the catarrhal secretions of the respiratory passages in epidemic influenza, viz. *B. influenzae*, *Pneumococcus*, and *Streptococcus*. It is primarily intended as a prophylactic, but may also be used for treatment.

DOSAGE. Prophylaxis: 1st Dose, *B. influenzae* 200 million, *Pneumococcus* 100 million, *Streptococcus* 50 million = 350 million organisms. 2nd Dose, 660 million organisms, 7 to 10 days later. In treatment 1st to 12th of the prophylactic doses may be given, commencing with the lower dose in severe cases.

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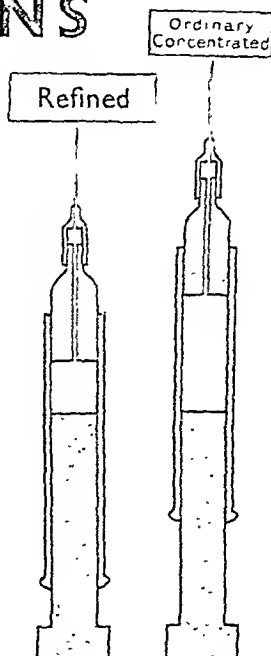
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| " " 6000* | " | " | 8/9 |
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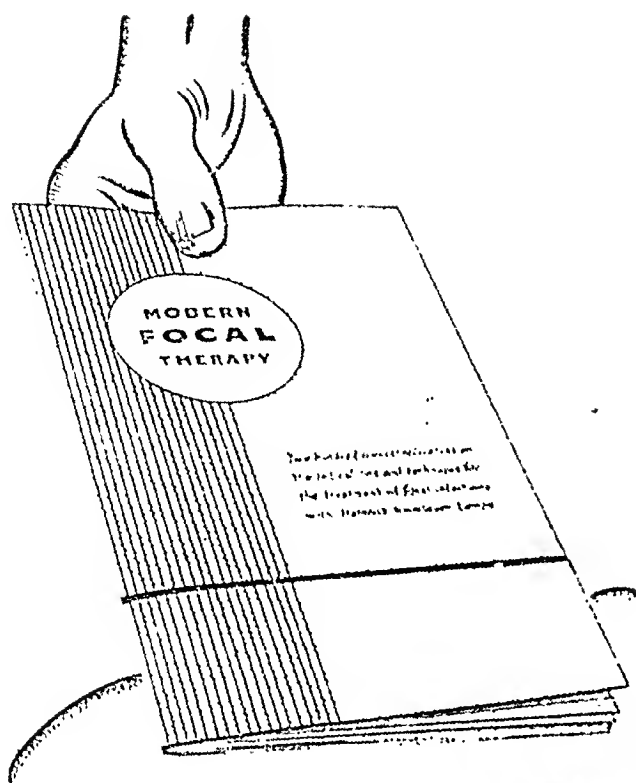
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In the diet of many millions of people"

THE LANCET, 15 Oct., 1937, p. 719

The reduction in Vitamin B₁ intake, due to changes in dietary habits during the last hundred years, normally amounts to at least 50 per cent., and may be as much as 75 per cent. It has been demonstrated, both experimentally and clinically, that a shortage of Vitamin B₁ acts as a limiting factor in the maintenance of health and nutrition, and often results in gastro-intestinal disorders, loss of appetite, indigestion, constipation and, if long continued, contributes to neuritis and arthritis.

The logical way to rectify such shortage is to restore to the diet the Vitamin B₁-containing substance whose removal is responsible for the deficiency.

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For years it has been the policy of the proprietors of Bemax to ensure its Vitamin B₁ activity by biological assay of every day's output. So far as is known, Bemax is the only food product for which such a claim is or can be made.

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CANCER OF THE BREAST*

BY

GORDON GORDON-TAYLOR, O.B.E., M.A., F.R.C.S.

Senior Surgeon, Middlesex Hospital

At the Annual Congress of the American College of Surgeons in 1932 one feature of the proceedings was a symposium entitled "Cancer is Curable," and large numbers of so-called "five-year cures" were forthcoming. The choice of subject on that occasion was avowedly propagandist, for it was strongly felt that until it could be brought right home to the laity that cancer is a curable disease early consultation and early treatment, so necessary for success, were not likely to be of frequent occurrence. Furthermore, those organizing that discussion fervently hoped, that the medical profession, and especially such as may have been depressed by an unfortunate series of cases, might be convinced anew of the real value of the various methods of cancer treatment in vogue, and would encourage their patients to avail themselves of these curative measures at the earliest moment. Doubtless similar motives actuated the officers of the Section of Surgery in their choice of mammary cancer as the theme for debate.

Some of you may have been privileged to attend the fourth Biennial Informal Conference of the British Empire Cancer Campaign in March, 1937, and have had the good fortune to listen to those apt, well-chosen words of Mr. Cecil Rowntree, who from the chair inaugurated the discussion on the "Present State of the Treatment of Cancer of the Breast": his participation in the affairs of this Section to-day recalls that successful meeting.

I am persuaded that in extending this invitation to me the Section is really desirous of obtaining such information concerning the end-results of the radical operation for cancer of the breast as may come from a surgeon who, save for a very brief period, has eschewed the methods of post-operative irradiation as a supplement to radical surgery in the cases of mammary carcinoma which are by common usage now classified as Group I and Group II. I have always regarded wide radical surgery as the method of election in almost every patient belonging to these two categories, but my debt to radiotherapeutic colleagues in respect of Group III cases, and of those patients with recurrent disease, is incalculable; I yield to none in my admiration for their humanity, enthusiasm, and optimism in their relations with a class of patient that is largely constituted by those condemned to die.

The methods of radiotherapy are indeed sometimes preferred by me in occasional cases of primary cancer of the breast: thus during the decade 1925-35 I employed, at Middlesex Hospital, radiation alone in thirty-nine cases of primary breast cancer, of which twenty-eight were Group III cases, eight belonged to the Group II class, and three were arranged in the Group I category. In the

advanced or "bad surgical risk" type of patient, three only are alive, the length of survival ranging from two to six years. Among these patients of this series who are now dead, one survived eight years and another succumbed only after five and a half years.

In another group of twenty-nine patients, in whom for various reasons a radical operation could not be performed, and who were submitted to a mere local removal of the breast, irradiation was superadded: only two survive, but of those patients now dead one lived ten years, one eight and a half years, and two others five and six years respectively. The patients who succumbed after eight and ten years died of maladies unconnected with the mammary carcinoma.

I have thus, for the most part, reserved radiation therapy for the advanced case or those unsuitable for radical surgery. It is with the results of the radical operation for cancer of the breast that I shall concern myself; and although I am conscious of a paucity of numbers I prefer to deal entirely with my own personal cases. These results are set out in the following table.

| | |
|--|-------------|
| Total cases of carcinoma of breast dealt with by radical operation from 1931 to 1935, inclusive | 693 |
| Cases untraced | 7 |
| Number of cases treated by radical operation up to 1935—that is, cases that could have survived 10 years or more | 353 |
| Group I cases operated on up to 1935 | 113 |
| Cases surviving 10 years | 95 (84.0%) |
| Group II cases operated on up to 1935 | 204 |
| Cases surviving 10 years | 60 (29.4%) |
| Group III cases operated on up to 1935 | 45 |
| Cases surviving 10 years | 3 (6.5%) |
| Number of cases treated by radical operation up to 1933—that is, cases that could have survived 5 years or more | 497 |
| Group I cases operated on up to 1933 | 163 |
| Cases surviving 5 years | 140 (85.8%) |
| Group II cases operated on up to 1933 | 233 |
| Cases surviving 5 years | 113 (49.0%) |
| Group III cases operated on up to 1933 | 51 |
| Cases surviving 5 years | 5 (9.8%) |
| Number of cases treated by radical operation up to 1935—that is, cases that could have survived 3 years or more | 551 |
| Group I cases operated on up to 1935 | 172 |
| Cases surviving 3 years | 147 (85.4%) |
| Group II cases operated on up to 1935 | 320 |
| Cases surviving 3 years | 159 (49.5%) |
| Group III cases operated on up to 1935 | 59 |
| Cases surviving 3 years | 6 (10.1%) |

Protracted Survival after Radical Mastectomy.—Of 158 patients who have survived radical mastectomy ten years or more, eight survived twenty-five years: six survived between twenty and twenty-five years†: thirty-three have lived between fifteen and twenty years: and 111 managed to attain a decade of years after their mastectomy.

Association with Carcinoma of Other Parts of Body.—Two patients have subsequently developed a primary carcinoma of the stomach: one twelve and a half years, one five years after mastectomy. Two patients have subsequently developed carcinoma of the rectum, each six years after mastectomy: two patients presented themselves with a simultaneous carcinoma of the rectum and

* Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Plymouth, 1938.

† These represent 1913 and 1914 cases. The war years furnish no statistics.

a carcinoma of the breast; both did badly and died of their rectal carcinoma. One patient survived an excision of the cheek, jaw, and floor of mouth ten years, and then developed a carcinoma of the breast; at the moment, two and a half years after mastectomy, she is alive and well.

Operative Mortality

There have been eight deaths in this series of 603 cases: one patient, inadvertently operated upon on the first day of her menstrual period, lost an inordinate amount of blood and died rapidly from the results of haemorrhage; another patient with diabetes, who had been under severe dietetic treatment before the days of insulin, died from exhaustion at the termination of the operation; one died of mesenteric thrombosis, one of erysipelas ten weeks after operation; one patient, where surgical removal was effected by diathermy, developed a wound infection with the Klebs-Loeffler bacillus, from which she succumbed; one with advanced heart disease died of heart failure, one from bronchopneumonia, and one of a pentine haemorrhage which took place during the operation.

The History of the Radical Operation

It is indeed appropriate that this discussion on cancer of the breast is being held in Plymouth, for this city cradled the "father of modern breast cancer surgery." Although cancer of the breast had been operated upon as far back as the Byzantine Period by Paul of Aegina, it was Charles Moore, born in Plymouth in 1821, and later surgeon to Middlesex Hospital, who in 1867 enunciated the necessity for removing, in addition to the entire breast, any unsound adjoining textures. Time does not permit me to do more than mention the names of Lister, Mitchell Banks of Liverpool, Gross of Philadelphia, Halsted of Baltimore, Harold Stiles and Heidenhain, Watson Cheyne, and my old master Alfred Pearce Gould.

The story of breast cancer would, of course, be incomplete without the name of my friend and colleague Sampson Handley, whose reputation in this sphere is international. These are the giants associated with the evolution of the radical operation for mammary cancer. Grey Turner first taught me the advisability of removing the clavicular head of the pectoralis major.

It was remarked by perhaps the wisest British surgeon of this century that where the ancillary methods of surgery are added to the knife in dealing with cancer the extent of the operative removal inevitably becomes curtailed; nor is it otherwise in the treatment of mammary cancer. Pre-operative and post-operative irradiation has gradually restricted the extent of surgical ablation; the curtailment is noted especially in the amount of skin removed, the clearance of the axilla, etc. By some, radium has even been regarded as the equal, if not the superior, of radical surgical removal. The figures produced by my friend Geoffrey Keynes are worthy of the closest study, and, emanating from the practice of so distinguished, experienced, and learned a surgeon, must command our earnest attention.

In order to secure some information as to the practice of other surgeons in respect of pre-operative and post-operative irradiation, I approached seventy-two of my friends throughout Great Britain, sending them the following questionnaire:

QUESTIONNAIRE ON CARCINOMA OF BREAST

1. For the ordinary "operable" cases of carcinoma of the breast (Stages 1 and 2 of the Geneva Convention) what is your usual treatment?

- (a) Radical mastectomy alone.
- (b) Operation plus radiation therapy.
- (c) Radiation therapy alone.

2. If the operation and radiation therapy—what form does this usually take?

3. Do you give pre-operative deep x-ray as a routine?

4. Do you give post-operative deep x-ray as a routine?

5. What treatment do you use for advanced cases (Stage 3 of the Geneva Convention)?

6. What treatment do you use for local recurrences? (Skin nodules, axilla, and supraclavicular triangle.)

7. Do you think that routine deep x-ray improves results of radical mastectomy? If you have any statistics readily available which prove this point or for the general results of your treatment of carcinoma of the breast would you add them below?

Unfortunately no very useful information for future guidance is forthcoming. Four different usages prevail: of the surgeons interrogated 25 per cent. make no use of irradiation as a supplement to radical operation; 44 per cent. use some form of irradiation in every radical mastectomy; 29 per cent. employ irradiation in Group II cases after radical mastectomy, and 2 per cent. favour the method of irradiation alone without radical removal.

The general tendency of surgical opinion is certainly towards the more frequent employment of supplementary irradiation, yet no figures warrant the constant and universal use of post-operative irradiation therapy as quoted by any observer. Some who employ post-operative irradiation have even naively stated that patients have confessed that the ordeal of irradiation is worse than radical operation.

I am not here to contrast one method of treating cancer of the breast with another, nor could I draw any fair conclusion as to their respective merits. A paper on prognosis in carcinoma of the breast, written by R. W. Searll and R. S. Handley (1938) concerns itself primarily with the evaluation of histological grading, but this has been employed in only a few of my cases. The histological points on which mammary tumours have been graded by Patey and Searll are:

1. Tubule formation; if well marked, this is favourable.
2. Pronounced irregularity in size and outline of nuclei; the greater the irregularity, the worse the prognosis.
3. The presence of hyperchromatic nuclei and of mitotic figures; the greater the number, the worse the prognosis.
4. The presence of secretion is regarded as favourable.

Little stress is laid upon other points, such as cell degeneration, infiltration by lymphocytes, or the appearance of the stroma.

Employing these criteria, Searll divided breast carcinomata into three grades of malignancy, but he does also admit that the presence or absence of axillary metastases is perhaps the most important single factor in prognosis, although this might seem an arbitrary standard by which to judge the clinical stage of the disease.

Where information is lacking as to the histological grade of the breast tumour no two series of cases or of treatments can be fairly compared. Apart from histological grading and the clinical stage of the disease the resisting power of the patient to cancer may also play an important part in prognosis; geographical environment may not be altogether negligible in determining the end-results.

Late Recurrences

It seems strange that cancer of the breast may recur as long as thirty-one years after the initial operation; Frank Steward (1925) records such a case operated upon

initially by Sir Henry Butlin, and mentions another of Sir Anthony Bowlby's. I have myself seen a carcinoma of the breast recur in the pelvis as a mass, the histological structure of which was reported as a "spheroidal-celled carcinoma of mammary type." The breast had been removed by Sir Cuthbert Wallace for carcinoma thirty years before. Three cases of recurrence in the scar have been observed by me twenty-one, twenty-two, and twenty-three years after operation by other surgeons. A case of my own developed a recurrence in the scar seventeen years after a radical operation, and this followed a few weeks after an acute attack of pyelonephritis, for which I had been called to treat the patient. I have seen local recurrence follow an operation for haemorrhoids performed sixteen years after the initial amputation; two recurrences followed gall-bladder operations, and one seemed consequent upon a hernia operation performed under a local anaesthetic six years after the mastectomy.

In most cases late recurrence has progressed disastrously, but exceptions are met with. One patient, operated upon for a mammary cancer seventeen years previously, developed a recurrence at the clavicular end of the scar. This was "flared" by radium, quickly becoming adherent to the clavicle; glands in the posterior triangle of the neck rapidly made their appearance, and there was increasing oedema of the arm. A "fore-quarter amputation" was performed, and the posterior triangle of the neck was cleared out at the same time. The patient survived two years, dying of metastases in the spine.

Certain geographical localities seem to "breed" a carcinoma of the breast of less malignant type: Mid-Hertfordshire has, in my experience, produced many ten-year and even twenty-year clinical "cures"; the Biggleswade and Sandy area of Bedfordshire seems conspicuous for the malignancy of cancers of all sorts.

Sure and accurate knowledge of the dread scourge will one day place in our hands some more specific cure than we at present possess, and much of the heroic in cancer surgery will pass into oblivion. In that golden era gross mechanical destruction of disease and cruel mutilation shall be no more, but even now much encouragement is to be found in the results of the surgery of breast cancer. A chaplain at "Middlesex" told me that during his three years' service at the hospital he had never met any patient who wanted to die. The addition of three years of life may not be always a trifling gift; five years' respite constitutes no paltry achievement; ten years may be a source of abiding joy to patient and relatives; twenty years spells a triumph!

Some may remember how the late Sir James Barrie, in his Rectorial address on "Courage" to the red-gowns of St. Andrews, reminded his listeners that "God gave us memory so that we might have roses in December." The memory of those 158 patients who have each survived more than ten years, perhaps many more years than ten, after an operation for a mortal disease like cancer of the breast, will be for me a reminder that I, too, can have my "roses in December."

It affords me great pleasure to acknowledge the kindly help of many friends. Miss Griffith and Miss Coysh of the follow-up department of Middlesex Hospital have furnished me with information about almost every single case of my own operated on in "Middlesex" since 1925; it is with pleasure that I express my sincere thanks to my registrar, Mr. A. S. Till, who pursues with tireless energy any research on which he is engaged. The courtesy and alacrity with which my questionnaires, sent to many friends, were answered and returned to me were perhaps not surprising, for British

surgeons are a "band of brothers." To the members of the medical profession whom I have assailed with letters I am under a great debt of obligation for the trouble they have taken to collect the information that I desired. To Miss Hall, my late secretary, I am grateful for aiding in the search for patients operated upon long ago. Miss Aspiotis had genius and pertinacity in obtaining news of patients operated upon even as long ago as thirty years. The topographical knowledge of my chauffeur, and many taxi-drivers, to say nothing of their enthusiasm, aided my efforts to secure the information I wanted. My own labours are also not undeserving of some eulogy when only seven cases have remained untraced.

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TREATMENT OF PAIN IN THE FACE BY INTRAMEDULLARY TRACTOTOMY

BY

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This paper is concerned with three cases of severe pain in the forehead which have been relieved by section, through the postero-lateral aspect of the medulla oblongata, of the pain fibres in the descending tract of the trigeminal nerve—a method recently suggested by Sjöqvist (1938) of Sweden.

The results of surgery in the relief of primary neuralgia of the face are outstandingly good, and, in fact, tic douloureux is one of the most gratifying ailments to treat in the whole realm of medicine and surgery. Important advances have been made since Horsley's description in 1891 of an unsuccessful attack on the sensory root of the trigeminal nerve several years before. It is to Hartley (1892) of America and Krause (1892) of Germany that chief credit must be given for the extradural approach through the middle fossa, which formed the basis of operative procedures destined to obtain so great a success. In the first instance both divided the trunks of the nerve distal to the ganglion, and it was not until a year later that Krause (1893) removed the ganglion itself. In 1901 Spiller and Frazier suggested division of the posterior root instead of removal of the ganglion, and it was this modification which so profoundly influenced all subsequent methods of treatment. Apart from conservation of the motor root, the great advantage of the method is that a fractional anatomical section is generally possible. Immediately behind the ganglion the nerve fibres run in groups corresponding fairly accurately with the three peripheral trunks, and can be isolated according to their relative positions, the mandibular and maxillary fibres occupying the lower and outer two-thirds of the root. Dandy (1929) claims that as the posterior root nears the pons varolii the fibres conducting the various modalities of sensation become rearranged into distinct physiological groups, so that by means of an intradural approach through the posterior fossa it is possible to divide only those fibres which are carrying pain impulses. It is doubtful whether this arrangement occurs in all cases, and there is much experimental evidence to disprove it. However, within the brain stem physiological grouping does take place, and in this position fractional physiological section is possible. Sjöqvist has devised a method by which he is able to divide the pain fibres in the descending limb of the trigeminal

tract by an incision through the postero-lateral aspect of the medulla oblongata, sparing the sensation of touch so that the face is not recognized by the patient as unpleasantly numb.

Case I

Intramedullary tractotomy for the relief of neuralgia in the ophthalmic division of the right trigeminal nerve.

History.—A woman aged 58 was admitted to the neuro-surgical service of the Manchester Royal Infirmary under the care of Mr. Geoffrey Jefferson. One day, nine months pre-

viously, when walking on the promenade at Blackpool, the wind "caught her face," and the next morning she experienced severe pain over the right eyebrow. The pain was essentially spasmodic in character; it came on in sharp knife-like stabs, starting in the eyebrow and shooting into the forehead. A spasm would be brought on by washing the face or by a cold draught, and in the past few weeks the pain had been almost intolerable.

On examination she was seen to be a small thin woman, though well preserved, and certainly not of the nervous or migmatic type. There was no loss of sensation in the face, and no abnormal neurological signs were found. It is rare for true *tic douloureux* to start in the ophthalmic division of the fifth nerve, but this was a genuine case.

Operation (performed by G. F. R., April 16, 1938).—Under avertin and gas-and-oxygen anaesthesia a wide cerebellar exposure was made through a transverse skin incision (Fig. 1). A generous amount of bone was removed, including the posterior margin of the foramen magnum, and the dura mater was opened through a Y-shaped incision. This exposed a large cisterna magna, filled with cerebrospinal fluid, and its release by puncture of the tough arachnoid membrane so lowered the tension in the posterior fossa that manipulations could be carried out with ease. The right cerebellar tonsil was retracted until the foramen of Magendie came into view; on lifting the cerebellar lobe still further the restiform body was exposed and at the side could be seen the roots of the vagus nerve, the curve of the vertebral artery, and the ascending root of the spinal accessory nerve. Two millimetres above the lowest vagal root and starting close to its origin from the medulla oblongata a transverse incision was

made into the right tuberculum cinereum in its outer part for a

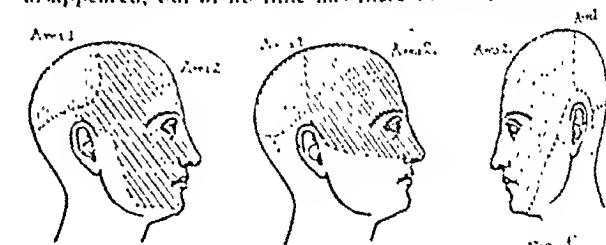


FIG. 1.—Showing the site of the incision of intramedullary tractotomy.

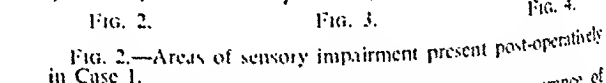


FIG. 2.

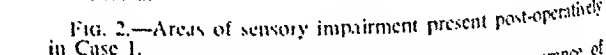


FIG. 3.

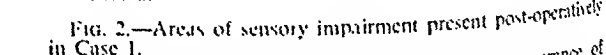


FIG. 4.

FIG. 2.—Areas of sensory impairment present post-operatively in Case I.

Area 1: Complete anaesthesia, owing to the severance of the occipital nerves in the skin incision. Area 2: Pain sense is absent; thermal sense is faulty; light touch can be appreciated and accurately localized.

FIG. 3.—Areas in which sensory changes occurred post-operatively in Case II.

Area 1: Complete anaesthesia. Area 2: Pain sense is depressed; the corneal reflex is absent; thermal sense is faulty; sense of light touch is normal.

FIG. 4.—Areas in which sensory changes occurred post-operatively in Case III. Area 1: Complete anaesthesia. Area 2: Pain sense is absent; thermal sense has lost discrimination; light touch can be appreciated and correctly localized. The sensory changes in the lower part of the face are much lighter than over the forehead, and this is particularly so over the lower lip.

[NOTE: In all three cases sensation is normal on the opposite side of the face.]

tion of the cornea or haziness of the conjunctiva. Both eyes can be made to water freely. The tongue is analgesic on the right side in its anterior two-thirds, taste is present on this side, sense of smell is good in both nostrils, and all the muscles of mastication are active. There are no changes referable to the sympathetic nervous system—no pupillary changes, no differences in colour or temperature in the skin on the two sides of the scalp or face. This woman was an excellent witness.

Case II

Severe and persistent migrainous headaches treated by intramedullary tractotomy.

History.—A man aged 50 was transferred by Dr. Don from the medical wards to Mr. Jefferson's neurosurgical service on May 5, 1938. For fourteen years he had suffered from periodic headaches confined to the right side of the forehead. They would come on slowly, develop to a climax, and then slowly disappear. Occasionally specks would float before his eyes and he would feel sick. In the past ten days the headache had been continuous. Medical measures having failed, he was anxious to undergo any surgical treatment if there were a reasonable chance of gaining relief.

On examination he was observed to be a tall well-built man, and was living an active life as an overseer in a munition factory. He was of the nervous type, but not a single abnormal neurological sign was discovered. Migraine unassociated with any underlying pathological change was the obvious diagnosis. Because of the persistency and severity of the pain and the failure of ergotamine tartrate to give relief it was decided that surgical intervention was necessary.

Operation (performed by G. F. R., May 10, 1938).—The entrance was tedious because of massive nuchal muscles and a thick occipital bone. A good exposure was obtained, and a transverse incision 4 mm. long was made into the right tuberculum cinereum in its outer half just above the lowest vagal root, to a depth of 3.3 mm. Towards the end of the operation the pulse became irregular for a few minutes and extrasystoles developed. When the patient left the operating theatre his general condition was excellent: the right corneal reflex was absent and the left one was brisk. Within two days a "red" eye developed, but this was due probably to the trauma of repeated testing for the corneal reflex rather than to paralytic interstitial keratitis, and it cleared up in forty-eight hours. During convalescence he had a little difficulty in swallowing: this was subjective rather than objective. There was a fine nystagmus on lateral fixation to both sides; no cerebellar signs were present in the arms or legs.

Fig. 3 illustrates the areas in which sensory changes occurred post-operatively. Area 1 is completely anaesthetic, due to severance of the occipital nerves in the skin incision. In the right side of the face and forehead the sensation of pin-prick is dulled, the analgesia fading in density from above downwards. Thermal sense is not so discriminative as in the corresponding areas on the left side. Light touch is present and can be localized perfectly.

In this case the tracts had been bruised rather than severed completely, because, as the days went on, the analgesia began to fade from below upwards. This is an important observation, since it shows that a fixed length or depth of section is not entirely adequate and that each case must be judged individually. This man had a bulky and very wide medulla oblongata, and so the medullary incision would have been better lengthened and deepened.

Case III

Intramedullary tractotomy for primary neuralgia affecting the ophthalmic division of the left trigeminal nerve.

History.—A man aged 56 was admitted to the neurosurgical service of the Manchester Royal Infirmary, under the care of Mr. Geoffrey Jefferson, complaining of pains in the left forehead. These started in November, 1935, and had appeared at intervals ever since, the last attack being very persistent. When he appeared at the out-patient department he was

suffering from severe pains—so severe, in fact, that he refused to go home, and insisted on being admitted to the hospital as an urgency. The pain started in the region of the supra-orbital notch and, in spasms, shot upwards into the forehead as if red-hot needles were being driven into the skin. Each spasm would last a second or so, and then the pain would disappear, to be repeated in about a minute. In the past four days the intervals of relief had been so short that he was almost demented.

On examination there was not a single abnormal neurological sign and, in particular, no sensory loss in the face. It is unusual for true primary major neuralgia to start in the ophthalmic division of the trigeminal nerve, but this was a typical example.

Operation (performed by G. F. R., May 21, 1938).—In this case the experience gained in the two previous operations permitted a more limited exposure of the posterior fossa, and a low mid-line entrance was made. At the level of the lower fibres of the vagal line, and starting at their superficial origin, a transverse incision 4 mm. long and 3.5 mm. deep was made into the left tuberculum cinereum. The incision had to be performed in two cuts because of a large vessel which ran vertically across the proposed line of section and could not be mobilized. At the end of the operation the patient was in excellent condition: the left corneal reflex was absent, whereas the right one was brisk. The next day his left arm was wildly ataxic, the left leg a little unsteady, and there was a fine rapid nystagmus on lateral fixation; but all these signs disappeared in three days' time. General convalescence was easy and smooth throughout. For a few days there was some difficulty in swallowing, which again was subjective rather than objective, and difficulty in micturition which did not necessitate catheterization.

Fig. 4 illustrates the sensory changes which occurred in the face post-operatively. The anaesthetic area at the back of the scalp is due to severance of the occipital nerves in the skin incision. Area 2 is analgesic, thermal sense is depressed, a hot test-tube being appreciated as a warm one, and a cold tube as a little less warm than the hot one. Light touch can be appreciated and correctly localized. The man volunteered the statement that the sensory changes were "heaviest" from above downwards. He has had no neuralgic pains since the operation, and is now a much happier-looking man.

Commentary

The immediate relief of severe forehead pains in three cases has been conspicuous, and though not enough time has yet passed to allow of a final evaluation of the method in the therapeutics of neuralgias the nature of the operation suggests that the good results will be lasting.

The advantages of the method are that the face is not completely denervated; analgesia is densest in the forehead, and the muscles of mastication are never paralysed—an important consideration, as bilateral neuralgia is by no means uncommon. Moreover, the great superficial petrosal nerve (nerve of tear-secretion) is far from possible injury, and so a dry eye is avoided. It is the loss of tear-secretion which is thought to be the main factor in the production of corneal "steaming" or ulceration, a troublesome complication occasionally following posterior root section.

The operation also makes an interesting neuro-anatomical experiment in elucidating the destination of the fibres in the posterior trigeminal root. Somatically, the face is represented upside down in the long spinal nucleus and the vascular lesions of the brain stem, and in particular the occlusions of the posterior cerebellar artery have often shown a dissociated sensory loss, pain sense being absent and touch intact. The Sjöqvist sections furnish, for the first time, experimental proof in the human that fibres conveying the various modalities of sensation are rearranged within the brain stem into physio-

logical groups, the pain fibres probably having the lowest and the touch fibres the highest representation in the somatic sensory nucleus of the trigeminal nerve.

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THE EMPLOYMENT OF DIABETICS

BY

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Diabetics still suffer great difficulties in their work and employment from the public misapprehension that they are necessarily invalids. However fit and healthy he or she may be under appropriate treatment, the patient with diabetes cannot enter any Governmental or similar service, is barred from all types of employment which are pensionable, and is liable to find himself discharged when his private employer knows of his disease. As a result, patients with diabetes must often hide their condition and miss necessary visits to our day clinics (we now have an evening clinic for them), as these might disclose the disease to their employers. Young diabetics entering industry are rarely accepted by an approved society, and can usually only get health insurance through the Post Office scheme, with its limited benefits. Many children, after winning scholarships for higher education, find that they cannot take them up because they suffer from diabetes. Altogether, many lose confidence from rebuffs in finding the type of work they wish to do and which they are most capable of doing well.

From experience with our hospital clinic we consider the above attitude quite unjustified, unfair, and a mere survival of pre-insulin days, when ill-health—that is, industrial inefficiency—and early death were the rule. Patients appeal to us and to the Diabetic Association, which concerns itself with such difficulties, to help them against this injustice and handicap. The Diabetic Association suggested that an investigation should be made of the employment efficiency or disability in our hospital patients so as to produce facts instead of vague impressions. The results of the inquiry follow.

Investigation in a Hundred Cases

No special selection of employed patients was made, but the first 100 employees attending the clinic were studied. As most of these patients attend at intervals of

about three months it took about six months to investigate 100 cases. Both sexes were included, but the majority (75 per cent.) were men. Their ages varied from 14 to 65, but 73 per cent. were under 40 years old and consequently cases of severe diabetes; the majority (83 per cent.) were having insulin treatment continuously. The average amount of insulin given was 35 units, and varied from 80 to 8 units daily. The duration of employment as diabetics varied from one to nineteen years, with an average of five years. All types of employment—some strenuous, some sedentary—were found, and included such occupations as gardening, engineering, carpentry, commercial travelling, shopkeeping, office work, work as telephonist, domestic service, etc.

It is realized that the data obtained are inaccurate, since patients chiefly depend on their memory. In every case, however, we have checked their story from attendance records and found it to be reasonably accurate. The tendency was to remember "diabetic illness" but to forget minor indispositions—influenza, colds, etc.—which, however, were usually noted in the case records. It was soon recognized that it was necessary, in observing the effects of diabetes *per se* on time lost in employment, to distinguish between diabetic illnesses directly due to the disease and fortuitous illnesses: febrile colds, appendicitis, etc.—that is, common illnesses not caused by diabetes. Again, it was thought right to distinguish between the time lost at the onset of diabetes, while treatment was being worked out, and after restoration of health by adequate treatment. We have not included visits to our clinic (on the average four half-days a year) as time lost! The figures have therefore been prepared in the following way:

Loss of Working Time in 100 Diabetic Cases

For Diabetic Illness:

| | Cases |
|--|-------|
| I. No loss of time, even at onset | 39 |
| II. Time lost at onset only | 38 |
| | 77 |
| III. Time lost after first stabilization | 23 |
| | 100 |

Analysis of Group III:

| | Cases |
|---|-------|
| Restabilization necessary in cases with good health on diet for 1-3 years but which broke down and needed insulin | 8 |
| *Sepsis (carbuncles, ulcers of foot, etc.) | 5 |
| Diabetic coma | 2 |
| Hypoglycaemia and after-effects | 4 |
| *Neuritis | 2 |
| Cataract (after 11 years' work as diabetic) | 1 |
| *Hyperthyroidism | 1 |
| | 23 |

* It is doubtful if some of these conditions should be classed as diabetic illnesses.

For non-diabetic Reasons, time was lost by 55

Their illnesses included bronchitis, influenza, appendicitis, accidents, and, of course, colds, bilious attacks, etc.

It was hoped at first to get accurate figures of the days or weeks lost for the above reasons, but this was found impossible. We are sure, however, that our patients were not longer incapacitated from work by influenza, accidents, and so on, than non-diabetic individuals.

The school attendances of children have not been included in this survey, but the matter is being investigated. The result ought to be interesting: the figures will be more accurate, since they can be checked, and will allow of comparison between groups similar in all respects except their diabetic diathesis.

Conclusions

A survey of 100 employed diabetics shows that 77 per cent. lost no time from work because of their diabetes after the initial stabilization of treatment, and the figure is 85 per cent. if the ultimate stabilization on insulin of another 8 per cent. originally treated by diet alone is included; 55 per cent. lost some time from illnesses unconnected with their diabetes. Our survey has no statistical accuracy; even if it had there seem to be no figures available to compare the working time lost by our patients with that lost by a mixed non-diabetic population. We think, however, the survey shows that most treated diabetics are good employees from the health point of view, and hope that the widespread prejudice against their employment may be removed. In addition it should be pointed out that we have surveyed only the hospital section of the working community and that we know that the work loss of a higher stratum of diabetics, whose incentive to work is usually greater, is still less.

We wish to thank the Halley Stewart Trust for grants to our department to provide funds for such social studies.

ACUTE BULBAR PARALYSIS

REPORT OF TWO CASES

BY

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AND

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The cases described below present features of sufficiently unusual interest to justify their publication. First, the syndrome was identical in both instances, the bulbar condition being the only paralytic manifestation; and, secondly, both patients died twelve days after tonsillectomy.

Case I

This patient was a female child, aged 6 years, of a small and somewhat frail physique. On July 25 she had her tonsils removed by guillotine. She was seen again on the 29th, when she complained of frontal headache, earache, and slight pyrexia. There was a history of a previously restless night with sudden starting up in fright. In view of the local prevalence of poliomyelitis a routine examination of the nervous system was made, but no evidence of any nervous lesion could be found. The tonsil beds were healthy and granulating. There was no sign of congestion of the drumheads, nor was there any tenderness over the mastoid cells.

The following morning the temperature was normal and the headache was gone, but there were still shooting pains in the ears, with no deafness or signs of otitis. Two days later she was well and wanted to get up. She remained well until August 5, when there was a return of the headache with pyrexia of 99.5° F. The next morning the headache had gone, but the temperature had risen to 103° F. Thick mucus was present in the throat that was difficult to remove; she could not be persuaded to cough it up or to swallow it. She was able to swallow fluids in small quantities, but in a way that suggested the presence of some obstruction in the throat. On examination the throat appeared healthy, but the palate on the right side seemed to be lower. There was no sign of pharyngeal congestion, and the tonsil beds had quite healed. There was a copious amount of thick mucus which made examination difficult, but its removal by a swab was not unduly resented. The child did not look ill, nor did she complain of any pain or discomfort. Constipation was stubborn. During the course of the day the amount of

secretion in the throat increased to a degree which became alarming, and it seemed to threaten to choke her. At this stage a very transient drooping of the right side of the face was noticed on momentary occasions. She developed a wild look, and tried to strike out at anyone who was beside her; she was continually turning from one side to the other and occasionally leapt up in bed; she gave the impression of being enraged at her inability to remove the mucus, for she was able to speak and was quite rational. At this stage the temperature was still 103° F., and the pulse was 110. The only signs in the lungs were a few moist sounds at the bases. The respiratory rate was 22. She was given 100 grain of atropine to diminish the secretion, after which she appeared to quiet down and was able to snatch sleep at ten-minute intervals, when the mucus woke her again. The pulse rate did not rise in spite of the atropine.

During the early hours of the morning her condition became worse; the lungs became congested, the pulse rate rose to be uncountable, and the temperature began to fall. There was no attempt at coughing, and the secretion in the throat disappeared while the oedema of the lungs progressed with increasing cyanosis. The soft palate of the right side was much lower than that of the other side. The pupils were small and did not react to light. Towards the end there was a persistent pouting appearance of the lips which was quite symmetrical; she was able to speak, but in a muffled manner. Towards the end she repeatedly asked for drinks, which were mostly regurgitated through the nose.

The congestion and the cyanosis increased and some head retraction was evident. She died about fifteen hours after the first appearance of the acute dysphagia. At no time during the course of the disease was there any disturbance of the nervous reflexes or the muscle tone, with the exception of the terminal head retraction. She was conscious until she died, and was able to understand questions and to reply, although indistinctly.

Post-mortem Findings.—The lungs were oedematous, with several small haemorrhagic infarctions present, probably terminal. The heart muscle appeared healthy, but there was some dilatation of the right side. An excess of free fluid was present in the pericardium. Examination of the brain showed that the pia mater was markedly hyperaemic without any exudate. On section through the medulla the grey matter appeared hyperaemic and bulged. The spinal cord showed no macroscopic change.

Case II

A robust female child, aged 14 years, had her tonsils removed on July 25 on account of a tuberculous adenitis. She made an uneventful recovery from the operation, and was out in the fields a week later. The patient was seen again on the evening of August 6; she gave a history of having been out of sorts for the past two days, which was attributed to the strong sunshine. On examination she was found to have a temperature of 101° F., and, when asked, admitted that she had a slight headache. There was no neck rigidity, and Kernig's sign was negative; abdominal reflexes were active. The bowels had not acted for three days. On the following morning the temperature had risen to 103° F., and the headache was still present though not severe. The pulse rate had dropped to 80 and the respiratory rate was 20. There was a complaint of a thickness in the throat and a difficulty in raising the phlegm. The throat appeared perfectly healthy and symmetrical, and the tonsil beds had healed up. A throat swab was taken, and the report later stated that no streptococci, haemolytic or non-haemolytic, were present. Examination of the chest failed to reveal any abnormal signs. Later in the day there did not appear to be much change except that the secretion was more copious. The pulse rate was still slow in proportion to the temperature. An hour and a half later the child was seen again. She was then teaping up in bed and flinging her arms about, with a wild look in her eyes. Her temperature was subnormal and the pulse was uncountable; the pupils were dilated. During examination she projected a copious quantity of stomach contents all over the bed. Following this a transient drooping of the

right side of the mouth was noticed, which disappeared as she moved. Shortly after a large quantity of strawberry-coloured froth welled up from the mouth; the child was still fully conscious, but, although making attempts, she was unable to speak. The restlessness was severe, but she settled slightly after morphine and atropine, but died half an hour later. It appeared that half an hour before she was last seen she had asked for something to eat and was given some milk mixture; she had taken this quite well and asked for the back rest to be lowered so that she could go to sleep. Apparently this was done, and was followed a few minutes later by the alarming symptoms described above. In short, she had appeared reasonably comfortable at 9 p.m. and was dead at 11 p.m.

Post-mortem Findings.—The lungs were markedly oedematous; the heart was somewhat dilated, with no free fluid in the pericardium, while the musculature appeared healthy. The brain and spinal cord gave no macroscopic evidence of congestion. Apart from slight enlargement and softening of the spleen there were no visible changes suggestive of any toxic process.

Both cases were given prontosil from the onset.

Discussion

There is a remarkable similarity in the course of the above two cases, and a discussion of their features appears to resolve itself into three definite stages: (1) the stage of invasion; (2) a stage of irritation; and (3) a stage of rapidly progressive paralysis.

1. *The Stage of Invasion.*—In the first case the symptoms were headache and possibly earache, accompanied by slight pyrexia that settled down in twenty-four hours and was followed by a period of comparative well-being. In the second case there was no headache, but the patient complained of feeling out of sorts.

2. *The Stage of Irritation.*—This stage is considered to begin with the return of the pyrexia and the headache. The first unusual symptom was the appearance of sticky mucus in the throat that was difficult to swallow. This mucus probably originated from the submaxillary and sublingual glands, and might be considered to be due to increased activity of the secretomotor fibres of the vagus which arise in one of the dorsal nuclei and are referred to by Samson Wright as the superior salivary nucleus. A pulse rate slow in proportion to the temperature was also found in both cases at this stage, due in all probability to stimulation of the depressor fibres of the vagus. A further common feature was obstinate constipation. It is apparent that all the symptoms of this stage can be attributed to vagal stimulation, which is considered to have been produced by toxic irritation of the dorsal nuclei in the medulla before the actual changes that later produced paralysis. No actual paralysis was demonstrable, and the difficulty in swallowing was attributable to the presence of the thick mucus, which could be swallowed only with an effort; fluids could be taken without much difficulty, and there was no regurgitation until later.

3. *The Stage of Progressive Medullary Involvement.*—The onset of this stage was fairly sudden in both instances. It was ushered in by episodes of explosive muscular activity in association with a wild appearance of the eyes. The temperature dropped and the pulse rate rose rapidly. Signs of pulmonary congestion became increasingly prominent, although there was no evidence of respiratory failure at any time. The mucus disappeared from the throat, and a right-sided paralysis of the soft palate was seen in one case. Transient right-sided facial paralysis was present in both instances. Ability to swallow was also impaired; later it was complete, with regurgitation

of food through the nose. Speaking was muffled, yet consciousness remained. The terminal event was pulmonary oedema, more acute in the second case. At this stage the prominent symptoms were associated with progressive impairment and ultimate destruction of vagal control, both motor and sensory. Here a short description of the relations in the medulla seems pertinent. The ascending fibres of the seventh, ninth, and tenth cranial nerves end in a column of dorsal nuclei from which the involuntary fibres arise. Descending fibres end in the grey matter just lateral to that column in the fasciculus solitarius. The voluntary fibres of the seventh, ninth, tenth, and eleventh cranial nerves arise in one column just anterior and lateral to the dorsal column and extend from the lower border of the pons through the medulla to the spinal cord. The former column may be taken to correspond to the posterior horn cells and the latter to the anterior horn cells of the spinal cord.

The rapid pulse, the disappearance of the mucus from the throat, the progressive paralysis of the soft palate and the muscles of swallowing, and the signs of cardiac failure are clinical evidence of damage in the region of the dorsal columns. The pulmonary oedema was probably secondary to ventricular failure from loss of vagal control. The presence of transient facial paralysis at the end suggests that the lesion was spreading upwards. Furthermore, the terminal wild appearance and choreic movements might have been produced from irritation in the region of the red nucleus and thalamus.

Only in the first case was there any sign of meningeal irritation as indicated by the terminal head retraction, and post-mortem evidence of meningeal congestion was found only in this case. Here also there was constriction of the pupils with loss of reaction to light, suggesting third-nerve involvement. Extreme dilatation was apparent in the other case, possibly from sympathetic over-excitation by loss of vagal inhibition. Therefore, clinically, it appears that the seventh, ninth, and tenth cranial nerves were affected, while the close anatomical relationship of their nuclei in the medulla can leave little room for doubt as to the site of the major lesion. First the dorsal column corresponding to the posterior horn cells was affected and later the motor column, corresponding to the anterior horn cells. This is the usual sequence of events when the spinal cord is affected by the virus of acute anterior poliomyelitis.

The most striking feature of the above two cases is the fact that both patients died twelve days after tonsillectomy. It is perhaps permissible to suggest that they died from the virus which causes acute anterior poliomyelitis, especially since the disease occurs in the district in epidemic form. At present the disease is supposed to be due to a filterable virus which gains entry via the nasal mucous membrane. The path of invasion is apparently through the peripheral nerve terminals in that mucous membrane. It is highly probable that the virus entered through the raw tonsil bed to produce a specialized form of the disease. The tonsil area of the throat is innervated by the glosso-pharyngeal, and the infection travelled up the peripheral nerve to produce the damage in the region of the dorsal nuclei from which the glosso-pharyngeal arises. These children made contact with one another only for a short time after the operation; they lived a considerable distance apart, and had not been in contact with known cases of the disease. Two other children who were operated on at the same time are at present well.

Portions of the brain and spinal cord are being cultured, and diagnosis has yet to be confirmed by injection of brain

substance into monkeys. Since this will take some time it was considered advisable to report these cases while the disease was still prevalent.

Summary and Conclusions

1. That these are cases of polio-encephalitis.
2. That there is a definite association between the course of the disease and the presence of a raw tonsil bed, even although it was completely healed up when the symptoms of the disease arrived.
3. That the incubation period in these cases was about four days, presuming that the infection took place at the time of tonsillectomy.
4. That the route of the infection was from the raw tonsil bed to the dorsal nuclei via the peripheral fibres of the glosso-pharyngeal nerve.

HAEMORRHAGE FOLLOWING TONSILLECTOMY

BY

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The purpose of this paper is to discuss a subject which is of the utmost importance not only to all oto-rhino-laryngologists but to all surgeons, house-surgeons, and general practitioners who may be faced with the problem of haemorrhage following tonsillectomy. It is a very real problem and one, moreover, to which only scanty reference is made in even the largest and most authoritative of textbooks. Such haemorrhage is terrifying enough for the patient, and may be even more alarming for the medical man unaccustomed to dealing with such cases.

For the efficient treatment of haemorrhage following tonsillectomy a thorough knowledge of the factors concerned in its production is necessary, and careful consideration of these factors will do much to minimize the occurrence of this distressing complication. I propose to discuss this subject under the following headings:

I. *Factors influencing the occurrence of haemorrhage following tonsillectomy:* (a) pre-operative; (b) operative; (c) post-operative.

II. *Types of post-operative haemorrhage.*

III. *The management of a case of haemorrhage following tonsillectomy.*

FACTORS INFLUENCING ITS OCCURRENCE

Pre-operative

Although tonsillectomy may be indicated in any particular patient, certain precautions must be taken before operation is decided upon, and many factors remain to be considered before the actual time of operation is arranged. In taking a history of the case and during examination of the patient particular attention should be paid to the following points.

1. *Severe Tonsillitis or Peritonsillar Abscess.*—Recent acute local infections increase the risk of haemorrhage both during and after operation, and for this reason tonsillectomy should not be performed within a period of a few weeks following either of the above conditions. No hard-and-fast rule can be laid down as to the time which should be allowed to elapse before operation is undertaken, but I am of the opinion that, following such acute local infections, tonsillectomy should be

deferred for a period of not less than four weeks in the case of children and not less than six weeks in the case of adults.

*2. *Infections of the Nose or Nasal Accessory Sinuses.*—Acute sinusitis, whether associated with a sore throat or not, is a contraindication to the immediate performance of the operation. A common cold comes under the same category. The presence of chronic sinusitis should not be overlooked. Adequate measures for its efficient treatment should be instituted before tonsillectomy is considered.

3. *Bleeding.*—Inquiry should be made as to whether there is any susceptibility to bleeding on the part of either the patient or any member of his family. The occurrence of prolonged haemorrhage following cuts or abrasions, or after dental extraction, demands the investigation of the patient's coagulation time and bleeding time. Normal limits for these are: coagulation time (Lee and White), 4 to 7 minutes; bleeding time (Ivy), 1 to 4 minutes. If these times are found to be prolonged it is possible that they may be brought within normal limits by the administration of calcium and alkalis or by blood transfusion. If these limits cannot be attained, then the question of operation, the risks of which should be explained to the patient, must be reconsidered. Unless it is absolutely necessary tonsillectomy should be deferred.

4. *Menstruation.*—On account of the psychological upset and the delayed coagulation time of the blood, operation should be avoided just before or during the first few days of a menstrual period.

5. *Jaundice.*—Tonsillectomy is contraindicated in the presence of jaundice due to any cause.

6. *Anaemia.*—In any severe anaemia operation should not be undertaken without preliminary treatment or even a blood transfusion.

7. *The Type of Patient.*—It is interesting to note the physical characteristics of any patient, for it is in those of the plethoric type, with short thick necks, that haemorrhage is most prone to occur. Heavy smokers, chronic alcoholics, and patients with highly excitable and emotionally unstable temperaments also suffer in this same respect. (All sandy-haired children are suspect.) Again, red-haired females and the subjects of thyrotoxicosis show a tendency to bleed excessively following operation.

As a routine, adult patients should be given 10 grains of calcium lactate thrice daily for three days before tonsillectomy, and be asked to abstain from alcohol and tobacco for a similar period.

Operative

Consideration of the various methods of tonsillectomy does not come within the scope of this paper, but the type of operation performed, however, does influence the incidence of severe post-operative haemorrhage. In a large series severe bleeding occurred in 2.6 per cent. of cases after guillotine enucleation, as compared with 0.7 per cent. of cases following removal by dissection (McNally, 1927). The figures will depend to some extent, of course, on the care and discrimination exercised by the individual surgeon in his selection of cases for operation.

It is a significant fact that patients who have been subjected to guillotine enucleation of tonsils nearly always vomit after operation, and the vomitus always contains blood. Douching the face and neck with ice-cold water at the end of the operation induces considerable reflex vasoconstriction and is usually sufficient to cause cessation of the haemorrhage, but it must be remembered that although bleeding may apparently have ceased, in that blood is not trickling from the mouth, a lightly anaesthetized patient may be swallowing the blood. It is important, therefore, that the actual tonsillar fossae should be inspected at the end of the operation and that the patient should not be sent back to bed until all bleeding has been controlled. In cases in which the adenoids have

been removed at the same time care should be taken to ascertain that no tags are left behind, for such tags are a potent source of post-operative haemorrhage.

Removal of tonsils by dissection has for most surgeons now become the operation of choice. Whatever method of dissection is employed the important point is that the *tonsillar fossae must be dry before the patient leaves the operating theatre*. The subsequent maintenance of haemostasis is influenced by the following factors.

1. *Anaesthesia*.—Chloroform anaesthesia, or very deep anaesthesia produced by any agent, results in a fall of blood pressure. Later, when this pressure regains its normal level, haemorrhage may recommence owing to separation of a clot in the mouth of a blood vessel divided, but overlooked, at the time of operation.

2. *Imperfect Clot Formation*.—This is most likely to occur in the larger veins in the bed of the tonsillar fossa. If a vein has been "button-holed," but not completely divided, any obstruction to respiration may cause dilatation of the vein and consequent instability of the clot. Complete division of a large longitudinal vein results in continuous bleeding from its upper end at the time of operation, and for this reason the upper end is usually ligatured. The lower end, however, is collapsed and its contained clot is small. Subsequent dilatation of this lower end renders the clot unstable, and haemorrhage is likely to recur. It is important, therefore, to search for, and tie, the lower end of a completely severed longitudinal vein.

3. *Obstruction to Respiration*.—The maintenance of a clear airway is of the utmost importance following tonsillectomy. Before the patient leaves the operating theatre an artificial airway should be very gently inserted in the mouth after all the blood clot has been removed from the nose and nasopharynx.

4. *Ligatures*.—The slipping of insecurely tied ligatures may be responsible for the occurrence of post-operative haemorrhage.

5. *Artificial Means employed to Control Bleeding at Operation*.—The use of vasoconstricting agents—for example, adrenaline hydrochloride solution—is not to be recommended at the time of operation because subsequent reactionary vasodilatation occurs and may result in capillary oozing. The same objection, however, does not apply to the use of haemostatic sera and snake venom, for these are purely coagulating agents.

Post-operative

Any conditions which tend to cause congestion after operation should be rigorously avoided. The following measures are calculated to minimize the risk of post-operative haemorrhage.

1. On return from the theatre the patient is placed in bed in the "lateral" position. This position allows of free respiration and consequently minimizes congestion. It also permits any blood which may collect to run out of the nose and mouth and so be seen rather than remain concealed. Further, the risk of inhalation of blood or blood clot is considerably reduced.

2. The artificial airway should be removed when the cough reflex has returned.

3. If the patient is becoming restless soon after operation, and provided there is no bleeding, a sedative should be given. For adults, 1/6 grain of omopon is recommended, and for children an enema containing bromides (up to 120 grains) and aspirin (up to 30 grains), combined with a little citric acid, will be found most useful.

4. No hot fluids or food should be allowed during the first twenty-four hours. The diet should be restricted to cold fluids or semi-solid food for the first day, and then gradually increased. Hard or irritating articles of food should be avoided until the tonsillar fossae have healed completely.

5. The patient is allowed out of bed for the first time on the evening of the third day following operation.

6. Hot baths are inadvisable for the first ten days after tonsillectomy.

7. For a week after leaving hospital the patient should avoid any strenuous exercise and should go for short walks only towards the end of the week. During this week he should also refrain from taking any stimulants and should be careful to avoid infection. It is unwise to go to cinemas or theatres during this period.

8. A mixture containing potassium chlorate, sodium salicylate, and sodium bicarbonate is given thrice daily throughout the period of convalescence. The potassium chlorate, after absorption, is secreted in the saliva, and, as is well known, its antiseptic properties are due to the fact that it is a powerful oxidizing agent. It also increases the alkali content of the plasma and is credited with haematinic properties. The sodium salicylate, in addition to its usual antipyretic properties, possesses an almost specific action in cases of infection of a rheumatic nature. Further, it increases the number of leucocytes in the circulating blood.

TYPES OF HAEMORRHAGE

Haemorrhage following tonsillectomy may be divided into three types.

(a) *Reactionary haemorrhage*, or haemorrhage occurring within the first twenty-four hours after operation.

(b) *Haemorrhage during Convalescence*.—This commonly occurs on the fifth night after operation, and is associated with the aseptic separation of the primary slough from the bed of the tonsillar fossa. It is not the result of infection, for it usually occurs in the absence of signs of local inflammatory reaction and in patients whose post-operative temperature is normal. The fact that catgut ligatures also tend to come away at this time again favours the occurrence of haemorrhage on or about the fifth day.

(c) *True Secondary Haemorrhage*.—This differs essentially from the type just described, in that it is associated with damage to the muscular tissue in the bed of the tonsillar fossa and is due to consequent sepsis, which results in sloughing of part of the wall of an artery. Examination of the throat in these cases usually reveals considerable redness and oedema of the faucial pillars and uvula, and sometimes an offensive slough in the tonsillar fossa. The local inflammatory reaction is reflected in the patient's temperature chart. True secondary haemorrhage may occur at any time from the third to the twelfth day after operation.

MANAGEMENT OF A CASE OF HAEMORRHAGE

Reactionary Haemorrhage

Slight oozing, which should be of insignificant amount, usually takes place during the first hour after operation but ceases at the end of this time in the vast majority of cases. If free oozing occurs after the first hour, or if there is vomiting of freshly swallowed blood, the patient must be considered to be suffering from *reactionary haemorrhage*. This is treated according to the following routine procedure:

If a sedative has not been needed, or has not been given already, one should be given now. For this purpose there is no more efficient drug than morphine hydrochloride, which not only lowers the blood pressure but also diminishes the tendency to post-operative vomiting. I am of the opinion that, in the case of adults, an initial dose of one-quarter of a grain administered by hypodermic injection is far more effective than a dose of one-sixth of a grain repeated at the end of half an hour. One-eighth of a grain may be given to a child aged

10 years, but in younger patients morphine or any of its derivatives should be avoided. A mixture containing potassium bromide and chloral hydrate is a safe and efficient sedative for these children under the age of 10.

Unless the haemorrhage is so free as to necessitate urgent attention it is now wise to wait for twenty or thirty minutes before examining the throat. At the end of this time the examination is usually accomplished without difficulty, for the morphine has minimized pain, diminished the throat reflexes, and allayed to some extent the nervous anxiety of the patient.

Whenever morphine or one of its derivatives has been given, the *tonsillar fossae* must be inspected half an hour after the administration of the drug. The surgeon should make this examination himself and not merely rely on the report of possibly indifferent observers. Careful search should be made to detect any oozing or trickling from the fossae, for, although a nurse may say that there has been no further bleeding, the patient may still be swallowing blood. This may accumulate slowly in the stomach to such an extent that the pulse rate may rise alarmingly immediately after a pint of blood has been vomited. It is not uncommon for a patient to go to sleep after morphine has been given and for the doctor to be informed that there is no further bleeding. Two hours later, however, the patient may suddenly waken and vomit a large quantity of blood.

DETAILS OF EXAMINATION AND TREATMENT

A good source of illumination is essential for this examination, and in order to leave both hands free a head-lamp or head-mirror should be employed. If it is thought that haemorrhage is still continuing, the patient is given a tumblerful of cold water and is asked to rinse out the mouth three or four times. The rinsings are voided into a basin. A final mouthful is then taken and swallowed. This renders the mouth fairly free from blood and facilitates inspection of the tonsillar fossae. If on inspection there is no bleeding, further action is unnecessary. If there is bleeding the tongue is depressed gently but firmly by means of a tongue depressor held in one hand and, with an instrument such as Luc's ethmoidal forceps held in the other, all blood clot is removed from the offending fossa. Another mouth-wash of cold water is then given. Total removal of the clot may be all that is necessary to terminate the bleeding. If haemorrhage continues a pledget of cotton-wool, soaked in peroxide of hydrogen and then wrung nearly dry, is inserted into the tonsillar fossa. The tongue depressor is then removed and the patient is allowed to close the mouth on the forceps, the pledget of wool still being pressed into the fossa. At the end of a minute the wool is removed and a fresh but similar pledget applied in the same manner as the first. If necessary, yet a third pledget is applied.

If at the end of three minutes haemorrhage is still occurring, this whole procedure is repeated, substituting a 1 in 1,000 solution of adrenaline hydrochloride for the peroxide of hydrogen. These measures usually suffice to control the bleeding. A warning may be issued at this point. On no account must a solution of *cocaine* and adrenaline be applied to the raw bed of the tonsillar fossa. The use of such a solution may rapidly prove fatal.

Other agents which may be employed in the treatment of reactionary haemorrhage are:

1. *Ice*.—The patient may be given small pieces of ice to suck. This is of questionable value from the haemostatic point of view, but it does allay thirst and also lessens the tendency to

vomit. An ice-pack (or cold-water pack) applied round the neck is sometimes of value in doubtful cases.

2. *Coagulating Serum*.—If available this may be applied locally or administered by injection. In the latter case the danger of anaphylaxis must not be overlooked, and the surgeon must not allow himself to be lulled into a false sense of security merely because haemostatic serum has been given.

3. *Clamps*.—If bleeding is brisk it may be controlled temporarily by the application of a suitably padded clamp of the Courtenay Yorke or Watson-Williams design. Clamps should be applied firmly, but not so tightly as to traumatize the tissue between the blades. If possible their use should be avoided altogether, as they are responsible for much discomfort to the patient.

If the measures taken appear to have stopped the bleeding, the patient is allowed to rest for a while in order that the morphine may be given a chance to complete its work. The pulse rate is recorded at fifteen-minute intervals and a careful watch maintained for further signs of haemorrhage. If haemorrhage does appear to continue, or if in spite of no apparent bleeding the pulse rate is rising, the tonsillar fossae should be inspected again. If the measures enumerated above have not been successful in controlling the bleeding, arrangements should be made for the return of the patient to the operating theatre without delay. I make this statement because I am convinced that it is better to give a second anaesthetic while the patient's general condition is still relatively good than to wait until his state is so precarious that the operative campaign must necessarily be hazardous to a degree. These remarks apply even more forcibly in the case of children and elderly people, who are particularly intolerant of continued haemorrhage and in whom any unnecessary delay in securing haemostasis may prove fatal. A steadily rising pulse rate, a pulse that is irregular or easily compressible, increasing pallor, a cold and clammy skin, shallow and rapid respiration, great restlessness, and the continued vomiting of blood are all danger signs to be avoided rather than treated when they occur.

As soon as the decision to take the patient back to the theatre has been made a hypodermic injection of 1/100 grain of atropine sulphate is given. The anaesthetic of choice on this second occasion is "open" ether, which is well tolerated by these morphinized and exsanguinated patients. On no account should chloroform be administered, for it not only exerts a toxic influence on the myocardium but lowers the blood pressure and consequently conceals haemorrhage. If an injection of coagulating serum has not been given already, it may be administered with advantage while the patient is under the anaesthetic.

A gag is inserted in the mouth and once more all clot is removed from the offending fossa in order to expose the source of the haemorrhage. Single bleeding points are clamped and ligatured. It may be necessary to underrun a bleeding vessel with a catgut suture threaded on a small curved needle. If there is a general ooze a swab soaked in iced acriflavine (1 in 1,000) solution is inserted into the fossa and held there for three minutes. If this fails to control the bleeding a swab soaked in pure turpentine may be tried. The local application of haemostatic serum, or snake venom if available, may also prove effective in controlling a general ooze.

If all the above measures fail, the faucial pillars should be sutured together over a gauze plug or a gauze-covered pledget of wool soaked in the acriflavine solution. Two sutures suffice; they, and the wool, are removed after twenty-four hours. Recourse to suturing the faucial pillars is, however, rarely necessary.

Haemorrhage during Convalescence

In the vast majority of cases haemorrhage of this delayed type occurs on the fifth night following operation and is due to factors already enumerated. As a rule it is not severe, and may consist only in the patient coughing up a small bright red clot. It usually ceases after a gargle of weak hydrogen peroxide. Sometimes the haemorrhage, although not severe, continues during the course of an hour or more, and is associated with discomfort in the throat due to the presence of clot. The patient's efforts to dislodge the clot may then prolong the bleeding, in which case the treatment becomes exactly the same as that already described for reactionary haemorrhage. It will be found, however, that it is rarely necessary to give morphine, still more rare to have to remove the clot, and extremely rare to have to take the patient back to the theatre.

True Secondary Haemorrhage

Haemorrhage of this type is much more serious than that described under the heading of haemorrhage during convalescence. Fortunately, however, it is also more uncommon. When it does occur there is frequently a small "warning" haemorrhage on one day, followed by a larger one within the next twenty-four hours. In such a case it is likely that the patient will have to be taken back to the operating theatre. The control of this type of bleeding is often difficult, for it is seldom possible to clamp and ligate a single bleeding point on account of the friability of the sloughing and oedematous tissues of the bed of the tonsillar fossa. If the more simple measures already advocated for the control of bleeding are ineffective, recourse to suturing the faucial pillars will be necessary.

Ligation of the external carotid artery and the use of snake venom are measures of questionable value in the control of post-operative haemorrhage of this type. According to the literature ligation of the external carotid artery is of doubtful efficacy in any type of tonsillar haemorrhage on account of the extensive anastomosis of this vessel through the circle of Willis. Blood transfusion may be helpful—even life-saving—in cases of severe haemorrhage, but it is desirable that effective measures for the control of any bleeding should be instituted before transfusion becomes necessary.

I wish to express my gratitude to Mr. C. P. Wilson for his helpful advice and criticism during the preparation of this paper.

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PERFORATED PEPTIC ULCER IN
ORGANIC NERVOUS DISEASE

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The following two cases, in which death resulted from diffuse peritonitis due to perforation of a peptic ulcer, occurred within a little while of each other at St. Bartholomew's Hospital. Both patients were suffering from an organic disease of the nervous system, which masked the symptoms and signs of perforation, so that the complete condition was recognized only at necropsy.

Case I

A woman aged 41 was admitted to a medical unit on February 21, 1938, complaining of a pain in the shoulders. Ten years previously a diagnosis of disseminated sclerosis had been made, following some loss of the use of her legs. Similar attacks and remissions had occurred since. Two months previously she again lost the use of her legs, felt unwell, and vomited for a few days. She had experienced vague abdominal discomfort since. Three days before admission she developed sudden severe pain in both shoulders. Her bowels had not been opened subsequently.

On admission she was collapsed, clammy, cyanosed, and dyspnoeic. She complained of pain and tenderness of the shoulders, and she looked moribund. Her temperature was 98° F., pulse 160, and respirations 36. She showed no nystagmus. Her tongue was furred. There were no abnormal physical findings in her chest beyond the tachycardia and tachypnoea. Her abdomen was distended and tense, but rigid, and there was slight tenderness on deep palpation. The percussion note was resonant all over, and the area of liver dullness was reduced. There was spasticity of the left lower limb with increased knee-jerk and extensor plantar response. The temperature and pulse showed no marked variation, and she died the following day.

Post-mortem Examination.—The typical grey translucent scars of disseminated sclerosis were found throughout the cerebral hemispheres and, to a lesser extent, the cerebellum and spinal cord. The largest was 1 cm. in diameter and occupied the greater part of the right side of the pons. The heart was moderately dilated. Both pleural cavities contained small serous effusions, and the lungs showed emphysema and terminal congestion. The greater sac of the peritoneal cavity was distended with much gas and two pints of foul turbid fluid. The lesser sac contained an abscess cavity surrounded by dense fibrous tissue, but anteriorly the abscess had perforated through the gastro-hepatic omentum into the greater sac. This perforation was 1 cm. in diameter, and was situated midway between the cardia and pylorus. In the stomach a chronic peptic ulcer was discovered on the posterior wall immediately proximal to the pylorus. Its floor was completely deficient, and this hole communicated directly with the abscess cavity in the lesser sac. Just proximal to this perforation there was also a subacute ulcer 2 cm. in diameter.

Case II

A man aged 55 was admitted to a medical unit on March 18, 1938, complaining of feeling weak. One hour previously, while walking in the street, he had suddenly "come over queer" and felt some pain in the back of the shoulders. He passed a loose motion, his vision became dim, and he collapsed, though he was never unconscious.

The Fifth Biennial Conference on Mental Health will be held at the Central Hall, Westminster, London, S.W.1, from January 12 to 14, 1939. The conference luncheon will take place at the Hotel Victoria, W.C.2, on January 13. The subjects for discussion at the sessions of the conference are as follows: January 12, Is our national intelligence declining? Should mental treatment be practised solely by doctors? January 13: The psychological factor in sexual delinquency; The organization and staffing of out-patient mental treatment clinics; Mental hygiene and the Press. January 14: Education and emotional needs of the child; Problems of adolescent instability and of juvenile delinquency; The place of the social worker in mental health. Tickets and information can be obtained from the Secretary, The National Council for Mental Hygiene, 76/77, Chandos House, Palmer Street, London, S.W.1.

On admission he was cyanosed and sweating, but not in pain. He appeared very shocked, but answered questions normally. His temperature was 95° F., pulse 88, and respirations 22. His pupils reacted to accommodation but not to light. His tongue was furred. The cardiac impulse was feeble and the heart sounds were faint but regular. The blood pressure was 58/30 mm. Hg. Some rhonchi and medium rales were heard at the lung bases, but his chest appeared otherwise normal except for a band of anaesthesia over the upper part. His abdomen was soft and not distended, with some tenderness in the right hypochondrium. The right flank was dull on percussion and the area of liver dullness was diminished. The knee-jerks were absent and the plantar responses were flexor. There was a patchy anaesthesia on the outer sides of the legs. The following day he was still cyanosed and weak, but free from pain. The most striking change was the increasing distension of his abdomen. The percussion note had become drum-like, and the liver dullness was now obliterated. No flatus was passed on the insertion of a rectal tube. His temperature in the morning was 98.4° F., the pulse 80, and the respirations 17. The absence of pain or much tenderness, and the steadiness of the temperature and pulse rate, were outstanding features. He became progressively weaker, and died the same day.

Post-mortem Examination.—The air passages contained regurgitated stomach contents. There was a small serous effusion in each pleural cavity and the lungs showed terminal congestion and oedema. All chambers of the heart were dilated and the muscle was soft and friable; the valves were normal. There was atheroma but no other abnormality of the aorta and coronary arteries. The peritoneal cavity was greatly distended with gas and foul turbid fluid. In the stomach, just proximal to but also involving the pylorus, was a perforated chronic peptic ulcer with a crater measuring 2 cm. in diameter. The whole of the floor of the ulcer was deficient.

Discussion

In neither of these cases is the history or physical examination at first suggestive of perforated peptic ulcer. The existence of a disease of the nervous system was known (disseminated sclerosis and tabes dorsalis respectively), but the reason for the collapse was discovered only at necropsy. In the first case medullary failure from a plaque of sclerosis was considered a possible cause; in the second, tabetic crisis, coronary thrombosis, and perforated peptic ulcer were suggested, but no conclusion was arrived at. Both patients were collapsed, but neither of them gave a history of severe abdominal pain. The only pain of any consequence that they had experienced had been in the shoulders. The temperature and pulse rates showed no variation, and, although in the first case the pulse was 160, in the second it was only 88 on admission and fell to 80 subsequently. In neither instance was there any abdominal rigidity, nor was there any tenderness except on deep palpation. The most important positive finding, which was common to both cases, was the development of abdominal distension with a very resonant note on percussion and diminution of the area of liver dullness. This became particularly noticeable in Case II.

A review of all the cases of perforated peptic ulcer that have come to necropsy at St. Bartholomew's Hospital during the past decade revealed that during this period there have been two others with organic disease of the nervous system comparable to the two cases here described. The one, a diabetic woman of 62, was suffering from severe peripheral neuritis. She suddenly developed pain in the left side of the abdomen, with rigidity and tenderness only on the right side. She passed no urine, became incontinent of faeces, and died the next morning. At necropsy a large chronic gastric ulcer was found to have perforated, resulting in diffuse peritonitis. Degeneration

of the posterior root ganglia and posterior columns of the spinal cord, more on the left side than on the right, was demonstrated. The other case was that of a tabetic woman aged 49 who had been admitted to hospital for investigation and treatment of intermittent headaches. One night her pulse suddenly became rapid and weak. Her abdomen was found to be tender and rigid and tympanitic on percussion, but she did not complain of anything. She died the next morning, and at necropsy peritonitis due to a perforated peptic ulcer was discovered.

It is recognized that a peptic ulcer may rarely perforate in an otherwise normal patient without producing the typical syndrome, but it is difficult to assess the proportion in which this occurs. Most of the cases reviewed, in which a perforated peptic ulcer had been found only at necropsy, were admitted in a moribund condition and no clear history had been obtained.

The four cases here described are the only instances during the past ten years in which perforation and organic nervous disease were both present, and in all four the history, symptoms, and signs were atypical. In certain organic diseases of the nervous system it is thus evident that a peptic ulcer may perforate without producing abdominal pain or rigidity and without causing an increasing pulse rate. Presumably this is the result of interference with the normal pathway of pain impulses. In such instances, however, progressive distension of the abdomen with a tympanitic percussion note and diminution of the area of liver dullness are in themselves signs of the utmost significance in arriving at the diagnosis.

We are indebted to Dr. Geoffrey Evans and Dr. James Maxwell for permission to report the cases under their care.

ADMINISTRATION OF PITUITARY EXTRACT IN THE THIRD STAGE OF LABOUR

BY

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It is commonly taught that administration of any oxytocic drug during the third stage of labour is dangerous and inadvisable, in that hour-glass contraction with retention of the placenta and all its attendant risks is apt to result. Here are some conflicting views taken from standard textbooks.

Gibbon Fitzgibbon (1937) says: "There is no place for the drug while the placenta is in the uterus. Its use always entails the risk of imprisoning the placenta by closure of the cervix." Tweedy (1937) also advises against this treatment. Eden and Holland (1937) say that except for experts its use should be limited to the third stage of labour after the placenta has left the uterus. Gibbard (1938) points out the danger of giving any oxytocic drug before the placenta is delivered, on account of the risk of hour-glass contraction. Most American writers, however, are in favour of giving pituitary extract during the third stage. E. A. Schumann (1937) takes the third stage of labour as an indication for administering pituitary extract. He says that 0.5 c.cm. may be given with safety, and adds, "Incarceration of the placenta by a cervix contracted by pituitrin has been reported, but must be quite rare." DeLee (1933) holds that when pituitary extract is administered, which is very often done nowadays after the delivery of the child, the third stage is much altered, and

he goes on to say that the third stage is shortened to five or eight minutes.

At Professor A. M. Claye's suggestion it was decided to test a series of cases in which 1 c.cm. (that is, 10 units) of pituitary extract (or 1 c.cm. of pitocin in toxæmic cases) was to be administered intramuscularly early in the third stage of labour, and to compare them with a similar series of cases in which no oxytocic drug would be given during that stage. This has been carried out at the Leeds Maternity Hospital over the whole year 1937 and part of 1938, until more than 1,000 consecutive cases were obtained for each series.

The experiment aimed at ascertaining: (1) the amount of blood loss post partum; (2) the length of time of the third stage; and (3) any untoward results or dangers which might result. The procedure in all cases was the same. To estimate the blood loss all the blood and clots expelled during or after the third stage were collected until haemorrhage ceased, and the quantity was measured as accurately as possible. No attempt was made to express the placenta until twenty minutes after delivery. It was then expressed if lying in the vagina, but if still in the uterus the procedure was to control the fundus as necessary but not to attempt expression until the placenta had been expelled naturally from the uterus. The surgeon responsible was of course informed, and took the usual steps in cases of post-partum haemorrhage.

Tables A and B give the proportion of cases which fall into different categories as regards quantity of blood loss—A in the control series and B in the pituitrin series. Table C gives the proportion of cases in which the placenta was retained more than one hour. For the purpose of correct comparison the natural deliveries (of which there are 1,368 in the control series and 1,056 in the pituitrin series) have been separated from the cases of forceps, breech, and twins. It is obvious that the same degree of accuracy could not be obtained in cases where operative obstetric intervention was employed, nor are the results likely to be comparable with cases having a natural delivery. The twins series is not claimed as sufficient in number to be of statistical significance, but of the normal deliveries there can be no doubt that over 1,000 cases in each series are enough to be of statistical value.

TABLE A.—Blood Loss (Post Partum) without Pituitrin during Third Stage

| Type of Case | Total | Blood Loss in c.cm. | | | | |
|----------------------|-------|---------------------|----------------|---------------|--------------|--------------|
| | | 0 to 100 | 100 to 500 | 500 to 750 | 750 to 1,000 | 1,000 + |
| Natural delivery .. | 1,368 | 398 (29.2%) | 799 (58.3%) | 110 (8.0%) | 42 (3.1%) | 19 (1.4%) |
| Forceps or breech .. | 156 | 54 (34.6%) | 86 (55.1%) | 9 (5.8%) | 2 (1.3%) | 5 (3.2%) |
| Twins | 22 | 6 (27%) | 15 (68%) | 1 (5%) | — | — |

TABLE B.—Blood Loss (Post Partum) with Pituitrin or Pitocin 1 c.cm. in Third Stage

| Type of Case | Total | Blood Loss in c.cm. | | | | |
|----------------------|-------|---------------------|----------------|--------------|--------------|--------------|
| | | 0 to 100 | 100 to 500 | 500 to 750 | 750 to 1,000 | 1,000 + |
| Natural delivery .. | 1,056 | 364 (34.5%) | 601 (56.9%) | 54 (5.1%) | 25 (2.4%) | 12 (1.1%) |
| Forceps or breech .. | 118 | 38 (32.2%) | 74 (62.7%) | 4 (3.4%) | 2 (1.7%) | — |
| Twins | 13 | 3 (23%) | 8 (61%) | 1 (8%) | 1 (8%) | — |

TABLE C.—Retained Placenta

| | Type of Case | Total Cases | Hours Retained | No. | Per cent. | Ave. Loss c.cm. | No. of Manual Removals |
|--|--|-------------|-----------------|---------|--------------|-----------------|------------------------|
| Without pituitrin during third stage | { Natural delivery Forceps, breech, twins.. } | 1,368 | { 1-2 2-24 } | 17 3 | 1.25 0.22 | 825 | 2 |
| | | 178 | { 1-2 2-24 } | 5 3 | 2.8 1.7 | — | 1 0 |
| | | | { 1-2 2-24 } | 3 3 | — 2.3 | — | 0 1 |
| With pituitrin or pitocin during third stage | { Natural delivery Forceps, breech, twins.. } | 1,056 | { 1-2 2-24 } | 10 3 | 0.95 0.26 | 753 | 0 |
| | | 131 | { 1-2 2-24 } | 9 3 | 6.9 2.3 | — | 1 1 |
| | | | { 1-2 2-24 } | 3 3 | — 2.3 | — | 0 1 |

It will be seen from Tables A and B that whereas 12.5 per cent. (8 + 3.1 + 1.4) of the natural deliveries in the control series are associated with a post-partum loss of more than 500 c.cm., only 8.6 per cent. (5.1 + 2.4 + 1.1) suffer this loss among the natural deliveries in the pituitrin series. In fact, it is noticeable that the general shift in the pituitrin series is towards the left—that is, towards a smaller haemorrhage.

Table C shows that there are twenty-eight cases of retained placenta in the 1,546 patients of the control series, as compared with twenty-five cases of retained placenta in the 1,187 patients of the pituitrin series. Out of these there were three cases of manual removal with one death in the control series and two cases of manual removal with no death among the pituitrin series. The haemorrhage was slightly less in the pituitrin series, the average loss being 753 c.cm., compared with 825 c.cm. in the control series; in cases of natural delivery where the placenta was retained from 60 to 120 minutes. The biggest recorded haemorrhage was among the control series, being over 3,000 c.cm. The patient was given several blood transfusions and made a good recovery.

With regard to contraction ring, only two cases were definite in each series. These, as might be expected, occurred in cases of retained placenta.

Conclusions

The results of this experiment are claimed to show: (a) that there is no danger whatever in giving 1 c.cm. of pituitrin or pitocin during the third stage of labour; (b) that the amount of haemorrhage is not much affected: in the series there was a tendency to a smaller post-partum loss in the pituitrin cases.

It is not claimed that posterior pituitary extract should be given in the third stage as a routine treatment for all cases, nor should control of the fundus or the very watchful care that is necessary at this stage be relaxed, or be replaced by an oxytocic drug.

I am indebted to Professor A. M. Claye and Mr. David Currie for the clinical material, and also to Dr. R. H. B. Adamson and Mr. B. L. Jeaffreson, under whose care many of the control patients were admitted.

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Clinical Memoranda

Fracture-dislocation at the Ankle

The method used in the treatment of this case is, I think, worth reporting. The anatomical and functional recovery has been excellent, in spite of a severe injury.

CASE RECORD

On December 19, 1937, a married woman, aged 38, by a trivial accident (tripping over the fender) caused rotation of the ankle-joint through 90 degrees. X-ray examination showed fracture of the fibular malleolus with separation outwards, of the posterior tibial mortise with displacement backwards, and of the astragalus (see figure). The patient was admitted



to hospital, and the same evening, under full anaesthesia, the fragments were brought together. A strip of sponge rubber was cut to shape, with a recess for the calcaneal tuberosity, and bent round the heel from the posterior surface of the ankle to the plantar aspect of the toes. With the knee bent to allow increase of dorsiflexion plaster-of-Paris was applied, special attention being paid to exaggerated plantar adduction. A sole-piece of three-ply wood was laid external to the sponge rubber on the under surface of the foot and incorporated in the plaster. On the third day the patient was allowed to go home; she was not confined to bed, but was able to be lifted to a chair and to be wheeled out.

The plaster was left untouched for nine weeks. On February 21, 1938, it was replaced by an aluminium splint and foot-piece. In this she was encouraged to walk, and she wore it for three weeks. Weekly radiant heat and massage were given to the leg and ankle until April 2, fifteen weeks after the injury, when further treatment was considered unnecessary.

Since then she has carried on her ordinary work without disability. There is no deformity or eversion of the foot, and the functional recovery can be regarded as 95 per cent. of normal. The method employed seems justified by the result.

Bourne, Lincs.

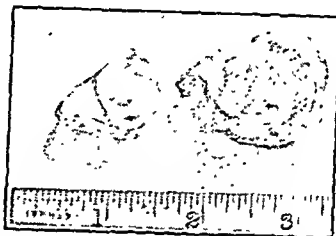
W. B. R. MONTEITH, F.R.C.S. Ed.

Autochthonous Urethral Calculus

I should like to place on record the following case of giant urethral calculus.

A man aged 52 was admitted to hospital complaining of pain and a swelling in the perineum, and gave the following urinary history.

In 1907 he made an uneventful recovery from gonorrhoea and remained well until 1930, when he had the misfortune to be kicked between the legs while stooping to shoe a mule. During the fourteen days immediately following the kick he had haematuria on five different occasions, followed by a perineal abscess, for which he was admitted to hospital, where a catheter was passed into the bladder left *in situ*, and the abscess incised. The abscess drained well and finally healed in three weeks, and he would have been discharged from hospital but for an unfortunate mishap. In an effort to unblock the indwelling catheter by the injection of a syringe of water the tip of the catheter was blown off into the bladder. Three days later the perineal wound broke down and started to discharge blood-stained urine. Suprapubic cystotomy was performed forthwith, and the catheter tip removed from the bladder. The suprapubic wound healed in three weeks, but it was not till ten months later that the perineal sinus closed.



Two portions of the calculus removed from the urethra, sectioned to show the interior.

Micturition remained normal until January, 1938, when he became incontinent, much dribbling following the act. Then a sharp pain brought to his notice a lump in the site of his old sinus. With increasing difficulty in voiding urine the patient experimented, and discovered that by manipulating the lump in the perineum the passage of urine could be facilitated. There was no mention of renal colic at any time. Micturition became increasingly painful, and he attended Westminster Hospital for the first time on March 24, 1938.

On examination the patient was found to have acute retention, the bladder being half-way up to the umbilicus. In the perineum, in the line of the urethra, could be felt a hard smooth mass about the size of a hen's egg. Examined per rectum, the mass was found to be located in front of the triangular ligament, and the grating of two hard surfaces could be distinctly noted; this confirmed the diagnosis of urethral calculus.

He was operated upon immediately. A metal sound was passed down to the stone and an incision made over it in the perineal line of the urethra. I then removed four portions of a stone, lying behind the stricture, from a widely dilated urethra. While guiding a catheter into the bladder a small papilloma was noticed on the wall of the urethra; this was removed, sectioned, and reported upon thus: "There is metaplasia of epithelium; the whole surface of the growth is covered with a well-differentiated squamous layer. No evidence of carcinoma." The perineal incision closed in fourteen days and micturition is now normal.

Chemical examination of the stone, which weighed 24 grammes, showed it to consist of calcium phosphate.

I am indebted to Mr. Rock Carling for the opportunity of publishing this case.

J. GRAHAM, M.R.C.S., L.R.C.P.

Reviews

THE BART'S REPORTS

St. Bartholomew's Hospital Reports. Volume LXXI. (Pp. 353; illustrated. 21s. net.) London: John Murray. 1938.

A general impression of the fifteen main original papers in the seventy-first volume of the *St. Bartholomew's Hospital Reports* is the value of the follow-up system of the hospital patients, the medico-surgical authorship of articles, and the underlying influence of neurosurgery shown in some of the contributions. Drs. George Grahame and W. G. Oakley analyse, with the help of the follow-up department, the complications and fate of a hundred patients, fifty-three males and forty-seven females, suffering from diabetes mellitus. Neurological complications, in twenty-nine cases, occurred with increasing frequency among the older groups of patients, the most tiresome symptom being pains in the legs. Arterial changes occurred in fifteen patients, and the authors explain why they consider it wrong to insist on keeping dry an ulcer on a diabetic's foot. The report of the cancer department, of which Mr. Malcolm Donaldson is the director, covers a wide field, and shows wide activity in the following up of patients. Sir Girling Ball, the treasurer of the *Reports*, writes on the end-results of traumatic rupture of the urethra in children. In the article on the treatment of angina of effort and of spasmodic angina by thyroidectomy Dr. Geoffrey Bourne shows that twelve cases, carefully chosen out of three hundred attending the cardiac pain follow-up clinic at St. Bartholomew's, did extremely well, and Professor Paterson Ross, in notes on the surgical aspects of total thyroidectomy, mentions that the operation diminished the susceptibility to adrenaline injections. Dr. Avery Jones and Mr. Naunton Morgan of the two professorial units discuss the post-operative administration of fluids. Sympathectomy for erythrocyanosis frigida and chronic oedema of the legs is considered by Mr. G. C. Knight of the surgical professorial unit, and Mr. Boyd, also of the same unit, contributes two excellent articles on thrombo-angiitis obliterans and on the effect of total and subtotal resection of the stomach on blood formation in dogs, as bearing on the occurrence of macrocytic anaemia after gastrectomy in man. In an extremely interesting analysis of a hundred cases of prostatic carcinoma Mr. McGavin concludes that it has not any aetiological relation to benign hypertrophy. There is a sympathetic *In Memoriam* of the late Mr. R. C. Bailey, and a full and in every way admirable life of Samuel Gee is given by the winner of the Wix prize for 1937, Mr. Oliver Garrod.

PATHOLOGICAL TECHNIQUE

Pathological Technique. A Practical Manual for Workers in Pathological Histology, including Directions for the Performance of Autopsies and for Microphotography. By Frank Burr Mallory, A.M., M.D., S.D. (Pp. 434; 14 figures, 6 tables. 20s. net.) Philadelphia and London: W. B. Saunders. 1938.

F. B. Mallory is one of the greatest living masters of histological technique, and the originator of several valuable staining methods; he has now published a book entitled *Pathological Technique*, which it is safe to say will at once attain the status of a classic. Naturally the greater part of it is devoted to descriptions of staining methods, and it is chiefly for these that the book will be found so valuable a work of reference. The directions

given are such as can only come from long experience; they omit no detail, forestall hidden difficulties, and for a subject so full of technicalities are unusually readable. There are also chapters on post-mortem technique, museum methods, and photomicrography, and a bibliography and a good index. There is little discussion of the chemistry and mechanism of staining methods, and from the practical point of view this would be superfluous. In connexion with many methods it would also be unprofitable, since they are purely empirical, but the histologist often asks himself why a reagent will do what it does, and indeed why it was ever tried for the purpose, and when there is any answer to these questions it would perhaps be helpful to know it.

VOLUNTARY SOCIAL SERVICE

The Voluntary Citizen. An Enquiry into the Place of Philanthropy in the Community. By Constance Braithwaite, B.Sc., Ph.D. (Pp. 341. 7s. 6d. net.) London: Methuen and Co. 1938.

This book with its rather curious and awkward title is by a lecturer in the social study department of the University of Birmingham, and it deserves the consideration of those interested in local government or in the social services—especially, perhaps, of medical practitioners who are so interested. The title, no doubt, serves sufficiently to indicate that the book is concerned with the status and functions of the voluntary social worker or administrator, but surely everyone is a citizen willy-nilly. The book is in three sections, quite different in character though not unrelated to each other, and the emphasis of attention among these given by different readers will undoubtedly vary. Part I is devoted to the evolution of what the author calls a "philosophy of philanthropy," and discusses the case for public social services, the limitations of such State provision and the need for certain varieties of voluntary organization and effort, the place of voluntary personal service whether as social worker or administrator and whether under public or independent auspices, and the relation of philanthropy to a socialist system. Part II is concerned with the income of charities in England and Wales and its relation to the contribution of public finance, as ascertained mainly by an examination of the charities in London and in Liverpool and of statistics relating to voluntary hospitals. Part III describes in some detail the work and finance of district nursing associations, considering them as typical charities and an example of a voluntarily organized social service, and studying them as they function in a large city (Birmingham), a small town (Banbury), and a rural area (part of Oxfordshire). Each of these sections contains valuable material excellently presented.

The conclusions of the second section will possibly surprise many by revealing the relatively small proportion borne by charitable gifts to the various social services as compared with that borne by State or community funds. Of the social services in general, philanthropy bears under 10 per cent. of the cost, and as regards hospital services not more than 25 per cent. Under these circumstances, as well as on other grounds, the argument of the first part of the book is of much importance. It is presented frankly from the socialist point of view, but it is perhaps the more valuable on this account. Many readers will not be sympathetic towards the ultimate organization of society desired by the writer, and some may like to consider along with this book the views of Mr. J. Q. Henriques, whose volume *A Citizen's Guide to Social Service* was the subject of a leading article in the *Journal* of September 24 last (p. 666). Dr. Braithwaite is, how-

ever, always clear and fair in her statements, and logical in her arguments if her point of view be accepted; and she envisages a much wider scope and more important place for voluntary activity and personal service, both in the present and in the future, than are usually conceded by socialist thinkers and writers. A welcome feature of her discussion is her powerful plea for the much wider exercise by local government councils of their power of co-opting on to their committees and subcommittees persons of experience who are not members of those councils themselves. It is to be hoped that these pages will come to the notice of such members and that they will have their much-needed practical effect.

CHEMISTRY OF THE BRAIN

Chemistry of the Brain. By Irvine H. Page, A.B., M.D. (Pp. 444; 52 tables, 34s.) London: Baillière, Tindall and Cox, 1937.

Dr. Irvine Page's book is entitled to a notable place among recently published scientific works. There has existed a real need for a volume which would collect and co-ordinate the widely scattered results of research work on the chemistry of the brain, and no better authority could have been found to undertake this rather difficult task than Dr. Page, himself the author of many important publications in this field.

Beginning with a tribute to the father of brain chemistry, Thudichum, he proceeds immediately to the foundation subject of his book—the chemistry of the lipids—and emphasizes the importance of the part played by these substances of which the brain is largely composed. Incidentally, it may be pointed out that here we have the lipids treated in a clear and comprehensive manner unsurpassed in any biochemical literature. Thereafter with undiminished thoroughness the several sections deal in turn with the other classes of biochemically important substances—carbohydrates, proteins, electrolytes, vitamins, and enzymes—in their relation to brain tissue metabolism. Important chapters concern also physicochemical aspects and comparative neurochemistry, while the final section on oxidation and reduction has been entrusted to no less an authority than Dr. Quastel. Wherever possible the more academic advances have been brought into their true relation with investigations on the clinical side, with the result that the book is as instructive to the clinician as it is to the biochemist.

Despite all that has so far been accomplished some disappointment might be felt that chemical investigation has produced relatively little in the way of practical contributions to the development of psychiatry; but readers will not fail to realize that the ground is being well prepared, and, with the filling in of certain important gaps in our knowledge, there will soon come a time when the high expectations of the pioneers in this branch will be amply fulfilled.

ESSENTIALS OF SURGICAL PRACTICE

Everyday Surgery. By Lambert Rogers, M.Sc., F.R.C.S., F.R.C.S.Ed., F.R.A.C.S., F.A.C.S., and A. L. d'Abreu, M.B., Ch.M., F.R.C.S. With an Introduction by Professor G. Grey Turner, D.Ch., M.S., F.R.C.S., F.R.A.C.S., F.A.C.S. (Pp. 280; 160 figures. 12s. 6d. net.) London: Edward Arnold and Co., 1938.

In *Everyday Surgery* the authors, Professor Lambert Rogers and Mr. A. L. d'Abreu, present in a concise form what they regard as the best in modern surgical practice of an everyday as opposed to an unusual or special character. In the introduction, which is packed with clinical wisdom, Professor Grey Turner lays stress on the

important axiom that everyday surgery involves the broad principles which apply to surgery in general and that these principles cannot be dissociated in the mind of those responsible for treatment, however insistent and important the details of treatment may be.

The intention of this book is to focus the mind on essentials. In this the authors have been very successful. The whole field of surgery as met with in ordinary practice is covered, but the special departments are not dealt with. Of necessity the opinions expressed are dogmatic and represent the views of the authors and not necessarily the ideas of other surgeons, though it would be difficult to pick out any controversial statements throughout the book. The scheme followed in each chapter is to outline the broad features of the subject and the appropriate method of treatment. So much ground is covered in a small compass but with such a definitely practical trend that this book should be found very valuable both to students and to those practitioners who, having possibly lost touch with modern surgical practice, wish to obtain the most up-to-date guidance. We could find no reference to Crohn's disease. To mention this omission may savour of straining at a gnat, and the authors are probably right in regarding this disease as falling outside the definition of an everyday condition. Even so, the practitioner seeking guidance in such an up-to-date book as this might pardonably be disappointed at finding no reference to it.

The illustrations are in the form of line drawings, and they are exceptionally clear and to the point. Details of operations have been purposely omitted, though stress is laid upon minor technical procedures. The authors have succeeded in producing a very clear and concise exposition of the outlines of modern surgical practice.

PARASITOLOGY

Die tierischen Parasiten des Menschen By Dr. Walter Stempel. (Pp. 226; 220 figures. R.M. 12. bound, R.M. 13.50.) Jena: Gustav Fischer, 1938.

Parasitology. With Special Reference to Man and Domesticated Animals. By Robert Hegner, Ph.D., Francis M. Root, Ph.D., Donald L. Augustine, Sc.D., and Clay G. Huff, Sc.D. A general revision of *Animal Parasitology* 1929. (Pp. 812; 308 figures, 5 tables. 25s. net.) London and New York: D. Appleton-Century Company, 1938.

Although morbid conditions produced by animal parasites are overwhelmingly encountered in tropical climates, the author of *Die tierischen Parasiten des Menschen* points out in a preface that while the brisk international intercourse of our time makes it impossible even in temperate zones to neglect the importance of these diseases, there does not exist in German any modern, comprehensive, and at the same time concise presentation of the subject. His book, written with sound conservatism, is an admirable attempt to meet the needs of the situation. Opening with a general discussion on parasitism, it follows orthodox lines, describing first the protozoa, then the helminths, and finally the arthropod parasites. While an effort has been made to cover the whole field, the less important parasites are dealt with briefly in small type, so that without destroying the essential compactness of the book it has been possible to give due emphasis to the important sections. At the end there is a chronological index of the more important literature bearing on the subject, which will enable those interested to pursue their studies further, although there are omissions which may surprise the English reader. Supplemented by practical work the book will provide a useful and handy textbook for the German student or practitioner. The volume is generously illustrated with good diagrams and photographs; the paper

and printing are of the excellent quality for which the publishing house is renowned; but the paper binding is too flimsy to be serviceable.

Parasitology, by Dr. Hegner and his fellow workers, sets out to cover the field of parasitology, with especial emphasis on the parasites of man; it is divided into an introduction and three sections. The introduction is concerned with the broad general principles of the subject, such as interactions of parasite and host, and the rules of zoological classification and nomenclature. The first section is devoted to protozoology, the second to helminthology, and the third to arthropods of parasitological importance. In a previous edition the sections were written independently by their respective specialists, and this arrangement has naturally been preserved, except that, owing to the death of the author of the section on medical helminthology, this part has been revised by one of his former students. The arrangement makes for thoroughness, since the field of parasitology is so large and progress in the subject has been so rapid that no single author could adequately encompass the whole. How wide and ambitious is the scope of the book becomes therefore obvious, and indeed it is more diffuse than may be desirable for the average student. It contains, for example, sections on treatment which are outside the scope of what is proper to a book of this nature; the authors appear to feel this, as these sections are so inadequately treated as to be of little practical value. On the other hand, the detail of many sections is hardly sufficient for the advanced worker in parasitology, and although it is stated that every chapter has been carefully revised so as to include the results of additions to knowledge that have been made during the past nine years, there are notable omissions. Nevertheless, a single handy volume dealing with the three branches of parasitology may not be without value to the student or practitioner.

Notes on Books

The dependence of surgeon and patient on the engineer is most strikingly shown in the provision of artificial limbs for those who have suffered amputation. For this reason we welcome the appearance of a small book entitled *Back to Activity*, in which Desoutter Brothers Ltd., of Baker Street, London, describe all that a surgeon and patient should know about artificial lower limbs. It may be advertisement, but it is the kind we like—honest and informative. It shows the marvels that have been achieved in this small but most important development of modern engineering, and, what is even more valuable, the conditions that make for success. Where the surgeon is able to select the site for amputation, he should plan the operation so that the best possible type of limb can be fitted without difficulty; the stump should receive appropriate after-treatment to secure proper shrinkage and good muscular control; and, finally, after the limb has been supplied, the patient must be taught how to use it. This is a good book to leave within reach of a patient who is still stunned by having lost a limb; it will give him just the encouragement he so sorely needs.

In a recent work on popular misunderstandings with regard to medicine, *Doctors don't believe it*, Dr. AUGUST A. THOMEN of New York University cites from a Missouri newspaper the case of a lady who sneezed so violently that one of her eyes fell out. She was promptly conveyed to hospital, and after treatment was discharged with her eye duly replaced and little the worse. The hospital authorities are credited with the statement: "It is not unusual for the eye to be removed for some operations, but to have it forced out by

coughing or sneezing is unique in medical annals." The author confutes these misbeliefs together with 184 others, such as that singeing the hair is beneficial, that tobacco smoke is a disinfectant, that diphtheria is caused by sewer gas, and that ground glass is a deadly poison. He quotes entertaining instances from a variety of sources, and in more serious mood presents lucid summaries of correct medical opinion on diet, genetics, and other subjects. The book, originally published in America, now appears in an English edition with an introduction by Lord Horder (J. M. Dent and Sons, 6s.). Combining as it does fact with fancy, it will be read with profit and pleasure by many, for, as was said of old, *Omne tulit punctum qui miscuit utile dulci*.

Regulationsprüfung des Kreislaufs (Measurement of the Control of Circulation), by Professor FRITZ SCHELLONG, gives an account of important methods elaborated by the author, who is well known for his researches on conduction in cardiac tissue and its excitability. Three tests are used. The first two depend on measurements of blood pressure and pulse rate in the recumbent and upright position and the effects thereon produced by measured exercise. The third test is less familiar, for it consists in measuring the effect of exercise on the duration of the Q.R.S. period. The importance of this last test is that it measures the effect of exercise on the heart itself as contrasted with responses which involve the whole circulatory system. The test depends on the fact that conduction in damaged heart muscle is slower than in normal muscle. Exercise in normal persons increases cardiac frequency and therefore decreases the Q.R.S. duration. In cardiac disease this effect is opposed by the delay in conduction, and hence the Q.R.S. duration is not shortened and may be prolonged. The monograph describes the details of the methods employed and gives an estimate of their diagnostic value based on experience with 2,000 cases. It is published by Theodor Steinkopff of Dresden and Leipzig at RM. 11.

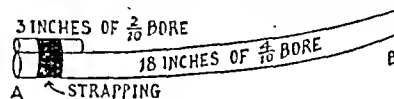
Miss CHRISTINE E. PETERSEN produces from the Columbia University a pleasant little volume on *The Doctor in French Drama, 1700-1775* (Oxford University Press, 11s. 6d.). Being witty herself she has been able to see the fun poked at the French doctors, much of which was well deserved. The result has been a readable essay, made the more valuable by a chronology of the plays and a hand-list of books consulted. There is, too, a good index.

Preparations and Appliances

SIMPLE INHALER

Dr. G. P. HUMPHRY (Abergavenny) writes:

I have improvised an inhaler which allows the patient using it to lie down if he wants to. It consists of eighteen inches of 4/10-bore and three inches of 2/10-bore rubber tubing joined



by strapping. End A fits, or with a bandage can be made to fit, any suitable bottle. End B is held in the mouth. I find that this simple device works perfectly, and the cost is negligible.

Corrigendum.—In our notice of "catdeferrum" tablets (October 29, p. 894) the name of this preparation was misspelt. It should have been made clear that the composition of the tablets stated therein was based upon daily dosage (four tablets), not on one tablet. The manufacturers are Glaxo Laboratories, Ltd.

Nova et Vetera

THE DEATH OF CHARLES II

Those students of medical history who are interested in biography and do not confine their attention to the sterner discipline of research into the development of ideas have long been attracted by the subject of the diseases and deaths of persons eminent in history. On this there is a very considerable amount of material available from both lay and medical sources. Sir Henry Hallford, who holds the record as President of the Royal College of Physicians of London for twenty-four years (1820-44), thereby beating the twenty-three years' presidency (1786-1809) of the Medical Society of London by James Sims, wrote a concise account of *The Deaths of Some Eminent Persons of Modern Times* (1835), including seven kings and Oliver Cromwell. Hallford was a great court physician, and in the *Lancet* his manners were satirized as those of "the eel-backed baronet." More recently Chaplin (1919) illustrated the state of contemporary medicine by the records of the sick-beds of George III and Samuel Johnson, and *The Deaths of the Kings of England* (1913) have been described by J. Rae, and by Macleod Yearsley in *Le Roy est mort* (1935). Of the Kings of England the death of none has received more attention than that of Charles II; in addition to the necrologies just mentioned, there is the notable work *The Last Days of Charles II* (1909), by the late Raymond Crawford, which was appreciatively reviewed in these columns (1909, 2, 1536), and was largely drawn on in the anonymous series of "Some Royal Death-beds" (1910, 1, 1557). Descriptions in language more picturesque than medically accurate were given by Macaulay and J. H. Jesse.

Unfounded Suspicion of Poisoning

The death-bed of Charles II, February 2-6, 1684-5, was remarkable for his kindly references to his Queen and to Nell Gwyn, his apology for taking such an unconscionable time a-dying, for the large number—at least sixteen—of his medical attendants and their unpleasant remedies, which he suffered with unflinching fortitude. The necropsy, recorded by Sir Charles Scarborough, did not show any evidence of poisoning, but was thought to prove that death was due to "apoplexy." Crawford, who suggested that Scarborough's lengthy Latin account was probably written, perhaps at the request of James II, to refute the suspicion of poisoning, convincingly established the diagnosis of chronic interstitial nephritis with uraemic convulsions. At that period it not uncommonly happened that sudden death, especially of a prominent person with rivals and enemies, was ascribed to poison. For example, the death of Henry Frederick, Prince of Wales, in 1612, which Norman Moore two hundred and seventy years later argued was due to typhoid fever, aroused this suspicion. This was also suggested in the case of Charles II, and, further, Thomas Short, one of the physicians attending His Majesty, is credited with this belief. According to *The History of my own Time* by Gilbert Burnet, Bishop of Salisbury, Short, who was suddenly taken ill and died in 1685, after drinking a large draught of "Wormwood wine in the house of a popish patient," told Lower, Millington, and other physicians that he believed that he himself had been poisoned because he had spoken so freely about the King's death.

A Review of the Pathological Evidence

Dr. Krumbhaar,¹ professor of pathology in the School of Medicine of Pennsylvania University, has recently un-

earthed and presented to the Library of the College of Physicians of Philadelphia two contemporary manuscripts bearing on the death of Charles II, and in describing them has taken the opportunity of reviewing the evidence. While freely quoting and agreeing with Crawford, he concludes that in modern terminology the post-mortem diagnosis would read: oedema of the brain, chronic fibrous pleurisy (right), hypertrophy of the heart, congestion of the liver, spleen, and kidneys, and that it demands but little imagination to picture an arteriolar nephrosclerosis or a chronic glomerulonephritis, which, if without much scarring, might easily have been overlooked a century and a half before the days of Bright, and that the king died from an exacerbation of renal insufficiency, alleviated by bleeding but aggravated by the cantharides used for blistering, the terminal "fits" being due to uraemia and not to cerebral haemorrhage. Wepfer's important clinico-pathological study of cerebral haemorrhage in 1658 as causing apoplexy was probably not known to the king's medical attendants.

ANNALS OF MEDICAL HISTORY

The first of the six main articles in the July instalment of the *Annals of Medical History*¹ is by Mr. William White of Los Angeles, and surveys the wide field of the social implications of the history of medicine in Great Britain between 1742 and 1867. This paper, read in January, 1937, to a seminar at the University of Southern California, is most conscientiously documented, and admittedly owes much to the writings of Sir D'Arcy Power. Dr. Shuman, also of Los Angeles, concludes his interesting account of the medical practitioners in South California. G. W. Corner of Rochester, the fourth of that name, analyses the representations of medical practitioners in the modern drama and speaks of the change from the politically philosophical practitioners of Ibsen and even Schnitzer to the dispassionate human beings in the hands of Howard and Kingsley. The character of E. L. Hakim in *The Talisman* is analysed by Dr. Tallmadge; the epidemic of small-pox in 1738 in Charlestown and inoculation form the subject of a paper by Dr. Waring of Charlestown, South Carolina; and Dr. Freeman sketches the history of geriatrics, a word introduced for the diseases of the aged by Nasher about twenty years ago.

One hundred years ago Thomas Joseph Pettigrew (1791-1865) published the first volume of his biographical work *Medical Portrait Gallery*, which in its time was as popular as it was indispensable. The fourth and final volume was completed in 1840. In 1838, too, appeared his "Account of the examination of the mummy of Pet-Maut-Joh-Mes." A Fellow of the Royal Society and one of the original three hundred Fellows of the Royal College of Surgeons of England, Pettigrew was keenly interested in Egyptology, as a surgeon and anatomist delighting above all in the technique of mummification. His fondness for demonstrating mummies to public audiences soon brought him the nickname of "Mummy Pettigrew," and inspired his contemporaries to outbursts of wit and excruciatingly bad verse.

The issue of *Nederlandsch Tijdschrift voor Geneeskunde*, the organ of the Dutch Medical Association, for October 1 is a Boerhaave number, and contains the following papers among others read before the congress held recently in commemoration of the bicentenary of Boerhaave's death: "Boerhaave's Influence on American Medicine," by Henry E. Sigerist; "Boerhaave and the Early Medical School at Edinburgh," by J. D. Comrie; "The Influence of Boerhaave's *Institutiones Medicae* on Modern Physiology," by J. Fulton; and "Boerhaave as a Botanist," by T. A. Sprague.

¹ *Annals of Medical History*. New Series, Volume X, No. 4, July, 1938. (Pp. 279-368; illustrated, 2.50 dollars. Subscription for the year, 11 dollars.) New York: Paul B. Hoeber, Incorporated; London: Harper Brothers, Medical Book Department. 1938.

¹ Krumbhaar, E. B. (1938). *Trans. Studies Coll. Phys. Phila.* 4 s., 6, 51.

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THE BLOOD PLATELET

It is over thirty years since Wright advanced the theory that the blood platelets are derived from the megakaryocytes, but recent reviews by A. Hittmair¹ and by L. M. Tocantins² indicate that, though this origin is accepted by the majority of haematologists, convincing evidence is still hard to find. The mechanism of the process is obscure, as the conditions in surviving preparations of marrow are abnormal, while megakaryocytes do not form platelets in tissue cultures. Some authors have postulated sudden explosive rupture of the megakaryocytes. More plausible theories are that fragmentation of the pseudopods produces platelets in the same way as the mammary epithelium degenerates into colostrum granules, or that the megakaryocytes exert a physico-chemical influence on the neighbouring fluid in the same way as the fibrocytes lay down collagen fibres in the intercellular spaces. Megakaryocytes are present not only in the bone marrow but also in the spleen and the lungs, and it is conceivable that the lungs are an important site of platelet production. Much interest has recently been taken in a group of leukaemia-like conditions variously described as leuco-erythroblastic anaemia,³ chronic non-leukaemic myelosis,⁴ megakaryocytic myelosis with osteosclerosis,⁵ and erythroleukaemia.⁶ The common factor in these conditions is the presence of excessive numbers of megakaryocytes not only in the bone marrow but also in myeloid foci in the spleen, the liver, and the glands. The blood platelets are not increased in numbers—in fact there is a haemorrhagic tendency—there is no accumulation of megakaryocytes in the lungs, and the disorder progresses to fibrosis of the bone marrow, encroachment on the marrow cavity by cancellous tissue, and increased density of the cortex of the bones. The giant cells are identical with those normally present in the marrow, to which the function of platelet formation has been attributed, but the sequence of events gives little support to Wright's hypothesis.

Whatever their origin, we must regard the platelets as a particulate secretion rather than as a cellular element of the blood. Not every particle in the blood stream is a platelet, and fragments of erythrocytes, leucocytes, fat droplets, parasites, and other structures have often been confused with them. This is one cause of the variety of views on their origin. Moreover the platelets are very labile, and their apparent number, size, and shape may be greatly modified by technical errors. The average number of platelets per cubic millimetre in healthy young adults is 250,000 in cutaneous blood, 300,000 in venous blood, and 350,000 in arterial blood. The very high normal values reported by some authors are the result of methods which break up the platelets, and figures above 500,000 are seldom, if ever, obtained in cutaneous blood in health. Platelets are often described as showing a dark central zone or chromomere and a clear peripheral zone or hyalomere, but this also is an artefact, for when platelets are rapidly fixed they present a diffuse and uniform granularity. Efforts to classify platelets by their size, shape, and staining reaction⁷ are to be viewed with suspicion.

The distribution of platelets through the circulating blood is irregular, and observers with the capillary microscope describe seeing schools of platelets, succeeded by periods when few or none are visible. When a vessel is injured platelets rapidly accumulate on the roughened surface and form the white thrombus from which the red thrombus grows down-stream. Agglutination of platelets and formation of thrombi can to a large extent be inhibited by the injection of heparin, which is now available in a form suitable for use in man.⁸ Coagulation of blood may be initiated or proceed in the presence of few or no platelets, as in the coagulation of lymph, and agglutination of platelets may take place independently of coagulation. The correlation between simple numerical changes in the platelets and the rate of coagulation of the blood is in fact low. Nevertheless it is generally agreed that the platelets play a part in initiating or accelerating the coagulation of blood. Only a small fraction of them are used up in the process, and the remainder play an even more important part in haemostasis by forming knots to which the fibrin filaments adhere. The clot then contracts, and the margins of the wound, which have already been brought into apposition by vascular constriction, are sealed together.

In essential thrombocytopenia—the purpura haemorrhagica of Werlhof—there has long been controversy whether the low level of platelets is due to diminished production or increased destruction. The symptoms improve dramatically after

¹ *Folia Haemat., Lpz.*, 1938, 59, 50.² *Medicine*, 1938, 17, 155.³ *Edinb. med. J.*, 1936, 43, 303.⁴ *Quart. J. Med.*, 1937, 30, 253.⁵ *J. Path. Bact.*, 1937, 45, 383.⁶ *Ibid.*, 1938, 47, 327.⁷ *Folia Haemat., Lpz.*, 1937, 58, 363.⁸ *J. Physiol.*, 1935, 92, 20.

splenectomy, but this may be equally well explained by assuming that the spleen inhibits the maturation of the platelets in the marrow or that it removes them from the circulation. If the work of Troland and Lee⁹ is confirmed, there will be an end to this controversy. They were able to extract a substance from the spleens of patients with essential thrombocytopenia which reduced the platelet count by 90 per cent. when injected into animals. No such "thrombocytopen" could be obtained from other tissues or from spleens removed for other diseases. The method employed for making the extracts was simple, and it is much to be hoped that others who have the opportunity to obtain material will speedily prove or disprove the claim. Experience has amply confirmed the suspicion that sedormid is a potent cause of purpura. A certain proportion of people either have or develop an idiosyncrasy to this drug, which manifests itself by an abrupt fall in the platelets and haemorrhagic purpura.¹⁰ The symptoms may be exceedingly severe, and there is no reason to doubt that they may prove fatal. The choice of hypnotics is so wide that there would seem to be no reason for prescribing a drug which has this alarming potentiality, and practitioners in this country would be wise to follow the example of their American colleagues and exclude sedormid from the list of approved remedies.

GOVERNMENT VERSUS CANCER

In announcing the Government's decision to make available modern facilities for the diagnosis and treatment of cancer in this country at the Council Dinner of the British Medical Association on November 8 Dr. Walter Elliot, the Minister of Health, said that in elaborating the details of the scheme he undertook to do his utmost to consult all the interests concerned—"local authorities, medical practitioners, research men." Later it was announced that Dr. Elliot was in negotiation to purchase £500,000 worth of radium for the treatment of cancer, and, according to a statement in the *Times*, the Eldorado Gold Mines, Ltd., at Port Hope, Ontario, have received an order from the British Government for 11 grammes of radium at a cost of about £200,000. That the Government has taken this important step is to be warmly welcomed by the medical profession, and it is much to be hoped that the Minister has fulfilled or is fulfilling his promise to consult those experts who alone are in a position to give him the best advice as to what could be expected from any scheme planned on the scale contemplated. Has, for example, sufficient cognizance been taken of the

developments in radiotherapy in other countries? It is the opinion of many distinguished workers abroad that in future radium will be used only for implantation into the actual growth, and that x rays will be employed for attack on those deeper growths which are inaccessible to direct implantation methods. This opinion requires the most careful examination before any irrevocable step is taken. Results obtained by expert and careful application of "bombs" containing 5 grammes of radium are encouraging enough to justify their use in the treatment of growths only a few centimetres below the surface of the skin. But for the deeper growths—as, for example, in the lung, stomach, and rectum—"bombs" containing as much as 20 grammes would be needed, and it is obvious that not many of these would be available at the present price of radium. Here it may be pertinent to remark that with the development of the radium mines in Canada it does not seem at all unlikely that within a few years the price of radium may be considerably less than it is now.

Coincident with this development in the mining of radium is the work started by Professor E. O. Lawrence in the University of California with the cyclotron, which has been described as an "atom smasher." Already in the U.S.A. twenty-two of these machines are in operation or are being built; several are under construction in the Scandinavian countries, and at least two of these will be used partly for medical and biological purposes. The two machines that are being built in this country at Cambridge and at Liverpool will be devoted largely to physical work and are not designed for use in medical treatment. We have already drawn attention in these columns¹ to the cyclotron and to the fact that the artificially radio-active substances produced by it have been given to patients suffering from myelocytic leukaemia, with successful results. A team of workers in the University of California is now actively engaged in investigating the possibility of substituting neutrons for radium in the treatment of cancer. Neutrons have been shown to be at least three times more lethal to malignant cells than an equal dose of x rays. It is clear, then, that the production of artificially radio-active substances and of neutrons by the cyclotron in amounts that make them easily available for therapeutic purposes is of the highest importance. The question immediately arises: Has the Minister of Health gone into this question and discussed with expert medical advisers the possibility (we would say desirability) of developing a cyclotron unit in this country exclusively for medical purposes? Is it indeed too late to suggest that say one-tenth of the £500,000 might be set

⁹ *Johns Hopk. Hosp. Bull.*, 1938, 62, 85.
¹⁰ *Lancet*, 1938, 2, 305.

¹ *British Medical Journal*, 1938, 2, 25.

aside for this end? While radium is needed and of great value in the treatment of cancer, it is essential that other methods of treating this disease—and especially the newest methods—should not be neglected. A cyclotron unit for medical research is urgently needed, and there are men with the necessary technical training and experience to operate it. We would suggest, too, that if the building of this apparatus should come to form part of the Government's cancer scheme, then research with it should be under the guidance of some such authoritative body as the Medical Research Council. It is essential that research be not neglected.

THE TREND OF URBAN MORTALITY

A prolonged period of economic depression, rising to a peak in the years 1929–33 and intense enough to affect directly or indirectly all the activities of the country, might well be expected to show its effect on the mortality statistics, especially in what have been called the depressed areas. Snatch samples of morbidity and mortality statistics can readily be adduced to support this view, but before sound generalizations can be made it is necessary to examine evidence collected on as wide a basis as possible and to institute a comparison with standards uninfluenced by local or chance circumstances. This, in fact, was the object of the research undertaken the results of which are embodied in No. 86 of the "Reports" series just issued by the Ministry of Health.¹ In his prefatory note as Chief Medical Officer Sir Arthur MacNalty is able to quote (and we assume with some degree of satisfaction) that "there is no evidence from the trend of mortality rates from all causes of death that the health of the population of the 'depressed areas' . . . has been unfavourably affected by the economic depression," and he appears justified in adding that this conclusion is "strong testimony of the success of national and local efforts to mitigate evils the magnitude of which needs no new comment." Dr. Lewis-Faning, referring to the investigations in America and elsewhere on trade depression as a factor influencing national health, explains the limitations of the statistical method in examining questions of this kind. Records of morbidity that took into account the non-fatal ailments—especially of women and children—would appear to have more value than mortality statistics, but unfortunately these are not available in a form or in quantity suitable for a wide-scale comparison, and it must be remembered that the trend of local statistics may be overshadowed by some nation-wide influence—for example, the upward rise of the general mortality rate from the south northwards. As "depressed areas" Dr. Lewis-Faning has included the counties and county boroughs of Lancashire, Cheshire, Northumberland, Durham, Glamorgan,

Monmouth, Brecknock, and Carmarthen, a sufficiently wide and representative group. For contrast, a selection was made of some sixteen county boroughs, including Lincoln and southwards, together with the administrative county of London, which were deemed "prosperous," since their unemployment rate was below the mean for boroughs generally. So far as the "depressed areas" are concerned the analysis shows that there has been a decline in the mortality rate at all ages during the past twenty years, and that these rates were lower in 1920–2 than in 1911–13, and still lower in 1930–2 than in 1920–2; but these rates always have been, and still are, higher than those for the country generally. With regard to the "prosperous areas," although in this connexion the term "contrast areas" would be better, mortality has declined in all cases during the past two decades, and, with four exceptions, has been consistently lower than for the whole country. In the northern group the boroughs of Lancashire are better relatively to England and Wales, those of Durham and South Wales are somewhat worse, while in the southern group the relative position has remained fairly stationary. The third and fourth sections of the report take account of annual death rates in age-groups for the years 1911–34, and by means of tables and graphs show that, although there has been occasional excess mortality among males in certain depressed areas, this excess is not related to the period 1929–33; on the contrary, these counties have kept pace with the country as a whole as regards the decline in general male mortality, and for females the results are very similar. In both groups exceptional areas are to be found—that is, "black spots" in the "prosperous" group and "white spots" in the "depressed" group—which when considered in their proper bearing (Table 12) lend no support to the theory of causal relation between depression and excess mortality, and at all events the absolute rates have steadily declined. The general conclusion reached is that excess mortality, where it occurred, was not a feature peculiar to the years of depression but has been apparent for at least the past twenty years. This is described as "the shadow of the picture," and it goes to show that these local heavy mortality rates are due to some more deeply rooted evil and possibly involve genuine geographical and racial factors. It is admitted that the specific problem set has not been solved, but the investigation has at least disposed of the unwarranted suggestion that unfavourable features of our mortality experience have been slurred over or ignored in official publications.

TRANSFUSION OF LEUCOCYTES

The virtue of the ordinary transfusion of blood lies largely in the addition of erythrocytes to the recipient's circulation; as a result there is more haemoglobin available for carrying oxygen to the tissues. To a less extent the other elements in the transfused blood—leucocytes, platelets, various immune bodies, and complement—may be of use; in the case of thrombocytopenic purpura the increase in platelets after a blood

¹ *A Study of the Trend of Mortality Rates in Urban Communities of England and Wales with Special Reference to "Depressed Areas."* By E. Lewis-Faning, Ph.D., of the Medical Research Council's Statistical Staff. H.M. Stationery Office. 1s.

transfusion may raise their numbers above the critical level below which bleeding is apt to occur. The addition of leucocytes (neutrophil polymorphonuclear cells) to a patient's blood stream might prove beneficial in cases of extreme neutropenia due to toxic derangement of the normal marrow leucopoiesis—for example, primary or secondary agranulocytosis. Compatibility of white cells has not been taken into consideration in ordinary blood transfusion, but there is evidence that direct agglutination of these cells may occur; this factor would have to be avoided in the use of a donor's leucocytes as a therapeutic agent. The relatively small number of leucocytes in whole blood compared with erythrocytes and even platelets militates against their use in practical therapeutics: a very large volume of whole blood would be required to increase significantly the leucocytes in the recipient's blood stream. Further, the duration of life of a transfused leucocyte is much less than that of a red blood cell. To overcome these drawbacks J. Hanausck¹ has devised an easy technique for obtaining leucocytes in concentrated suspension from citrated blood. The method depends on separation by fractional sedimentation, and the apparatus required is very simple. Working with horses' blood he was able to obtain large quantities of leucocytes for laboratory experiments. Separation of leucocytes from human blood could be accomplished in a similar way and form a supply for transfusion purposes in the types of cases already indicated.

NEW INTERNATIONAL STANDARD FOR VITAMIN B₁

It is announced that the first international standard for vitamin B₁, which consisted of an adsorbate of the antineuritic vitamin, made from rice polishings, on fullers' earth, has now been replaced by a preparation of crystalline vitamin B₁ hydrochloride. In recent years progress in the study of the antineuritic vitamin has been rapid, and this change in the form of the international standard has been made possible by the synthetic preparation of the vitamin in pure crystalline form. Through the generosity of four manufacturers an adequate quantity of the new crystalline material was placed at the disposal of the National Institute for Medical Research, Hampstead, to enable a new standard to be prepared consisting of the pure crystalline substance. Extensive international investigations of the properties of this material and, in particular, the determination of its potency in terms of the original international standard by a variety of methods have now been completed, and the members of the International Conference on Vitamin Standardization have unanimously recommended that the sample be adopted as the Second International Standard for Vitamin B₁, and that the international unit be defined as the antineuritic activity of 3 microgrammes of the international standard preparation. This recommendation has been adopted by the Permanent Commission on Biological Standardization of the Health Organization of the

League of Nations. As in the case of the other international vitamin standards, the new standard for vitamin B₁ is held, on behalf of the Health Organization of the League of Nations, at the National Institute for Medical Research, Hampstead, and is distributed therefrom to national control centres established in other countries for local distribution to laboratories, institutes, and research workers; and to workers resident in countries in which the establishment of national control centres has not yet been completed. With regard to the supply of the new standard for vitamin B₁ to those requiring it in the United Kingdom, samples have already been sent to the laboratories, institutes, and research workers who have hitherto received the standard adsorption product. Others requiring the standard are asked to make application to the Department of Biological Standards, National Institute for Medical Research, Hampstead, N.W.3.

GRENZ RAYS

For two generations the growing-point of physics has been concerned with the effects of electromagnetic radiations, and in this growth the use of such radiations in medicine has played a not inconsiderable part. The two main gaps in the electromagnetic spectrum—between "hard" x rays and gamma rays, and between the short ultra-violet and "soft" x rays—are in process of closure: the former by the development of super-voltage therapy on the medical side and by the study of atomic disintegration on the physical side, and the latter by the study of the Grenz rays. Grenz rays are very soft x rays, generated at a few thousand volts and with a wave-length of 1 to 3 A.U. Their physical characteristics have been investigated chiefly by Rajewsky and his associates in Frankfort; they have shown that it is in the region of the Grenz rays that the Bunsen-Roscoe law (intensity \times time = a constant) becomes invalid, and by calculating the energies of beams of different wave-length they demonstrated¹ that the skin erythema produced by x rays occurs by absorption at a depth of 0.12 mm. The physical data necessary for the accurate application of Grenz rays in medicine have been summarized by Z. A. Leitner: the quality of the beam is expressed in terms of its absorption in air or aluminium and the dose is measured in roentgens by a thimble-chamber ionization instrument. The rays are so soft that a beam at 4 kV is reduced to half its intensity by passing through 10 cm. of air, and at 8 kV to one-fifth by 2 mm. of skin. The almost complete absorption of the rays in the skin makes them particularly suitable for use in dermatological conditions, and the rapid recovery of the skin after therapeutic doses allows repeated courses of treatment in complete safety. The first-degree erythema dose is of the order of 2,000 r, but ten times this amount has been given in a short period without any permanent damage. The use of Grenz rays, however, is not confined to dermatology, since it is believed that their absorp-

¹ *Ann. Inst. Pasteur*, 1937, 59, 652.

² *Strahlentherapie*, 1932, 45, 398.
Brit. J. Radiol., 1938, 11, 586.

tion in the skin brings about general metabolic changes, and that Grenz-ray therapy thus influences constitutional diseases such as rheumatism, asthma, etc. The fact that these beneficial effects are generally said to occur by way of an influence on the vegetative nerve-endings in the skin indicates how slender is their scientific basis. In rheumatism, asthma, and cancer Scott³ has claimed good results by irradiation of indifferent areas of the body with medium-hard x rays, and if these results were generally confirmed the mechanism is probably similar to that claimed for Grenz rays. There would certainly appear to be a case for a controlled investigation of the effects of Grenz rays in constitutional diseases; the comparison of a group of chronic rheumatics treated with Grenz rays with a group exposed to sunlight and fresh air would be an interesting experiment.

PERSPIRATION AND SUNBURN

Perhaps the most important part played by perspiration is in the regulation of body temperature. That the sweat glands can actively secrete certain constituents of the blood is well illustrated in those miners who lose such large quantities of sodium chloride in the sweat that a condition of hypochloræmia is established, causing miners' cramp, a syndrome easily prevented by drinking water containing salt. The factors controlling the chemical composition of human sweat are not clear: sodium chloride, urea, uric acid, lactic acid, ammonia, sugar, creatinine and creatine (very slight traces), amino-acids, lipoids, and even protein have been found in it; in nephritis the excretion of urea in it is increased. That there are in sweat some as yet unknown substances is suggested by recent work by Crew and Whittle.⁴ These authors set out to test whether there is any justification for a commonly held view that human skin is less readily sunburnt if perspiring freely than if it is dry. Crew had previously demonstrated that a millimetre film of sweat absorbs slightly at a wave-length of 3300 A.U., very appreciably at 2900 A.U., and almost completely at 2700 A.U. It has now been shown that the most effective region of solar radiation from the point of view of sunburn on human skin lies between 3140 A.U. and 2960 A.U., with the maximum at about 3040 A.U.; limits of the visible spectrum at the violet end are 3800 A.U. Such data suggest that sweat would in favourable conditions act as a barrier to the rays most effective in producing erythema. Experiments were carried out on healthy male subjects in whom sweating was stimulated by such means as a hot bath or running half a mile when very warmly dressed. The sweat was obtained from the forehead, the first excretion being wiped off; as much as 5 c.cm. at a time could thus be obtained in a tube. The source of radiation was a quartz mercury-vapour water-cooled Kromayer lamp, a cell containing human sweat being interposed between the lamp and the skin. Exposures were made on the inner surface of the forearm or the thigh; the time of exposure varied from one to two minutes. It

was found that sweat does provide some protection against the production of erythema and that a film 0.2 mm. thick gives a just detectable but definite screening effect. That the effect was not entirely due to suspended matter was shown by obtaining it after preliminary passage of the sweat through ordinary filter paper or a Chamberland candle. Preliminary ether extraction of the sweat removed a good deal of its absorptive power and the fatty bodies present in the ether extract possessed absorptive power for the erythema-producing rays. Control experiments with water and physiological saline were negative. Using spectrophotometric methods it was further demonstrated that a 1-mm. film of natural sweat transmits only about 40 per cent. of the radiation at wave-length 3500 A.U. and about 6 per cent. at 2500 A.U., while filtered sweat is considerably more transparent at 3500 A.U. (78 per cent.) but only slightly more so at 2500 A.U. The fact that in prolonged sweating there occur a considerable secretion of natural lipoids and a deposition of dissolved substances freed from (evaporated) water makes it almost certain that the degree of protection afforded is greater than indicated by the *in vitro* experiments, as they may be called. Explanations of the phenomena in terms of the absorptive power of the known constituents of sweat were not very satisfying; they would account for only a negligible fraction of the demonstrable absorptive power of the sweat as a whole. Even cholesterol, the absorptive curve of which bears some resemblance to that of sweat, could not account for the observed results. Iron has been suggested as reducing the sensitivity of the skin to sunburn, but the amount of iron in human sweat (determined spectroscopically) is not more than 0.0005 per cent. Examination of the transmissivity of human epidermis in the relevant range of wave-lengths yielded a curve similar to that obtained with sweat, and hence it is suggested that a single substance is perhaps present in both epidermis and sweat which is highly absorbent for this wave region. The nature of such a substance is at present unknown, but it would appear reasonable to proceed with these highly interesting experiments and use other constituents in the body—for example, serum and tissue extracts, particularly nerve and vessel walls.

DETERMINATION OF THE CIRCULATION TIME

Investigation of the dynamics of heart failure in man has been possible in the last decade by the development of many methods for the determination of cardiac output, circulation time, and circulating blood volume. These three factors are closely interrelated, and it is obvious that, with other conditions remaining the same, output will vary inversely with the circulation time and directly with the volume of blood circulating. Whereas the output in congestive heart failure is generally, but not constantly, reduced, it is rare for the velocity of the flow of blood to remain unaltered, and it is used as a more reliable and also a more delicate index of circulatory change. There is also the advantage

³ *Proc. roy. Soc. Med.*, 1935, 28, 684.

⁴ *J. Physiol.*, 1938, 93, 335.

that it is much more easily measured than the cardiac output. The blood velocity has, as a rule, been measured from the arm to the pulmonary capillaries, or from the arm to the neck or tongue, the former method being suitable only in cases of right heart failure. Since 1927, when Blumgart and his collaborators devised a method with a radium preparation, a large number of substances have been employed. All have the property of producing some form of stimulation at some distant point after injection into the circulation, the effects of which can be quickly recognized. They fall into two main groups: first those which are given off in the lungs and are noticeable in the breath—these measure the arm-to-lung circulation time, which is reduced in right heart failure; and, secondly, those which pass through the lungs into the left heart and systemic arteries and can be tasted on reaching the tongue, or, as in the case of the sodium cyanide method, stimulate respiration. With the second group left heart failure with engorgement of the lungs can be estimated. The normal circulation rate varies according to the method employed, and to a still greater extent from one individual to another, though in the same individual under basal conditions the same method gives fairly constant results. A disadvantage of most methods is that they are subjective—that is, the end-point depends upon the subject himself recognizing, and signalling his recognition of, the stimulus; and, with some, unpleasant effects are produced—for example, severe headache with the histaminic method. Recently paraldehyde has been used by S. Candel¹ to determine the arm-lung circulation time, 1.4 c.cm. being injected into an antecubital vein and a sharp cough denoting its arrival in the pulmonary capillaries. In favour of this are the sharp and objective end-point (the cough) and the fact that paraldehyde is convenient to use, requiring no sterilization. Against it are certain unpleasant reactions such as transient dizziness or hypnosis and the severity of the cough, which may last three minutes and is likely to be resented by a dyspnoeic patient. As a valuable and relatively simple way of making a differential diagnosis of cardiac failure and for estimating variations in the degree of failure, measurement of the rate of circulation will probably come into wider favour, but the ideal method has yet to be found.

SITE OF ACTION OF DIGITALIS

Although the value of digitalis in some forms of cardiac disease has never been disputed, the precise indications for its administration are not so well established, and how it works is a matter on which there is still less agreement. Thus, while the effect on heart failure with auricular fibrillation is so conspicuous that no one would question it, doubts have been expressed as to its beneficial action on fibrillation without failure and on failure with normal rhythm. It has been held for a long time that digitalis acts either on the conducting tissues, the depression of which slows the heart and explains the special action in auricular fibrillation, or directly on the

muscle, increasing its efficiency—that is, the contractile power in relation to oxygen consumed. A newer view is proposed by L. N. Katz, M. Mendlowitz, and H. A. Kaplan,¹ who hold that the action of digitalis on the human heart can be adequately explained as secondary to the effects on the peripheral circulation. The latter includes vasoconstriction of systemic and pulmonary arteries and of systemic veins; the venous return is also diminished by constriction of the blood vessels of the liver. In view of these and other extracardiac changes Katz and his co-workers reject the results of experiments in which the heart-lung preparation and the heart-lung spirometer are used, and believe that observations on the isolated heart only are free from error. But such observations should be made in conditions as nearly natural as possible. For this reason experiments on strips or fragments of muscle have a limited value, especially in relation to the failing heart. Thus the demonstration by R. N. Chopra and N. N. Das² that strophanthin and related drugs inhibit the rate of pulsation in fragments of heart muscle from young chick embryos (which they chose as being free from all nerve tissue) is important as indicating a direct action on heart muscle, but does not solve the problem of whether or not this is responsible for the therapeutic effects. Katz and his co-workers, using a method similar to that of the heart-lung preparation, except that an artificial resistance replaces the pulmonary circulation, found that both before and after cardiac failure had developed digitalis produced no significant change in size of heart, flow of blood, work, or oxygen consumption until a toxic effect on conduction appeared. In the failing heart both work and oxygen consumption decreased, mechanical efficiency remaining unchanged, while if the work was kept constant no change in oxygen consumption followed, despite a progressive increase in the size of the heart and in venous pressure. The conclusion is that digitalis has no significant action on contractility in the isolated heart, either with or without failure. These results show that there is room for further experimental work on digitalis and for a revision of ideas on the way it acts; but a sweeping conclusion from such experiments would be premature.

¹ *Amer. Heart J.*, 1938, 16, 149.

² *Indian J. med. Res.*, 1938, 26, 271.

On November 16 a dinner was given at the Athenaeum in honour of Sir Richard Gregory, F.R.S., who is retiring from the editorship of *Nature*, with which he has been closely associated for forty-five years, securing for it a position in scientific literature not equalled by any other similar periodical. During the last few years the columns of *Nature* have increasingly emphasized the responsibility of scientists to society, which culminated this year in the formation of a new division of the British Association to deal with the social and international relations of science. Sir Richard Gregory was chosen as the division's first chairman. This week he left for the United States, where he is to deliver on December 8 the Elihu Root lecture at the Carnegie Institution of Washington on "Cultural Contacts of Science."

¹ *Ann. intern. Med.*, 1938, 12, 236.

with adhesive strapping. Should recurrence take place, operative retention by the use of sutures uniting the fragments will be necessary.

The treatment of fractures of the clavicle and scapula has been dealt with elsewhere in this series and does not require further description.

Injury to the Diaphragm

Laceration of the diaphragm of varying extent occurs in a small proportion of contusions of the chest. As a rule there are no distinctive symptoms in the early stages, and in radiographs the opacity in the lower chest caused by the abdominal contents herniated through the laceration in the diaphragm is mistaken for effusion or consolidation of the pulmonary tissue. At a later stage symptoms such as continued but indefinite indigestion or acute pain in the lower chest or upper abdomen, often associated with vomiting due to partial strangulation of the hernial contents, result in investigation by barium meal and radiographs, which make the diagnosis obvious.

The treatment is operative, and the prognosis, if strangulation has not occurred, is good. For traumatic diaphragmatic hernia approach through the chest is more satisfactory than that obtained through the upper abdomen, since the laceration can be more easily exposed and separation of omentum and hollow viscera adherent within the chest is easier and safer.

II. PENETRATING WOUNDS OF THE CHEST

The essential differences between the non-penetrating and the penetrating wounds of the chest are the greater incidence of infection, the production of an "open pneumothorax," the increased frequency of cardiac wounds and the occasional presence of a retained missile. Where these factors are not concerned the treatment of such injuries is largely that of the non-penetrating type. In all cases in which there is a lacerated wound excision and suture should be carried out as soon as the general condition of the patient permits, in order to obviate the risks of infection.

Open Pneumothorax

The presence of a lacerated penetrating wound which permits the entrance and egress of air into and from the pleural cavity has a very serious effect upon the respiratory function. The opening should therefore be closed as soon as possible. When conditions do not permit of immediate excision of the wound and closure of the chest wall by suture the wound edges should be firmly drawn together and fixed by adhesive strapping so as to prevent the free interchange of air between the pleural cavity and the exterior. The "débridement" should be undertaken as soon as possible to prevent infection. Subsequent treatment will depend upon the occurrence or otherwise of infection.

Retained Missiles

The question of the removal of retained missiles will depend upon their nature. Bullets, revolver or rifle, and smooth missiles such as shrapnel balls, can generally be left during the early days and the necessity for their removal decided at a later date. When irregular missiles are retained it is probable that portions of clothing have been carried in ahead of them. In such cases infection is almost certain to occur, and the question of their removal is a much more urgent problem. As soon as

the general condition of the patient permits they should be removed after careful radiological localization.

Cardiac Wounds

Suspicion of cardiac injury should always be aroused when penetrating wounds are situated over the precordial area. A considerable degree of success has followed exploration and suture of stab wounds of the heart, and it is essential to recognize the symptoms of haemorrhage into the pericardium, on which the diagnosis is chiefly based. The effusion of blood into the pericardium causes increasing difficulty in cardiac action, a condition termed "cardiac tamponade." The three cardinal symptoms are: (1) muffling of heart sounds—so-called "silent heart"; (2) falling blood pressure; and (3) rising venous pressure.

It is important to recall that cerebral symptoms can result from haemorrhage into the pericardium. These symptoms may comprise stupor, generalized rigidity with muscular twitchings, and occasionally hemiplegia, and are caused by cerebral anoxaemia. When the chest injury is associated with a head injury considerable difficulty may be experienced in deciding whether the symptoms are caused by direct cerebral injury or not. In such cases radiography may be most helpful, as when there is cardiac tamponade the cardiac shadow is enlarged and is often associated with pleural haemorrhage.

Cardiac injuries require treatment as soon as the diagnosis is determined, and the pericardium should be opened and the cardiac wounds sutured.

Late Results of Chest Injuries

In contusions and penetrating wounds in which a haemothorax is not aspirated and full expansion of the lung not attained after a period of some months, there is a tendency for calcification to take place in the walls surrounding the encysted blood—that is, parietal and visceral pleura. As this will result in restricted mobility of the chest wall and diminished functional capacity of the lung, and the fluid contents may subsequently become infected months or years later, it is essential to remove all blood-stained effusion from the chest by aspiration and ensure full pulmonary expansion and function.

Apart from diaphragmatic hernia, there is another late sequel to chest contusion, especially when it has been severe and has caused damage to the bronchial wall—namely, bronchial stenosis. This may be partial or complete, and may result in pulmonary atelectasis, often associated with secondary infection, and require lobectomy or even total pneumonectomy.

Lastly, the retention of a foreign body which has caused no trouble for months or even years may result in the formation of a pulmonary abscess, and give rise to secondary bronchiectasis and repeated haemoptyses.

These conditions will require treatment according to accepted principles. The control of the whole period of observation by repeated x-ray examinations will not only enable the immediate treatment to be carried out on the right lines, but will in many cases prevent the establishment of changes that will only be apparent months or years later.

In conclusion it will be seen that in the treatment of chest injuries it is inadvisable to intervene surgically in the early stages unless the evidence for such intervention is definite, and, likewise, that in the majority of cases all that is required later is aspiration of the contents of the pleural cavity.

THE HEALTH OF AFRICA

RESEARCH SURVEY OF A CONTINENT

At a time when the question of African territories is beginning to loom in European politics the compilers of *An African Survey*¹ have rendered invaluable service to those responsible for or interested in the affairs of that continent. The enterprise was first suggested by General Smuts in his Rhodes Memorial Lecture in 1929, when he pleaded for a review of the extent to which modern knowledge is being applied to African problems. An African Research Committee was formed under the auspices of the Royal Institute of International Affairs, with Lord Lothian as chairman, funds were subscribed by the Carnegie Corporation and the Rhodes Trustees, and Lord Hailey, who has been for thirty years a distinguished administrator in India, was appointed director.

The survey, to which the term "monumental" is not misapplied—it runs to nearly 1,700 pages—has occupied Lord Hailey and his helpers for nearly five years. It is only Africa south of the Sahara which has been taken; in consequence Abyssinia and the Sudan are not included. The principal attention has been directed to the Union of South Africa and the British, French, and Belgian colonies and mandated territories. The survey opens by describing the physical background, the sparse population, the stocks of the African peoples, their seven hundred languages, and goes on to discuss their systems of government, of law and justice, of taxation; the problems of labour, of agriculture, of water supply, of transport and communications; and the educational facilities and economic development. It presents the continent, in the words of Lord Hailey, as "a living laboratory." It is more than a collection of facts; it is an attempt to review the extent to which modern knowledge is being applied to African problems, and, as regards the British colonies, it makes clear the need for closer co-ordination of local research activities and for more adequate help for research from the Imperial Government.

The Approach to Health Problems

The section dealing with health is itself a substantial volume. From the days of Livingstone onwards public attention and sympathy Africa-wards have been concentrated upon such diseases as leprosy, sleeping sickness, and malaria. Another approach is now being realized—namely, that which takes into account the factor of defective nutrition. Important as may be the influence of nutrition on health conditions in Europe, it does not exercise the same decisive effect as in Africa. Medical science in Africa, says the survey, must be increasingly concerned with the relation between nutrition and health.

Another point made is that the methods must be largely those of mass attack.

"Preventive treatment applied to certain African diseases, to be effective, must partake to some extent of the character of an operation, scientifically planned and humanely conducted, but military in its spirit and offensive, and in the thoroughness with which it establishes itself in the area it has occupied."

It is also considered necessary that, under scientific leadership, there should be a large body of assistants who must as far as possible be Africans and must have as complete a system of training as circumstances will permit.

The incidence of the principal diseases in Africa is described, beginning with nutritional deficiencies, which obtain in almost every territory. Tuberculosis, probably not largely prevalent in earlier times, is now widely

distributed, and in Africa as in Europe is associated with poverty and overcrowding. On the other hand, leprosy has been with the Africans from time immemorial. About half a million cases are known, and the actual number may not be less than one million. The history of venereal diseases is obscure, but syphilis appears to have been prevalent in East Africa before the European occupation.

Present Health Services

After touching on the work of international bodies, such as the Health Section of the League of Nations, with its studies of trypanosomiasis, malaria, and leprosy, and the International Health Division of the Rockefeller Foundation, with its survey of yellow fever, the survey goes on to give details of the organization of health services in the different countries, from the Union of South Africa, where private and hospital practice is fully developed and where compulsory health insurance for the European urban population is suggested, to the British colonial dependencies, where, since the reorganization of the Colonial Medical Service in 1934, each territory has its medical department controlled by a director.

In Tanganyika Territory and Kenya the medical departments are arranged in administrative, medical, and laboratory sections, and the medical department in Kenya has taken a large share in projects for the improvement of living conditions in native reserves. The policy of the department is to set up in each native district a health centre consisting of a hospital with a medical officer and European nursing sister, with a number of out-dispensaries. In Uganda the policy of establishing dispensaries in rural areas is being actively pursued.

The organization in French West Africa is typical of the French preference for centralized and clearly co-ordinated methods of administration. Each of the colonies has a head of the public health service directly responsible to the Governor, and under him a staff of European doctors, of whom the majority are military and have undergone a course in tropical diseases. The "auxiliary" (trained African) doctors are an important feature of the French system. Under the Belgian system there has been a greater development of unofficial organizations than in the British and French colonies, and the Belgians have concentrated on medical work in rural districts. The Congo is divided for administrative purposes into districts, each of which is subdivided into territories in charge of official or unofficial organizations.

Medical Education of Africans

The survey envisages the medical service as a pyramid, the base of which is formed by a large body of African subordinate staff (such as nurses, dressers, hospital orderlies), the apex by fully trained medical officers, and the central part by the African auxiliary doctors or medical aids. Financial, among other, reasons make it impossible to contemplate that extensions in medical or health services should be attained by a proportionate increase in the number of fully qualified medical men. That the British territories do not at present contemplate making provision for Africans to take a full medical degree is largely due to the acknowledged lack of the necessary facilities for pre-vocational education. Africans are now being trained as medical assistants at the South African Native College in the Union, at Yaba in Nigeria, and at Mulago in Uganda. This training at the South African Native College takes the form of a course lasting for three years, preceded by a preparatory year's training in science, and followed by a year's practical hospital and public health training at Durban. It is anticipated that some of these assistants will be available for service in 1940. The schools at Yaba and Mulago appear to contemplate that at some future date they will be equipped to train the fully qualified African practitioner, though at present they have a more limited aim.

¹ *An African Survey. A Study of Problems arising in Africa South of the Sahara.* By Lord Hailey, G.C.S.I., G.C.I.E. (Oxford University Press. 1938. 21s.)

French West Africa has a school of medicine for Africans at Dakar, its capital, which is described as probably the most successful and certainly the largest effort in Africa to provide a colonial medical and health service with adequate African assistance. Since its foundation the school has provided over 400 assistants with an acknowledged standard of proficiency. The Belgians have lately opened a medical school at Léopoldville in the Congo. The survey calls for an expansion of the cadre of locally trained medical assistants. France at Dakar has led the way.

Health Education and Policy

Health education has its own difficulties in Africa, but they are not due to that opposition to the application of modern medical science which arises from attachment to a recognized system based on different principles, like the Unani system of medicine of many Moslem people in the East. The most difficult problem does not lie in enforcing anti-epidemic measures, but in persuading Africans to adopt the recognized principles of hygiene as part of their social habit.

"Not all those who practise native medicine in Africa can be dismissed as witch doctors; many are much respected, and it is indeed possible that a study of the herbs used by some of them might add to the list of remedies, such as quinine, which the pharmacopoeia owes to primitive medicinal practices."

It is suggested that the native African dislikes the greater discipline and isolation of the British hospitals as compared with the French. On the other hand, the French appear to lose by the fact that many of their doctors, being on the military cadre, have little incentive to study African conditions, and that administrative policy limits the expansion of medical facilities by refusing to open dispensaries where they cannot be supervised by a French qualified medical man. The French rely largely on a system of medical centres with attached dispensaries and mobile medical units, the Belgians on intensive measures of attacking affected areas with a view to clearing them up before handing them over to the care of the normal medical and health services. In the Union and in British territories a less elastic system of hospitals and outlying dispensaries is favoured.

"There seems good reason to hold that the mass infliction of disease of the type existing in Africa demands more direct methods of attack than have hitherto been employed in British territories; that funds should be devoted to organizing intensive medical campaigns rather than to the perfecting of the hospital system; and that, if necessary, statutory powers should be taken to secure that persons suffering from disease should submit to the necessary medical treatment."

More than once Lord Hailey returns to this theme:

"... it is difficult not to desire to see in some of the British territories more evidence of the spirit which shows itself in a direct attack on the health problems of the people. It is not enough to multiply facilities, ... disease of the type which causes most mischief in Africa is generally a mass infliction, and must be attacked in the mass."

Artemus Ward in a well-known passage declared that though the African was his brother he was not his sister and his wife and his uncle, and several of his brothers and all his first wife's relations. Somehow the passage comes back to us when we turn from the activities which the survey presents to the lowering background—an Africa with perhaps more than half its people still beyond the reach of medical and health services, with sanitation in many areas non-existent, with helminthic diseases almost universal, with widespread neglect in many central villages of the sick, the aged, and the young. Little can be done to improve such conditions until the Africans themselves

are conscious of a need for betterment, or at least until the native authorities themselves are aware of their responsibilities.

PROBLEMS OF HUMAN CONGENITAL DISEASE

PROFESSOR J. B. S. HALDANE'S LECTURE

With Dr. ROBERT HUTCHISON presiding, the Lloyd Roberts Lecture was delivered at the Royal College of Physicians of London on November 17 by Professor J. B. S. HALDANE, F.R.S., who took as his subject, "Some Problems of Human Congenital Disease." Professor Haldane began by expressing his sense of the honour of addressing the College, and asked as a layman to be excused inevitable solecisms when treating a medical subject which he had approached through a study of inherited abnormalities in animals.

Nature and Nurture

A person was regarded as afflicted with congenital disease, said Professor Haldane, if he was born diseased or if in early life disease developed which was believed to have been wholly or mainly predetermined at the time of birth. Examples of the first class were congenital syphilis, congenital pyloric stenosis, and ichthyosis foetalis gravior; examples of the second were Huntington's chorea, which, although the average age of its development was approximately 35, was yet believed to be due to an abnormality existing in the patient at the time of birth, and hereditary optic atrophy, which again might develop over a great range of ages but was believed to be congenitally determined.

In the large majority of cases, however, it was necessary to deal with the interaction between nature and nurture, to use Galton's words. In some cases one of these factors was predominant, but in a considerable majority there was some doubt. For example, there might be a degree of natural immunity to syphilis, the onset of hereditary optic atrophy might be determined by environmental conditions, at least to some extent, and so on. As a geneticist his own primary interest was naturally in differences of nature, differences in the hereditary endowment of the individual, and the question arose how to draw a line between the two. Where experiment was possible an endeavour had been made to keep nature constant in one series and nurture in another, just as in an experiment on gases the temperature would first be kept constant and the pressure varied so as to determine Boyle's law and then the pressure constant and the temperature varied so as to determine Charles's law. It was possible in animal experiments to approximate to nurture in many ways: to see that the animals had the same food, were exposed to the same liability to infection, and so forth. The most difficult thing was to standardize the pre-natal development. For example, in many stocks of guinea-pigs extra toes were not uncommon, and it was found in a given line that polydactylism was much more frequent among the offspring of young mothers than of old. The converse problem was to keep nature constant—that is, to obtain a group of animals all of which had the same hereditary endowment and test them out in different environments. There were two methods of doing this: one by prolonged inbreeding and the other by obtaining a group of animals related to one another by vegetative reproduction only and not through the sexual process. Experiments on human beings were, of course, out of the question.

The cases first studied were those in which either nature or nurture appeared predominant—on the one hand hereditary diseases, and on the other hand infections, to

which most people were susceptible. After this the cases were studied in which nature and nurture were more evenly balanced—for example, in acute rheumatism and phthisis, in both of which a hereditary factor and an environmental factor might coexist.

The Hereditary Mechanism

Professor Haldane began by considering cases in which the hereditary mechanism was obvious or at least fairly clear. He instanced split hand and foot, sometimes called "lobster-claw," and showed a pedigree in which every affected individual was the child of an affected individual, the disease never skipping a generation. The affected individuals passed the disease on to approximately half of their progeny without regard to sex, fathers and mothers transmitting equally to their sons and daughters. He also showed a pedigree of pre-senile cataract, and mentioned that Harman, in describing such a pedigree, had referred to a child who at the age of 2 years was practically blind, whereas the father was able to do unskilled work, and only on ophthalmological examination was a small cataract discovered.

A relatively trifling defect shown in the pedigree was short fingers, handed down by persons abnormal in this respect to approximately one-half their progeny. But there was one interesting exception. Two first cousins, both of them carrying the abnormal gene, married, and in addition to a daughter who had short fingers had another daughter who had no fingers or toes at all and showed other gross skeletal abnormalities. It was extremely probable that in such a case the child had received an abnormal gene from both parents.

The lecturer went on to make an analogy, for the crudity of which he apologized. Let it be supposed that a child inherited one eye from each parent. In that case one-half the children of one-eyed persons would themselves be one-eyed. But if two one-eyed persons married approximately one-quarter of their children would be completely eyeless. The analogy, though crude, had some justification. The genes responsible for hereditary differences were organs within the nucleus of a cell. Each gene appeared to control a specific function rather than a structure, but, unlike the organs in the body as a whole, they reproduced themselves directly—that is to say, when a cell divided the new genes were formed by a process which might be regarded as division or, as copying, according to taste. It might at once be questioned that, if this was the whole story, Adam and Eve must have suffered from a large variety of congenital abnormalities, being reservoirs of every conceivable defect that had shown itself in their offspring. There were no medical reports of the patriarchs, but they appeared to have enjoyed longer life than would be probable on that hypothesis. As a matter of fact, when these pedigrees of dominance were traced backwards the appearance of an abnormal individual from two normal parents was constantly found.

Occurrence of Mutation

The process by which new genes originated was called "mutation," of the nature of which extremely little was known. It might represent a failure to keep a normal gene in cell division or a change in a normal gene between cell divisions. The frequency of mutation could be increased some hundreds of times by means of x rays, but how to diminish its frequency was not known. Therefore it might be assumed that if the most extreme eugenic measures were taken with regard to the carriers of such abnormalities, although the number would be greatly diminished, they could not be completely abolished. Imagine—another crude analogy—what would happen if the kidneys were inherited one from each parent as he had supposed eyes to be inherited. Suppose that

1 per cent. of people had only one kidney and that this defect was handed down to half the offspring. Such a condition would be noticed relatively rarely. There would be a slightly greater tendency for people to die of kidney disease in later life, but the abnormality would largely go undetected. But when two persons with one kidney married one-quarter of their children would have no kidneys at all, and therefore would not live.

Professor Haldane mentioned a case of juvenile amaurotic idiocy. The child was normal until 6, then lost the sight, and about the age of 10 became idiotic. This was not in the ordinary sense a hereditary disease at all. It could not be handed down from parent to offspring, because the afflicted person almost invariably died before reproducing. He showed the pedigree of two families in which this condition appeared. In one family three out of five siblings were affected; in the other, one out of six. The parents of the two families were related to one another, but, what was more important, the husbands and wives in each case were cousins. It seemed likely that a recessive gene was handed down from one ancestor to the two different lines of the man and his wife, and on marriage a number of their children had an abnormality due to the presence of two abnormal genes.

Among other conditions which appeared to be so determined were albinism, haematoporphyria, and alkaptonuria. A more serious condition had been described in recent years in the shape of phenylketonuria, and every individual so afflicted had been a mental defective. This was an example of a metabolic disease associated with mental defect, probably due to a recessive gene.

Sex-linked Inheritance

Professor Haldane reminded his audience of the facts ascertained with regard to chromosomes and the different endowment of the sexes in this respect. He then mentioned as an example of a defect banded down through the male line the famous instance of the Lambert family, which suffered from ichthyosis hystrix gravior. The members of this family had a scaly coat which was said to moult once or twice a year. The first of these Lamberts was one of a number of normal children of normal parents. He had apparently six sons, one of whom handed down the abnormality to two sons but to no daughters, and so this fantastic pedigree continued in the male line for more than a century. Abnormalities inherited in that manner were extremely rare.

His next pedigree related to a history of colour-blindness of familial type, the abnormality occurring in males and being handed down through females, themselves apparently normal. The process was believed to be as follows: a man had an abnormal X-chromosome which rendered him colour-blind, and this defect he handed down to none of his sons but to all his daughters, who transmitted it to their progeny.

A far more serious disease of the same character was haemophilia, which had occurred among the descendants of Queen Victoria. One of her sons, Prince Leopold, was a sufferer, and handed the abnormality down to one or two of his daughters. The remaining haemophiliacs derived from two of Queen Victoria's daughters. One granddaughter married the last Tsar of Russia, and the Tsarevitch had haemophilia; another married the last King of Spain, and their son, too, had the same condition. Edward VII was not a haemophiliac and could not have transmitted haemophilia or any tendency thereto to his descendants. The fact that Queen Victoria was a carrier of haemophilia did not imply that there was any trace of that disease in the present royal family. When an attempt was made to trace the pedigree further back no sign of haemophilia was found among Queen Victoria's ancestors or collaterals, and it was evident that the condition owed its origin in her to mutation.

Finally, there was incomplete sex linkage as seen in certain pedigrees of retinitis pigmentosa, in which a man receiving a gene from his mother would hand it down predominantly to his daughters and to only a small proportion of his sons. There would occasionally be an affected son and an unaffected daughter. A case of more medical interest was that of hereditary fragility of bone. Here the presence of blue sclerotics gave some indication in the pedigree, but little idea could be formed as to the conditions which the sufferer from that diathesis would develop, whether fragility of the bones or otosclerosis. He showed also a pedigree of cases of acholuric jaundice. Here again a definite diathesis was transmitted—namely, corpuscular fragility. But there were many cases of irregular inheritance where a disease or abnormality ran in a family and yet nothing could be said as to whether a given individual, apparently normal, would or would not transmit it to a proportion of his or her children. This was particularly serious in such a condition as Huntington's chorea, where the disease might not develop until the end of the reproductive period, by which time a number of potential choreics, many of them doomed to insanity, would have been brought into the world.

SOCIETY OF MEDICAL OFFICERS OF HEALTH

THE ANNUAL DINNER

The annual dinner of the Society of Medical Officers of Health was held on November 18 under the presidency of Dr. ELWIN H. T. NASH. The guests included the President of the Royal College of Physicians (Dr. Robert Hutchison), the President of the Royal College of Surgeons (Mr. Hugh Lett), the President of the British College of Obstetricians and Gynaecologists (Dr. W. Fletcher Shaw), the President of the Royal Society of Medicine (Sir Gilling Ball), the Chairman of Council of the British Medical Association (Sir Kaye Le Fleming), the Secretary of the Ministry of Health (Sir George Chrystal), the Chief Medical Officer of the Ministry of Health and Board of Education (Sir Arthur MacNalty), and many representatives of bodies associated with the public health. The Mayors of Kensington and of Heston and Isleworth were also present.

Preventive and Curative Medicine

Dr. ROBERT HUTCHISON, in proposing "The Society of Medical Officers of Health," said he felt strongly that the more the members of the two great divisions of medicine—the preventive and the curative—saw of each other the better. There was apt to be unnecessary friction between them. General practitioners sometimes regarded the medical officer of health as an interfering person, and, as Dr. Johnson remarked, "physicians do not love intruders." It was all the more necessary for the two to cultivate friendly relations, and he wished every medical officer of health was a regular attendant at meetings of local medical societies and of the British Medical Association. It must be confessed that in the fight against disease the preventive side had had more victories to its credit than the curative. The recent developments in chemotherapy, however, had given fresh hope of new cures to come, while as regards ordinary environmental hygiene he doubted whether much could be added to the laurels of those concerned when existing schemes of slum clearance and the like had been completed and administration in backward districts levelled up. Largely by the efforts of preventive medicine mortality had been reduced and the expectation of life increased, but there remained an enormous and even an increasing amount of morbidity. Much of this was due to functional diseases of psychological origin, and if these were to be prevented, preventive medicine in future must widen its scope to deal with mental and moral as well as

material environment. Health, after all, was a state of perfect adjustment between the environment and the organism. This adjustment had largely been effected on the physical side, but on the mental side it was increasingly difficult with the rush of present-day living, the anxieties, uncertainties, and perplexities, which tended to undermine health and to render not worth living the longer years that preventive medicine had given us. To deal with these factors, however, was a task for statesmen and philosophers. He rejoiced to see the Society, now nearly an octogenarian, continuing to grow in influence and ability. In coupling the toast with the name of Dr. Nash he referred to the president's initiative and energy as a medical officer of health and the usefulness of his contributions to the literature of the subject. Dr. Nash had now retired from active work, and they would wish him many happy years of leisure.

The PRESIDENT, in his response to the toast, said also that the relations between the medical officer of health and the general practitioner had not always in the past been happy. His own first chief used to boast that he knew he was a success because he had quarrelled with every general practitioner in his administrative area. Clinicians and administrators would have to become more and more associated as the years went by. The next ten years would see amazing changes in the relations between the medical officer of health and clinical practitioners of all kinds. He hoped that with the development of local authorities' hospitals there would be no tendency to bring about the disappearance of the general practitioner, for nothing could really replace a good general practitioner. He himself was extremely happy to have started his career in general practice.

The toast of "The Guests" was proposed in a happy speech by Dr. J. GREENWOOD WILSON, M.O.H. for Cardiff, and a response was made by Sir GEORGE CHRYSAL, who said that, like his predecessors at similar gatherings, he wished to state how much the officers of the Ministry valued and admired the work of those engaged in local health administration. During the three years he had been in his present position he had witnessed a great increase in such administration and its responsibilities and labours. They were all realizing better than they could have done at the time what immense changes the Act of 1929 brought about and what readjustments of social and public health policy were made necessary. Further work would arise with the coming into concrete form of the new proposals with regard to cancer. Referring to a national emergency, Sir George Chrystal said he did not share the general anticipation that the requirements of national emergency would mean a diversion of energy and money from the things in which they were permanently interested. The necessity for organizing emergency measures had a good side even for the works of peace. It meant a national stocktaking, in the course of which many shortcomings would be made good and notable additions to the permanent equipment of public health services secured. He also announced that the Ministry was to give financial assistance—"a notable Christmas box"—to the National Council for Health Education.

Dr. R. VEITCH CLARK proposed the toast of those members of the Society who have during the year received honours, and coupled it with the name of Sir WILLIAM SAVAGE, who made a brief reply in a vein of personal reminiscence.

J. J. J. de Jong (*Nederl. Tijdschr. Geneesk.*, 1938, 82, 5122) records the cases of two diabetic women, aged 23 and 57 respectively, who proved refractory to treatment by insulin. In view of the close resemblance of their blood sugar curves to those of acromegalic patients the resistance to insulin was thought to be of pituitary origin. In one patient the pituitary region was irradiated by x rays; the resistance to insulin disappeared and was replaced by a normal response.

BRITISH HEALTH RESORTS ASSOCIATION

The annual meeting of the British Health Resorts Association was held in London on November 18 at the house of the Royal Institute of Public Health and Hygiene. The chair was taken by the president of the association, Lord MESTON, who spoke with appreciation of the work of the Executive and the Medical Advisory Committee, and especially of the outstanding services of the general secretary, Dr. Alfred Cox.

The Year's Work

Lieutenant-Colonel W. BYAM, chairman of the council, gave a more detailed survey of the work of the year. The chief event, he said, had been the taking over of the handbook *British Health Resorts* by the association, thanks to the financial guarantees of certain friends. It was hoped next year to distribute 25,000 copies of this handbook to members of the medical profession, and, if enough support were forthcoming in the following year, to have a copy of the book on the table of every practising doctor in the kingdom.

The association, Colonel Byam continued, had previously drawn attention to the absence of the subjects of medical climatology and hydrology from the teaching of the universities; therefore it was all the more gratifying to record that during the year Leeds University had appointed Dr. Geoffrey Holmes as lecturer in medical hydrology. A beginning had also been made in postgraduate teaching under the auspices of the Fellowship of Medicine at Bath, Buxton, and Harrogate. By this means medical men could be taught what was valuable at the spas, and at the same time resident doctors could be stimulated to do greater work on such an obstinate community health problem as rheumatic diseases. The Medical Advisory Committee was in consultation with the Cardiac Society with a view to considering the possibility of some British spa laying itself out to deal with disorders of the circulation. He rejoiced that the B.H.R.A. was helping to build up a community feeling in the spa world; it was hoped to help the spas and health resorts to develop a comprehensive service which would deserve recognition by the Government. By arrangement with the British Spas Federation the Medical Advisory Committee had carried out a series of "visitations" of spas, appointing in each case two medical men, one of them a practising spa physician, with the secretary, to visit the spa, make a thorough inspection of it, and report to the committee, the federation, and the spa itself. He also spoke of the need for more careful consideration of the holidays of the people—the "staggered holiday" education for holidays, organization to ensure the maximum benefit, to reduce overcrowding in health resorts, to encourage holiday camps, altogether to make the taking of holidays a rational thing instead of the random affair it often was.

Spas and the Public Health

Alderman BARROW of Bath, president of the British Spas Federation, spoke of the benefit of the conference which the British Health Resorts Association arranged at Bath a year ago. Sir STANLEY WOODWARD said that if only the B.H.R.A. embraced all the spas and health resorts of the country it would represent one of the finest movements for the health of the nation. Mr. W. McADAM ECCLES spoke of the benefit of rest at spas and health resorts, not only in convalescence but also before a severe operation, to enable the patient better to withstand the ordeal. Dr. G. D. KERSELEY, in congratulating Dr. Holmes upon his appointment at Leeds, mentioned that the Committee for the Study of Medical Hydrology, which had been helped financially by the British Spas Federation, had arranged eighteen lectures to medical men during the past year, and had arrangements in hand for others.

The annual report and financial statement—the latter illustrating the slender means on which considerable work can be done—were adopted, Lord Meston was re-elected president, and Sir Walter Langdon-Brown, Lady Honywood, Lord Horder, Sir Archibald Weigall, and Sir Stanley Woodward vice-presidents, and the meeting ended with the usual votes of thanks.

Reports of Societies

ENDOCRINE THERAPY IN GYNAECOLOGICAL CONDITIONS

At a meeting of the Medical Society of London on November 14, with Dr. C. E. LAKIN in the chair, a discussion was held on endocrine therapy in gynaecological conditions.

Mr. DOUGLAS H. MACLEOD said that endocrine therapy, apart from a few conditions in which it was specific, was still in its experimental phase, and it was important to remember this fact, both from the patient's point of view and from that of the reputation of the therapy. Except in endocrine clinics, which must be experimental, little discrimination was exercised in the use of the treatment. Oestrogen was of value in the treatment of severe menopausal symptoms, and the corpus luteum hormone was of use in cases of threatened or recurrent abortion for which no physical cause could be assigned. On the subject of biological assays of the hormones in the urine he said that before deciding on treatment by hormones in a case in which the symptoms pointed to functional deficiency it was logical to determine which particular hormone was at fault. The difficulties were manifold. The hormonal activity of the urine was an uncertain indication of the hormonal activities of the body. On the possibility of undesirable effects following hormone therapy, especially in view of the close relation between certain carcinogenic and oestrogenic substances, it seemed that the risk of the possible development of malignant disease was negligible, though it must be confessed that little was known on the subject. As for successful results, until biological assays of hormone activity were established it must remain impossible to tell in many cases how large was the part which the psychological element had played.

Hormone Assays

Dr. P. M. F. BISHOP said that it was necessary to realize that the endocrinologist in the laboratory was at present quite incapable of assisting in the diagnosis of any endocrine disorder by means of hormone assays. As a result of two years' intensive work by biochemists the androgens were now capable of fairly exact biological assay, but the oestrogens were a more difficult problem because of the series of degradation products. With regard to the gonadotropic hormone, it was fair to say that, apart from being able to give an 85 per cent. accurate result in a pregnancy test and helping to distinguish between a normal pregnancy and a hydatid mole, little could be done with the assay.

In discussing endocrine therapy it must be remembered that the response of a tissue to a stimulus depended on the strength of the stimulus and on the threshold of the sensitive tissue. There were tissues insensitive to oestrogen and tissues with different thresholds which required different concentrations of oestrogen to produce typical effects. Normal tissues were relatively insensitive to exogenous administration of hormones, presumably because they were already sufficiently saturated with the substance. Gonadotropic hormones were probably protein substances, but no idea was yet forthcoming as to their chemical constitution, and although extracted in fair purity from urine, there was no doubt that they did contain mixtures of other pituitary hormones. A still more difficult subject was the question of true pituitary extracts—extracts made from the pituitary lobe of different animals. The potency of pituitaries of different species varied within very wide limits.

Turning to clinical conditions, Dr. Bishop said that primary amenorrhoea as such, he thought, had never been affected by hormone therapy. In about 10 per cent. of cases of secondary amenorrhoea there was a permanent

re-establishment of the periods which could be directly attributed to the therapy, but the proportion, of course, was insufficient to rule out the possibility of coincidence. Apparently psychotherapy was just as effective as endocrine therapy in certain cases of amenorrhoea. Altogether endocrine therapy in amenorrhoea was so disappointing that he hesitated to advise it owing to the expense and inconvenience. He had gained the impression that large doses of oestrogen really did produce very good effects in a fair percentage of cases of true spasmodic dysmenorrhoea. The menorrhagias must be carefully classified before any attempt was made to evaluate the effects of endocrine treatment in these conditions. In selected cases a responsive group might be found. In a certain number of cases of sterility due to ineffective decidua, progesterone, given perhaps in the last week of the cycle, might be successful in assisting the implantation of the fertilized ovum. He believed that progesterone also had a place in the treatment of habitual and threatened abortion. Various reports of treatment of the toxemias of pregnancy had been published, but it was too early for conclusions on that subject. With regard to the menopause, his experience was that the administration of small doses of oestrin by mouth was extremely successful, provided the symptoms were not psychological in character. The results of treatment of secondary effects of the menopause were rather disappointing. Between such secondary effects of the menopause as psychosis, migraine, and so on, and ovarian deficiency, the relations were not sufficiently well marked to justify any optimistic expectations.

Limitations of Treatment

Mr. W. R. WINTERTON said that hormones were of the greatest value in conditions which were temporary rather than in those which were permanent. The factors which gave rise to secondary amenorrhoea were numerous and not necessarily of endocrine origin. Dysmenorrhoea might also be classified as primary and secondary, the secondary being a symptom of some other disease, and therefore not within the present discussion. Primary dysmenorrhoea was an ill-defined condition, and he had been told that one-third of the sufferers could be cured by any form of treatment—medicine, exercises, psychotherapy. Menorrhagia theoretically offered great scope for endocrine therapy, but the value of the treatment depended a good deal on the age of the patient. The treatment of sterility had been most unsatisfactory. Altogether endocrine therapy in gynaecological conditions must be said at present to have only a limited value. The wholesale use of hormones in unsuitable cases, necessitating as it did considerable expense for the patient, savoured of quackery. But in the symptoms resulting from the climacteric other treatments had been replaced by hormone treatment, and this was also true of threatened and habitual abortion and inhibition of lactation.

Dr. S. LEVY-SIMPSON said that there was evidently a very wide gap between the researches of the experimental endocrinologist and the "murky meanderings" of the gynaecologist and the gynaecologically minded endocrinologist. Endocrine therapy in gynaecology was rather an art than a science, and there was little doubt that one hundred years hence it would be regarded in much the same way as the magic potions of the Middle Ages. It must be extremely depressing to find that with all these advances in biological assay of the hormone content of urine and serum the matter was in such a hotchpotch of indecision that the clinician had once again to rely upon his hands and eyes and his sound clinical knowledge to guide him as to what endocrine product was the most likely to do least harm. The endocrine product which he had found of some use was testosterone propionate; it had cleared up a condition of dysmenorrhoea and menorrhagia in a young girl. Dr. A. P. CAWADIÁS said that an endeavour should be made to find the disease causing amenorrhoea or menorrhagia and to treat it by the various constitutional methods, among which endocrine therapy

must be included. Mr. V. B. GREEN-ARMYTAGE said that the treatment of secondary amenorrhoea by hormones was disappointing, but apparently many patients with this condition could be treated successfully by a fraction of an erythema dose of x rays.

Dr. BISHOP, in reply to this last point, said that low doses of x rays—which he believed to be very difficult to calculate—apparently stimulated the ovary. With regard to testosterone, he uttered a word of warning as to its possible effects in producing masculine characters in the female.

ASPECTS OF NEURITIS

At a meeting of the Manchester Medical Society on November 2, Dr. FERGUS R. FERGUSON opened a discussion on neuritis.

Dr. Ferguson, dealing particularly with multiple neuritis, said that it was quite impracticable to attempt a classification on any other than an aetiological basis, for, although the clinical and pathological pictures might be broadly similar, one found in detail that the clinical and pathological differences were not sufficiently marked to differentiate the various types of multiple neuritis. The most useful division was into exogenous and endogenous groups. In the former were the metallic and non-metallic causes. Almost all the metals except iron had given rise to polyneuritis, but he mentioned in particular lead, arsenic, mercury, and gold. With regard to the lead affection, it did not seem to be generally known that the lesion was in all probability not a true neuritis but a myopathy affecting the muscles which were principally used. Polyneuritis from arsenic and mercury was now relatively infrequent, but gold was a commoner cause of neuritis in view of its extended therapeutic use. Dr. Ferguson then referred to the many difficult and disputed problems connected with alcoholic neuritis—its mode of production whether due to alcohol, metabolic disturbance, or infection, and its relation to chronic gastritis, cirrhosis of the liver, and cardiac affections found in association with chronic alcoholism.

In the non-metallic exogenous subgroup there were the very interesting outbreaks of apiol and Jamaica ginger paralysis. The former was still important in that the product was on open sale and might be a possible cause of obscure cases of polyneuritis. Neuritis was a very common complication of diabetes, but it was rarely very extensive. It was not known whether the lesion principally affected the peripheral nerves or the cord. Diabetic polyneuritis was apparently never found in young people, and it seemed clear that there were numerous cases showing that the affection was one involving the cord rather than the peripheral nerves. Again, was the neuritis due to the hyperglycaemia, arteriosclerosis, sepsis, or diminished resistance? The differential diagnosis between polyneuritis due to diphtheria and that due to serum administration was important. In diphtheria the neuritis did not appear until about two months after the initial symptoms, whereas the serum polyneuritis showed itself very much earlier—within a few days of the serum sickness.

Acute Toxic Polyneuritis

Acute toxic polyneuritis was now the commonest cause of generalized polyneuritis. The clinical picture varied considerably as regards the severity of the initial symptoms, the relative affection of the motor and sensory pathways, the degree and distribution of the flaccid paralysis, the abnormalities in the cerebrospinal fluid, the course of the disease, and the prognosis. It was not widely known that cranial nerve paralyses were common findings in this condition. He referred to a patient with polyneuritis who presented herself with a Bell's palsy; a week later facial paralysis appeared on the opposite side. Careful investigation of the history revealed that paraesthesia had

been noted in the hands before the facial palsy developed, and later the patient had a generalized weakness in the limbs.

Dr. Ferguson said that no discussion on neuritis at the present time would be complete without reference to vitamin B₁ therapy. Despite the enthusiasm with which this form of treatment was introduced and the excellent results recorded in the early days, further experience was undoubtedly disappointing. It seemed almost certain that the only patients who would be benefited were those showing a diminished vitamin B₁ content in the blood, such as was found in beriberi and in the nutritional, gestational, and alcoholic groups. There appeared to be no definite improvement in acute toxic polyn neuritis, diabetic neuritis, and subacute combined degeneration of the cord.

Generalized polyneuritis was undoubtedly common at present, and although it was customary in the absence of any definite aetiological cause to make a diagnosis of acute toxic polyneuritis, yet one had to remember that the clinical picture of this condition varied considerably and that there was as yet no positive diagnostic test.

Orthopaedic Point of View

Mr. HARRY PLATT referred to the large number of affections of the spine and extremities which were unreasonably termed "neuritis." These included lesions of fibromuscular structures in relation to the larger joints, true joint lesions, and a variety of lesions of bone. There were two regions of particular interest to the orthopaedic surgeon—the shoulder and the lower spine and pelvis. In the shoulder region true brachial neuritis could be distinguished by definite signs of disturbance of conduction in the nerve trunks. A somewhat similar clinical picture was presented by toxic or infective peri arthritis of the shoulder-joint, a condition not uncommonly seen in middle-aged females. Following an attack lasting three to six weeks, characterized by pain in the neck, shoulder, and arm, the shoulder-joint was found to be stiff. The limitation of movement was due to the formation of fibrotic adhesions of the capsule and periarticular muscles. This was a condition most amenable to cautious manipulation under anaesthesia.

The "pseudo-neuritis picture" in the lower spine and pelvis was characterized by backache with unilateral sciatica. A special manifestation often seen in the acute stage was sciatic scoliosis. The problem of diagnosis in cases of sciatica was often most difficult and was of primary importance. Symptomatic treatment should never be prescribed except as a temporary emergency measure until an accurate diagnosis could be made. It was essential to approach the problem in a systematic fashion. The first step was to eliminate the possibility of pelvic visceral lesions; the next step to eliminate bony lesions of the spine and pelvis. This left three main groups of sciatica for consideration: (1) fibromuscular lesions (fibromyositis) of the lumbar region, buttocks, and hamstrings; (2) joint lesions affecting the lumbar spine, sacro-iliac, or hip-joint; and (3) intraspinal lesions, more especially tumours of the cauda equina and the recently discovered condition of protrusion of an intervertebral disk. The main features of these groups were discussed, and a brief reference made to the appropriate treatment of each type.

Physiotherapy of Neuritis

Dr. JOHN COWAN said that there was a great deal of uncertainty among medical men as to the most suitable form of physiotherapy to be applied in neuritis. Many unsuccessful results were due to a lack of proper understanding of the various measures, so that the choice of treatment and dosage was left to a masseuse. Often the masseuse applied treatment ineffectively owing to the absence of detailed instructions from the practitioner. In prescribing physiotherapy it was essential to have a good knowledge of the physiological and physical effects

of the various agencies. The conditions usually requiring treatment were pain, tenderness, loss of function, and loss of sensation. Pain was often referred to some distant area, and it was obvious that treatment in these cases would be ineffective if directed to where the pain was felt rather than to the site of the trouble. It was in these cases that masseuses so often treated the wrong area.

The site of a localized inflammation of the nerve could be discovered by applying labile faradism along the course of the nerve. On passing the electrode over the affected area the patient complained of acute pain. The chief therapeutic agent in the treatment of pain was heat. One had first to decide whether superficial or deep heat was required. Heat had an analgesic effect on structures in which it was absorbed. For superficial heating infra-red rays of the external band were the most suitable, as they were entirely absorbed by the skin and superficial fascia; they gave a marked skin reaction, and had also an analgesic effect. Ultra-violet rays caused a superficial reaction which lasted for a considerable time. For heating to the depth of a few centimetres infra-red rays of the internal band and numerous heat rays were most effective, as they were not absorbed until they had penetrated to that depth.

When deep heating was desired long-wave diathermy or ultra-short-wave diathermy was indicated. The choice between the two depended on the ohmic resistance of the tissues through which the current had to pass. Long waves tended to pass by ohmic resistance, and ultra-short waves passed by displacement or eddy currents. Consequently the former heated best tissues of low resistance, and the latter heated those which were screened by highly resistant tissue, such as fat. Another treatment applied for pain was anodal stable galvanism, which was effective owing to the area of anelectrotonus or decreased sensitivity around the anode. Chlorine, iodine, or histamine ionization would sometimes relieve pain because of its marked vasodilator effect, which acted as a form of counter-irritation.

Only the lightest massage (effleurage), and not pétrissage or tapotement, should be applied in the acute stages of neuritis, as the latter were too stimulating. A surface effect was desired for its sedative action on the sensory nerve endings. A valuable but little-known treatment for tenderness was by a fine high-frequency effleuve. This required an experienced operator, as a coarse effleuve was stimulating and would make the patient worse.

Loss of function was associated with disuse atrophy of muscles and joints. The wasting of muscles could be avoided, except in the severest cases, by applying surged galvanic currents or, better still, slow sinusoidal currents with a periodicity of about 2; these should be applied throughout the illness. As a rule surged faradism could not be tolerated. Because the patient adopted the position of ease for long periods, severe stiffness and contractures were likely to develop; they could often be prevented by massage—pétrissage and movements—especially if diathermy was applied first. Free active movements should be encouraged. Loss of sensation required stimulation of the sensory nerve endings. This could be done by applying high-voltage induction shocks by means of a wire-brush electrode; another method was to give a coarse high-frequency effleuve.

ENERGY AND MUSCULAR WORK

The twenty-third Guthrie Lecture of the Physical Society was delivered by Professor A. V. HILL, Sc.D., F.R.S., on November 11, at the Imperial College of Science and Technology. His subject was the transformations of energy and the mechanical work of muscles.

He said that the heat given out by muscles in relation to the work done by them was one of the classical studies of physiology. Till recently, however, the matter appeared

much more complicated than it really was owing to technical difficulties. These have been overcome by the use of a very rapid recording system and an insulated thermopile only 0.002 in. thick. Some very simple relationships had now emerged. An active muscle liberated energy in three forms: in maintaining a contraction, as heat; in shortening, as heat; in shortening against load, as work; its behaviour in any circumstances is deduced from the resultant of these three. Rate of total energy liberation of a muscle was determined by the load upon it, increasing as the load decreased. This allowed a simple equation to be deduced for the relation between speed and load. The constants of the equation were the same whether they were obtained by thermal or by mechanical measurements. This was strong confirmation of the results and of the conclusions based on them. Professor Hill showed how the time taken by a muscle in developing its external force could be deduced from these considerations and depended largely upon the amount of elastic material (tendons, etc.) in series with the contractile elements. The fact that a muscle did less external work when shortening at a higher speed had led to the hypothesis that muscle was endowed with "viscosity." This viscosity had been attributed to a lag in the rearrangement of its molecules, as the external form of the contractile elements changed. It was now shown that this viscosity hypothesis was altogether unnecessary and that the decrease of force and work with increased speed could be deduced from the manner in which the energy liberation was regulated.

Some applications were described by the lecturer. The maximum power developed by a muscle was with a load about three-tenths of the maximum load it could bear. The highest efficiency (work/total energy) was with a load of about 0.45 of the maximum. These were near enough for maximum power and maximum efficiency to occur very nearly at about 37 per cent. of the maximum load. These results obtained with frog's muscle almost certainly applied, though possibly with different constants, to man, and it would be very important to find out and to determine the constants of human muscle. The technique required would be a very different one.

LABORATORY DIAGNOSIS OF GLANDULAR FEVER

At a meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland, held on October 28, with the president, Dr. R. A. Q. O'MEARA, in the chair, Dr. D. M. MITCHELL gave a demonstration of the Paul-Bunnell agglutination reaction.

Dr. Mitchell said that infectious mononucleosis, or glandular fever, was a clinical syndrome characterized by fever, glandular and splenic enlargement, a benign course, and the presence in the blood of abnormal mononuclear cells in large numbers and, in the serum, heterophil antibodies to a high titre. Pfeiffer in 1889 was the first to describe a condition in children which he called *Drüsenfieber*, and which had a short febrile course accompanied by enlargement of the cervical lymph glands. It commonly occurred in house epidemics. During the next twenty years cases of glandular fever were often reported in the German and American literature, but in no paper was there any mention of the blood picture. Many authors, on the other hand, had described cases with a marked leucocytosis (as many as 90 per cent. of the cells being mononuclears, usually described as "lymphocytes") and accompanying illness, usually a fever of short duration, with enlargement of one or more groups of superficial lymph nodes. Several of these cases were reported as "acute leukaemia with recovery."

In 1920 Sprunt and Evans, at the Johns Hopkins Hospital, published an account of six such cases under the title of "infectious mononucleosis." In the following

year Tidy and Morley, in England, reported three more, and expressed the view that the infectious mononucleosis of Sprunt and Evans and the glandular fever of Pfeiffer and the early workers were the same disease. Even at the present time it seemed that in Europe the disease—if it was one and the same condition—occurred among young children in small epidemics and was generally known as glandular fever, whereas in the United States it most commonly appeared sporadically in young adults, and, appropriately enough, since the chief interest centred in the blood changes, was called infectious mononucleosis.

Paul-Bunnell Reaction

In 1932 Paul and Bunnell (*Amer. J. med. Sci.*, **183**, 90) reported from Yale the accidental observation that the inactivated serum of a patient suffering from infectious mononucleosis had the property of agglutinating sheep red corpuscles to a titre as high as 1:1024. They confirmed this finding in three other cases, the lowest titre obtained being 1:128. The only clinical condition in which such agglutination had previously been observed was in serum sickness after the injection of horse serum. The technique of Paul and Bunnell had been somewhat modified by Stuart to avoid certain difficulties in interpretation and to enable a standard method to be used by all workers:

1. The serum was inactivated in the usual way by heating to 55° C. for fifteen minutes.
2. Dilutions of serum in amounts of 0.5 c.cm. were put up in Wassermann tubes.
3. To each tube 0.5 c.cm. of a 1 per cent. suspension of washed sheep cells was added.
4. The tubes were then heated for four hours in a water-bath at 37° C. If necessary they might be left overnight in the ice-box and incubated the next day.
5. The tubes were inverted three times before reading and three degrees of agglutination were recognized:
 - + + + : cells agglutinated in a solid mat.
 - + + : cells agglutinated in large aggregates.
 - + : agglutination just visible, naked-eye.
6. Using this procedure a titre of 1:80 was considered suggestive, while one of 1:320 was diagnostic—with reasonable clinical and haematological supporting evidence.

The origin or nature of the antibodies remained obscure. Paul and Bunnell were of the opinion that they were of the same kind as those produced in serum sickness—that is, heterophil or Forsmann agglutinins, or, if the serum was not inactivated, haemolysins. This curious phenomenon of heterophil antigen-antibody reaction was first studied in detail by Forsmann in 1911. He observed that on injecting rabbits with an emulsion of guinea-pig organs there appeared in the rabbits' serum, as well as the ordinary specific antibodies, a completely distinct variety which had the property of agglutinating or haemolysing sheep cells. He found that the animal kingdom could be divided into two groups: those animals whose tissues contained the heterophil antigen, and those in which it occurred in the red cells only and not in any other tissue. In the first, or guinea-pig, group were found very many animals—including the horse. In the second, or rabbit, group were included man, the sheep and ox, and most pathogenic bacteria. Davidson later showed that persons who had received injections of horse-serum developed the antibodies in their serum, while those who had been injected with bovine serum did not; and, further, that in those who subsequently suffered from serum sickness the titre of antibodies in the serum was much higher.

Paul and Bunnell's view of the heterophil nature of the antibodies developing in infectious mononucleosis was supported by the work of Stuart. He showed that the agglutinins were quickly completely absorbed by raw sheep cells, more slowly but still completely by guinea-pig kidney (which contained the Forsmann antigen), and not

at all by rabbit cells. Furthermore, one patient who had a high sheep-cell agglutination titre reacted strongly to an intradermal injection of horse serum which contained the antigen—an observation which appeared to have a practical bearing on the treatment of infectious mononucleosis, suggesting that the injection of horse serum in these patients for any reason should be avoided. Other experiments which Stuart undertook produced results more difficult of interpretation. For example, serum containing heterophil antibody was toxic for the guinea-pig, and yet guinea-pigs into which Stuart injected serum from patients with a high sheep-cell titre developed only mild anaphylactic symptoms. One other observation was of interest. Landsteiner and others had shown that human red cells of groups A and AB contained the heterophil antigen. In Stuart's group of nine cases of infectious mononucleosis five belonged to group A, and one of these patients had a sheep-cell titre of 1:5120 for both agglutinins and haemolysins. Here, it would seem, were five individuals with the antigen in their red cells and the antibodies to high titre in their serum—a fact for which no obvious explanation was available.

General Discussion

Dr. R. A. Q. O'MEARA, the president, asked Dr. Mitchell if there was a possibility that these cells themselves—whether monocytes or lymphocytes—contained the heterophil antigen, and, their presence being abnormal, the other cells in the blood reacted by producing an antibody.

Professor J. W. BIGGER said that according to Dr. Mitchell most bacteria were supposed not to contain the antigen, but the antigen might occur in diphtheria bacilli. Some years ago he had immunized rabbits with diphtheria bacilli. He had examined the serum for sheep-cell haemolysins, which were found present to a high titre. The presence of the high haemolytic titre in the rabbits was probably due to their previous inoculation with diphtheria bacilli. This suggested that the diphtheria bacillus did contain this antigen. The question was, Had the serum of a person suffering from diphtheria the property of agglutinating these cells? It would be interesting to obtain some sera from diphtheria patients and test it with sheep cells, and also with concentrated horse-prepared anti-diphtheria serum, and see if it did or did not contain this antibody.

At the same meeting Dr. O'MEARA read a short communication on the optimal constitution of media for growth of the pathogenic micro-organisms. An interesting discussion followed in which Professors J. W. BIGGER and W. D. O'KELLY, with Drs. J. C. FLOOD, E. HARVEY, and J. McGRATH, took part.

At a meeting of the Association of Industrial Medical Officers held in the London School of Hygiene on October 28, Dr. L. P. Lockhart was elected chairman and Dr. D. Stewart honorary secretary for the session 1938-9. A discussion took place on "The Feet of the Industrial Worker," opened by Professor E. P. Cathcart, F.R.S., chairman of the Industrial Health Research Board. He was followed by Mr. C. Lambrinudi, who showed a film on the action of the muscles of the foot; Mr. W. Sayle Creer, who discussed the clinical aspects of the problem; Dr. W. Blood, who told of the foot clinic run by Messrs. J. Lyons and Co. at Cadby Hall; and Mr. H. Bradley, director of the Boot and Shoe Trades Research Association, who described recent research work carried out by his association on the provision of suitable footwear for industrial workers.

The Pasteur Institute of Algeria, under the direction of Dr. Edmond Sergent, has been authorized by Government decree to put on sale an anti-scorpion serum obtained from horses immunized by repeated injections of the venom of the brown African scorpion.

Local News

ENGLAND AND WALES

Royal Eye Hospital, London

At a meeting of the Clinical Society of the Royal Eye Hospital, St. George's Circus, S.E., on November 2, Mr. L. Vernon Cargill, chairman of the hospital, announced that the pathological laboratory and research department had been reconstituted. A new and highly efficient animal house had been made, and an investigation was being pursued into the retinal changes in rabbits. A technique had been developed in the laboratory for mounting macroscopic specimens without loss of colour; these specimens had been re-labelled and more appropriately catalogued according to the lesions demonstrated. Candidates for examinations could now review the whole field of ophthalmic pathology in a very short time. Attention was drawn to the excellent collections of melanomata of the choroid and intra-ocular foreign bodies, and the remarkable series of cases of expulsive haemorrhage. In the outpatient department there was a comprehensive collection of slides of all the commoner ophthalmic conditions; members of the hospital could now correlate very easily in their minds the ophthalmoscopic and microscopical appearances of the cases they met in the practice of the institution, and reference books were available in that department. Mr. R. H. Rushton demonstrated his new method for the clinical measurement of the axial length of the eye without surgical intervention. The principle of the method was that the retina when adapted to darkness was sensitive to x rays. A beam of x rays was moved forward until it impinged on the posterior pole of the eye when it was recognized entoptically by the patient; at the same time the position of the cornea was registered, and by a simple measurement the axial length was then determined. Important applications of this method in practical ophthalmology were the correlation of the axial length with the refraction in myopia. Mr. E. J. Somerset read a paper on the significance of errors of refraction in chronic blepharitis in children. His conclusions were based on the careful refraction under atropine of 300 cases. He had found that there was a similar incidence of refractive errors to that in normal samples of the population, and that there was no increase of spherical or astigmatic errors in blepharitis. Cases of monocular blepharitis did not show any greater incidence of blepharitis in the eye with the greater error of refraction, and causes other than errors of refraction must be sought for these cases. After the meeting members of the Clinical Society inspected the new animal house and its contents.

St. Ebba's Hospital, Epsom

The final extensions to the St. Ebba's Hospital for Nervous and Mental Disorders, Epsom, were formally opened by the Minister of Health, Dr. Walter Elliot, on November 16. St. Ebba's Hospital was first opened in 1903 as a colony for the care and industrial employment of epileptics, with accommodation for 326 patients. In 1909 the accommodation was increased to provide for 429 patients. From 1918 to 1927 the institution was used first as a hospital for soldiers and later for the treatment of neurasthenic ex-Service men. In 1927 it became once more an L.C.C. hospital for the accommodation of mental patients, and it was known as Ewell Mental Hospital; it was renamed St. Ebba's Hospital in 1937. When the Mental Treatment Act was passed in 1930 permitting for the first time the reception of voluntary patients in public

mental hospitals, plans were prepared for the enlargement of St. Ebba's. The extensions were carried out in two sections. The first, comprising an admission hospital villa, a hospital block for the physically sick, and a convalescent villa for male patients, as well as necessary enlargements of kitchen, laundry, and nurses' home, was finished in 1936 and has since been in use. The second section, now completed, comprises five more villas. The two extensions provide additional accommodation for 504 patients, bringing the total accommodation of the hospital to 933 beds—447 for men and 486 for women. In the administration of St. Ebba's Hospital as much personal freedom as possible is allowed the patients. Modern methods of treatment, psychological and physical, are followed, and the hospital is equipped with a clinical laboratory. At the opening ceremony Dr. Elliot said that they were that day celebrating the clearing away of a bad, an evil, tradition in the treatment of the mentally afflicted, in which the London County Council had made great advance. He spoke of the need for the feeling among doctors, staff, and the patients of the possibility of recovery of the patients. He welcomed the method adopted at that hospital of mixing the uncertified with the certified, and of treating the inmates as patients and not prisoners.

The Bart's Dinner

The dinner of the Old Students of the Medical College of St. Bartholomew's Hospital was held at the College Hall in Charterhouse Square on November 21, when Mr. Harold Wilson was in the chair. Owing to the death of the Queen of Norway, the Duke of Gloucester, who is President of the Hospital, was not able to attend. In proposing the "Welfare and Prosperity of the Medical College," Mr. Wilson gave a special word of welcome to the treasurer, Mr. George Aylwen. Bart's, he said, had fallen behind other hospitals in that it possessed no paying patients' block, and was therefore severely handicapped. Important events of the last year included the opening of the new athletic grounds at Chislehurst and the building of an attractive new pavilion. Sir Edward Meyerstein had most generously given the hospital an adjoining piece of ground. Referring to the achievements of old Bart's men during the past year, Mr. Wilson mentioned the knighthood conferred on Sir Girling Ball and the invaluable work he had done for the hospital and college. During the crisis the hospital had mobilized its forces and had ready operation services, a blood transfusion team, decontamination squads, etc. They realized that, whatever the circumstances, the hospital and school would somehow have to continue, and if war were to arise in the future the school would have to move out to some quieter and safer place, as the hospital would be a front-line dressing station. All these difficulties must be thought out and solved now. In submitting the civic toast, Mr. George Aylwen welcomed in the Lord Mayor of London, Sir Frank Bowater, a friend and governor of the hospital. The Lord Mayor, he said, had granted him the use of the Mansion House for a big appeal he intended to make on January 30. If his appeal was successful he was determined that one of his first efforts would be to build the paying patients' block. In a brief speech Sir Frank Bowater said that he always had the interests of Bart's at heart, a hospital whose doors had been open for over 800 years. In proposing "The Guests," Sir Girling Ball said this was the fifth year since Lord Horder had sat in the chair and launched an appeal to buy the buildings in Charterhouse Square. Of the £200,000 required, £184,000 had been received. Sir Girling said that one of his objects was to get the London hospitals to work together in their common interests, and to this end a Dean's committee had been instituted. Sir Robert Pickard, F.R.S., Vice-Chancellor of the University of London, replied for the guests, and Sir Charles Gordon-Watson proposed the health of the chairman.

SCOTLAND

The Health of Glasgow

Birth and death rates for the City of Glasgow have shown little change for some years, the birth rate in 1937 being 19.8 per 1,000 persons and the death rate 14.6 per 1,000. These figures are taken from the report for 1937 of Dr. A. S. M. Macgregor, medical officer of health for the city. An epidemic of influenza in the early months of 1937, states the report, caused 496 deaths, the highest figure for influenza since 1926. Whooping-cough was responsible for 285 deaths and diphtheria for 116 deaths. The death rate from pulmonary tuberculosis was 8.5 per 1,000 of the population, the lowest figure in any year with the exception of 1934; the general phthisis death rate has, however, varied little during the past ten years. The infant mortality rate was 104 per 1,000 births, being lower than the rate of 109 for the previous year, but the same as the average rate for the past ten years. The maternal mortality rate reached its lowest figure with 4.9 per 1,000 births, as against 5.9 for 1936; this fall was due especially to a smaller death rate from puerperal infections. General hospital accommodation is being gradually reorganized in Glasgow, and in five municipal hospitals the total accommodation is 4,165 beds, while the number of patients admitted to these hospitals has increased since 1931 by 33 per cent. The outdoor medical service for the sick poor has developed further as a whole-time service, most of the work being conducted by twenty-nine whole-time medical officers and eight part-time officers, with twenty nurses. The number of visits paid has increased from 23,230 in 1931 to 72,858 in 1937, while the number of consultations has risen in the same period from 113,217 to 302,560. The clinic system, wherever possible, is being amalgamated with other statutory services. There has been an increase in the number of patients admitted to the mental observation wards of the general hospitals, and the total number of patients under care in municipal mental hospitals during the year was 3,550. As regards mental deficiency, a gradual transfer of patients has been effected from the various general hospitals and other institutions to Lennox Castle institution, in which at the end of the year there were 988 defectives in residence.

Health Education

Dr. James M. Mackintosh, chief medical officer of the Department of Health for Scotland, addressing the Royal Philosophical Society of Glasgow on November 9 on the subject of health and the general practitioner, said the most intelligent and the most economical method of promoting positive health and of getting away from the notion that health was just the absence of disease was to regard all education as directed towards health. The family doctor had an immense contribution to make to individual and family health, but as we no longer expected the family doctor to undertake major surgery or bacteriology we should not expect him to undertake preventive medicine. When it was said that the doctor should be health adviser to the family, something quite different from preventive medicine in the accepted sense was meant. The family doctor should be trained to guide his patients towards healthy living, and it must be remembered that sickness of the mind rather than of the body was the greatest enemy of health in the family.

The French Minister of National Education has conferred the title of honorary professor on three distinguished members of the Paris medical faculty: Dr. Roussy, rector of the University of Paris; Dr. Brindeau, the obstetrician; and Dr. Sergent, the authority on pulmonary tuberculosis.

Correspondence

The Phosphatase Test and Pasteurization

SIR.—The description, in a leading article of your issue of November 19, of the calf-feeding experiments carried out at the National Institute for Research in Dairying at Reading and the Rowett Research Institute at Aberdeen calls for two comments.

First, what is the interpretation of the phosphatase test? In the original report it is stated that pasteurization at Aberdeen was effective because no trace of phosphatase was ever found in the milk. Yet a few pages later the report contains a table showing that 7 per cent. of forty-four samples of pasteurized milk were found by guinea-pig inoculation to contain tubercle bacilli. The authors plainly believe that a negative phosphatase test shows that the milk is safe. This is untrue. When it is remembered that this test cannot detect smaller quantities than 0.2 per cent. of raw milk in the pasteurized product, that tubercle bacilli may number tens or even hundreds in a cubic centimetre, that the deposit from 50 c.c.m. of centrifuged milk can be inoculated into a guinea-pig, and that ten living bacilli constitute an almost certainly infecting dose for this animal, it needs little calculation to realize that, unless the milk is only slightly infected, the guinea-pig inoculation test is more delicate than the phosphatase test. Like most other laboratory tests the phosphatase test is of far greater value when the result is positive than when it is negative. A positive result shows definitely that there is something wrong with the processing of the milk; a negative test does not exclude the presence of tubercle bacilli in the pasteurized product. It would be a pity if a test that is proving of such value in the control of pasteurization should fall into disrepute through failure to realize its limitations.

Secondly, why did the pasteurized milk used at the Rowett Institute contain tubercle bacilli at all? The observations of Pullinger (1934) in London on sixty-three samples of pasteurized milk, of the Public Health Authorities in 1936 in Manchester on 206 samples, and of Humphriss, Peden, and Wright (1937) in Liverpool on 440 samples failed to reveal tubercle bacilli in a single sample of pasteurized milk, even though the raw milk was frequently infected. It is abundantly clear that milk which is properly pasteurized is free from tubercle bacilli, and that so-called pasteurized milk containing tubercle bacilli has been unsatisfactorily treated, either on account of faulty design of the plant or through its imperfect operation. The fact that in the experiments at the Rowett Institute the pasteurized milk was found to contain tubercle bacilli will undoubtedly be used as an argument against pasteurization, whereas it is merely against the inadequate performance of pasteurization.—I am, etc.,

London School of Hygiene and
Tropical Medicine, Nov. 22.

G. S. WILSON.

REFERENCES

- Humphriss, E., Peden, D., and Wright, H. D. (1937). *Lancet*, 2, 151.
Pullinger, E. J. (1934). *Ibid.*, 1, 967.

Pasteurization of Milk

SIR.—When reading a paper on the essentials of nutrition in infants and toddlers at the Congress of the Royal Institute of Public Health and Hygiene last June, I stated that in my opinion all milk given as food should always be pasteurized, even if it were tuberculin-tested milk. In the ensuing discussion all the speakers agreed with this

statement with the exception of two medical officers of health from the North of England, who said that they had known milk that was labelled "pasteurized" to contain living tubercle bacilli. I replied that experience had shown that where milk had been "efficiently pasteurized" no tubercle bacilli were found, and quoted research demonstrating the fact. Milk being almost universally employed as a valuable food, I asked the chief bacteriologists of the two largest London dairies for the benefit of their experience on the above points, and append their replies.

Mr. E. B. Anderson, chief chemist to the United Dairies, said that the experiments by Professor F. C. Minett in 1933 on samples of their milk taken in ordinary routine revealed that of eleven samples of raw Grade A tuberculin-tested milk ten showed no tubercle bacilli, while in one sample tubercle bacilli were present. Of six samples of the same milk pasteurized none contained any tubercle bacilli. Then dealing with the "rail-tank" milk he found that each of forty-three samples of the raw milk contained tubercle bacilli, but forty-three samples of the same milk pasteurized were all free from tubercle bacilli. Such evidence surely speaks for itself.

Mr. Leslie Barton, principal bacteriologist to the Express Dairy Company, quoted somewhat similar evidence, and stated: "Since it has been positively established that tubercle bacilli cannot survive in milk properly pasteurized in accordance with the conditions laid down in the Milk (Special Designations) Orders, the conclusion can only be drawn that in the cases referred to the milk was improperly pasteurized." Both bacteriologists attach great importance to the phosphatase test.

Surely, from the precise nature of the information available, no open-minded man could doubt the reliability of efficiently pasteurized milk and the necessity for its universal use.—I am, etc.,

London, W.1, Nov. 14.

BERNARD MYERS.

Sulphonamide Chemotherapy in Surgical Infections

SIR.—Dr. F. R. Neubert, in a somewhat vague letter in the *Journal* of November 19 (p. 1053), is kind enough to refer to my articles on sulphonamide chemotherapy in surgical infections which appeared in your issues of October 22 and October 29. I make no comment on his unique success in curing gonorrhoea in the female with prosectasine, beyond noting his own statement that he has "employed the sulphonamide group extensively, but unfortunately without elaborate laboratory control." Those of us who have tried prosectasine in gonorrhoea with "elaborate laboratory control" have been less fortunate in our results. But I must point out that if Dr. Neubert had carefully read the articles to which he refers he would probably have refrained from stating that "Mr. A. J. Cokkinis emphasizes the need for waiting for immunity to develop before therapy is begun in gonococcal infections, does not advocate such a delay in streptococcal infections of the hand, and ignores the fact in other infections."

It is quite true that in streptococcal infections of the hand with lymphatic spread, in which the real danger is a fulminating septicaemia, I do not advocate waiting for immunity before chemotherapy is started. But this is the only exception. In every other infection I make some reference to the importance of raising immunity before starting chemotherapy. Thus, in the section on gingivitis I state that "the patient is given injections of vaccine for two or three weeks" before sulphonamide chemotherapy is started, and I repeat this in the section on streptococcal stomatitis and pharyngitis. My emphasis on waiting for immunity in gonococcal infections is conceded by Dr. Neubert. In the paragraphs on coliform urinary infections

I write that "it is now my practice to give an autogenous vaccine for one to four weeks before starting sulphonamide treatment"; while in the section on acute appendicitis I state that chemotherapy in the first forty-eight hours is unwise as it may interfere with the immunity response, but that in more advanced stages when the immunity response is awakened I have found sulphonamide compounds of real value as an adjunct to operation. A similar observation is made in the section on acute general peritonitis, where I also write that "the deciding factor [of chemotherapy] again appears to be the immunity response of the patient." Finally, I also advocate preliminary vaccine treatment in the chemotherapy of toxic arthritis, while the conclusion at the end of my article is nothing more than a statement which emphasizes the importance of immunity in chemotherapy.

After taking all this trouble to sing the praises of immunity and immunotherapy it is rather strange to be accused of "ignoring the fact."—I am, etc.,

London, W.1, Nov. 21.

A. J. COKKINIS.

Congenital Atresia of Oesophagus

SIR,—I was very interested in the excellent account of congenital atresia of the oesophagus by Dr. J. W. D. Bull which was published in your issue of November 12 (p. 983). Up to the present the sad story of these patients has always been the same, but I should be sorry to conclude that the problem of their treatment remains a forlorn hope. Although the author suggests that associated congenital lesions may often imperil life there were none likely to lead to a fatal issue in his case, and there are many on record in which such associated lesions have been absent. I can vividly remember when it was customary to regard patients suffering from ectopia vesicae in exactly the same way, and I have heard well-known authorities affirm that such children were better dead as there was no known means of relief.

But in the last thirty years or so all this has been changed, and as a result of developments in operations for the transplantation of the ureter many of these patients have been converted into useful and happy citizens. Even lesser deformities have sometimes been regarded as almost beyond hope of effective relief, and the same unhappy attitude has been adopted in the not very distant past in cases of cleft palate, imperforate anus, and urethral deformities. In all these conditions, as the result of the continued efforts of many workers, the outlook has become hopeful rather than forlorn, and in most cases great and effective help can be given by surgery. Admittedly the oesophagus problem is surrounded by great and especial difficulties, but it must not be allowed to remain unsolved for lack of endeavour.—I am, etc.,

British Postgraduate Medical School, G. GREY TURNER.
London, W.12, Nov. 21.

SIR,—The short article on this subject by Dr. J. W. D. Bull in the *Journal* of November 12 (p. 983) is a curious example of incomplete research. He says "the condition has been so seldom mentioned in the English literature." I know of no standard English textbook of children's diseases which fails to mention the condition, and many—for example, John Thomson's—give illustrations of it. Further, in 1917 Cautley in the *British Journal of Children's Diseases* (1917, 14) reviewed the cases to that date exhaustively, and the late Professor Shattock showed at the old Pathological Society in the early 1890's (I have not here got the exact reference) that the condition was found

also in animals, and gave a convincing explanation of its origin. Lastly, the condition is illustrated by many specimens in London pathological museums.—I am, etc.,

HUGH THURSFIELD, D.M., F.R.C.P.,
Consulting Physician to the Hospital
for Sick Children, Great
Ormond Street.
Basingstoke, Nov. 16.

Estimation of Blood Vitamin B₁

SIR,—We are very interested in Dr. H. M. Sinclair's criticism of our results on blood vitamin B₁ (*Journal*, November 19, p. 1060).

In the first place we should make it clear that our paper was written primarily from the clinical point of view, and therefore in order to keep it to a reasonable length we omitted unessential details and reserved them for a further discussion elsewhere. Many of the difficulties associated with the test were considered by Meiklejohn (working in Professor Peters's laboratory) when he first described its application to blood in 1937 (*Biochem. J.* 31, 1441). The practical details and much of the evidence in favour of the test, which we have summarized, can be found in Meiklejohn's paper, which in part deals with some of Dr. Sinclair's criticism, although, like Dr. Sinclair, we do not entirely agree with all Meiklejohn's results. We are pleased to hear that Dr. Sinclair has been able to improve the method and look forward to the early publication of his details. We are, of course, very familiar with the criticisms of Williams, van Veen, and others, but we are not prepared to admit their entire validity. Dr. Sinclair refers to the effect of a "pinch of chalk"; we investigated the effects of calcium carbonate in definite amounts of 0.5 to 5 milligrammes, but failed to find any significant alterations. It may be that other substances influence the growth of the mould, but this can hardly be said to invalidate the value of the test when carried out under standard conditions any more than, say, the exceptional presence of reducing substances interfering with the estimation of a blood-sugar or a glucose-tolerance test, or the presence of phenolic substances in the urine giving colour reactions with ferric chloride, invalidate these tests as useful procedures.

Nevertheless, in spite of the various objections, we still maintain that Meiklejohn's test, if done under standard conditions, is of great value as a comparative test for blood vitamin B₁ and is more accurate than any other method as yet described, so far as we know; this is surely confirmed by the fact that Dr. Sinclair has arrived at similar results independently. We have no experience of Harris's bradycardia technique, which has been of special value in the urinary estimation of vitamin B₁ deficiency (*Lancet*, 1938, 1, 539).

The experimental work on which our paper was based was completed in February by one of us (E. N. R.) for a dissertation; since then we, like Dr. Sinclair, have also added considerably to the number of controls and patients investigated, with results strictly comparable to those described in our paper.

We are quite aware that the few cases and controls we have reported in the paper are "statistically worthless," and that is why we did not treat them statistically. All our cases and controls were seen, examined, and diagnosed by us, and have been selected from the wards of the Manchester Royal Infirmary and from the 9,917 attendances of patients in our departmental clinic during the period of this investigation, so that the relatively small number of suitable cases led us to believe that we could hardly expect to get a sufficient number of cases of vitamin B₁ deficiency to justify a statistical survey. We are sure

these numbers do not exist in this part of the country, although perhaps Dr. Sinclair may be more fortunate in Oxford.

Finally, we would emphasize once again that the only patients showing clinical improvement on vitamin-B₁ therapy were those with apparent low blood vitamin-B₁ values, and reference to the concluding paragraph of our conclusions in the article in the *Journal* of October 29 (p. 878) will show that we described gross deficiency between 3.5–4.8 µg. and the one of 5.5 µg. We shall be pleased to hear in due course the value that Dr. Sinclair considers indicates a gross deficiency, and also his range of normal values, since he only gives in his letter the mean (11.5 µg. per 100 ml.), which conveys little to us.—We are, etc.,

E. N. ROWLANDS.

JOHN F. WILKINSON.

Manchester, Nov. 16.

SIR,—I thank Drs. Rowlands and Wilkinson for their answer to my letter published in the *Journal* of November 19 (p. 1060), and I am glad that they intend to discuss the method further in another publication. They state that the possibility of other substances influencing the growth of the fungus "can hardly be said to invalidate the value of the test," and draw an analogy with the exceptional presence of reducing substances not interfering with a blood sugar test: such an analogy is false because, as my letter showed, blood *invariably* contains substances (other than vitamin B₁) that affect the growth of the fungus under the conditions of the test. I have, however, never doubted the value of the method as a comparative test of the apparent vitamin B₁ in blood, as can be judged by reading the four publications in which I have mentioned results obtained with it.

I am glad that the authors agree with me that their cases and controls are statistically worthless. But Drs. Rowlands and Wilkinson try to justify their failure to treat the results statistically on the plea that there is a relatively small number of suitable cases in their part of the country. I showed in my letter that none of their cases was deficient when judged by an analysis of the eight normal controls upon whom they based their normal range: surely there cannot be a deficiency of suitable normal subjects in Manchester. And I still do not understand why in one part of their paper they regard 5.5 µg. per 100 ml. as "gross deficiency" when a figure below this value is elsewhere regarded as a "normal level."

In the last paragraph of their letter they wish to know my "range of normal values, since he only gives in his letter the mean (11.5 µg. per 100 ml.), which conveys little to us." Reference to my letter will show that determinations on twenty-six normal controls "gave a mean of 11.5 µg. per 100 ml., and a statistical analysis showed that there is one chance in 100 of an observation falling below 7.7 or above 15.2." It is sad that this statement conveyed little to the authors. In a paper published with Dr. Laurent (*Lancet*, 1938, 1, 1045) we stated that "a value below 7 µg. per 100 ml. is regarded as being abnormal."—I am, etc.,

Oxford, Nov. 18.

H. M. SINCLAIR.

Vitamin B₁ and Insulin

SIR,—I have a diabetic patient, a man of 56 in affluent circumstances, who takes on an average 32 units of insulin a day—20 units in the morning before breakfast and 12 before dinner. He eats what he likes, and his urine is kept free from sugar unless he goes to a dinner, and ball, etc. He is otherwise a comparatively healthy man, somewhat neurotic and apprehensive about his health.

After his return from a fishing holiday in early September of this year I put him on a course of six intramuscular injections of betaxan (a Bayer preparation of synthetic vitamin B₁), giving him one injection daily of 1 c.cm. These injections had a very good tonic effect, and some slight neuritis he was complaining of in his right arm disappeared. A fortnight ago he went to Bournemouth for a change. During the latter part of this holiday he was not feeling as fit as he thought he should, and he himself repeated another half-dozen intramuscular injections of betaxan. He returned to Bath on Saturday, November 12, and the following Thursday night he showed marked symptoms of hypoglycaemia in that he hardly understood how to undress and felt, as he described it himself, as he would imagine one to be when dead drunk. His wife was greatly perturbed, as he lost all colour and was perspiring profusely. She administered barley sugar, and he was all right again the following morning when I saw him at 9.30 a.m.

He told me, however, that he had noticed while taking the betaxan that he required much less insulin; in fact, on dropping his evening dose there was no sign of sugar either at bedtime or in the morning, and he felt extraordinarily well.—I am, etc.,

Bath, Nov. 19.

A. GORDON WATSON.

Treatment of G.P.I.

SIR,—I am unable to agree with Dr. W. D. Nicol (*Journal*, November 12, p. 1012) that electrotherapy has been too recently introduced to arrive at comparative conclusions as to its results in the treatment of G.P.I. Ample time has elapsed. Apart from the question of mortality, about which there can be little doubt, the claim of electrotherapy to adoption, if only on the grounds of the illness and uncertainty associated with malarial infection, cannot be overlooked.—I am, etc.,

St. Mawes, Cornwall, Nov. 14.

B. H. SHAW.

Decline of Breast-feeding

SIR,—The correspondence on breast-feeding is of much interest and in some ways corroborates experiences in the past eighteen years. Since 1920, both from ante- and post-natal municipal clinics and in a large special department of a maternity hospital (out-patient department and fifty hostel beds for mothers with babies), we have had 90 to 95 per cent. successful breast-feeding, even where, in an overlapping district, health visitors not attached to our hospital have said: "Breast-feeding is practically impossible." To achieve this, nothing has been done which is not within the power of the average working-class mother; but the attitude of all concerned has been that breast-feeding is natural, best for mother and baby, usually easily come by because natural, and only wanting a little common-sense management or adjustment, without worry or impatience, to secure smooth working where that is not immediately obtained.

Because we know that poor women cannot spend sixpence a day on milk for themselves during pregnancy and lactation, and more likely than not will give instead to the family any milk that is provided free, we serve out to them the ordinary but fresh calcium lactate, which costs sixpence a fortnight, and thus (apparently successfully since 1920) help to guard against the calcium deficiency of a minimum diet.

The patients (being under V.D. treatment) are carefully instructed on non-stimulating diet and at the same time are told how to obtain the most necessary items at low cost—for example, cheap plain cheese, wholemeal bread, coarse cereals, uncooked fruit, and vegetables, fresh herrings and sprats when in season, nuts,

etc., with abundant water between meals. During pregnancy meat is limited, but liver two or three times a week is allowed. During lactation a meat-vegetable-pudding daily dinner is a desideratum.

The method of breast-feeding is very important, and we are constantly having to combat the pernicious "ten minutes each side" theory and to explain the necessity for "stripping" a cow to get full milking next time and the advantages of the additional rest obtained by lying down to give feeds.

From personal experience I suggest that even in London there are clinics (as well as general practitioners) which are not as expert as they should be in the matter of breast-feeding and too ready to give artificial foods.

Another factor of importance is the influence of the nurse in charge of maternity cases.—I am, etc.,

London W1 Nov. 8

D. C. LOGAN.

SIR.—Having read with great interest Dr. J. C. Spence's able article on breast-feeding, and also the ensuing correspondence, I felt that the remarks made by "Juvenis" (*Journal*, November 5, p. 967) could not go unchallenged, for even if, as he says, the modern nurse takes full command of her patient's baby, it is surely a sign that there is something wrong with the system which puts a nurse into this position and which trains her for this end. The second point raised by "Juvenis" is in my opinion one of the chief causes of the present failure to breast-feed in so many cases, and the increased hospitalization of normal midwifery cases has surely played some part in introducing this "environmental factor." The mother in her own home is the mistress of the household, the pivot on which the family life revolves, and in this sphere she is a confident woman, sure of her own powers. In the early stage of her labour she can to a certain extent go about her usual duties, and when the time comes for her to be delivered she is in familiar surroundings and has not to face the ordeal of meeting strangers at the critical moment. Her medical attendant as her family doctor is a person in whom she has confidence, and should an obstetrician be required she has her doctor's assurance that he is obtaining the very best help. She will also have had an opportunity of getting to know her midwife during ante-natal days. After the confinement is over and the doctor and nurse depart, the mother can fall quietly into the reactionary sleep which is her natural preparation for the task of feeding her child, and she can put her baby to the breast whenever it cries during the first few days, and in doing this she becomes conscious of her own power to satisfy its needs.

When we compare this normal state of affairs with a confinement in hospital we can see a very marked and vital difference. The patient entering a hospital is a stranger in a world where doctors and nurses rule, and she is no longer a person who can control her own activities. In the first few hours she may pass through the hands of several nurses, in the admission room, waiting room, and labour ward, and if it is her first experience of hospital life she is bewildered by the sight of trolleys and shining glass shelves containing mysterious bottles, not to mention the hospitals where it is the custom to keep an instrument cupboard in the labour ward. The length of time for which the mother is left to rest in the labour ward varies according to whether it is likely to be required for another case, so shortly after delivery she is put into the general ward, and, as "Juvenis" says, she has to be given bedpans, meals, etc., at stated intervals and must feed her baby by the clock. This routine is

absolutely essential if the smooth running of a hospital is to be achieved, but very few of us would agree that it is ideal.

A point which has been brought very much to my mind during the reading of the recent letters is that one finds in practice that where there has been extensive preparation of the breasts during pregnancy breast-feeding is not too successful; there does seem a possibility that this stimulation of the breasts prematurely creates some psychological hostility to breast-feeding. One feels that it may be wiser to advise nothing more than a good standard of cleanliness, in order that no stimulation of the breasts may take place until the right time in the cycle of reproduction—that is, response to the child's sucking. Many women have told me that this preparation of the breasts by scrubbing and drawing out the nipples has made them feel very sick of the idea of breast-feeding.—I am, etc.,

Liverpool, Nov. 10 MARY CUNNANE, S.R.N., S.C.M.

Adrenaline Treatment of Asthma

SIR.—Dr. Joah Bates in his letter (*Journal*, October 29, p. 921) raises two questions about the adrenaline treatment of the acute asthmatic attack which are of importance. They require elucidation lest without good cause a seed of doubt should be sown as to the efficacy or even advisability of injecting adrenaline in a case of true allergic asthma. This line of treatment is a most potent weapon in our hands, and has stood the test of time in both theory and practice. His first point, which deals with the frequent onset of bronchitis in asthmatics who contract a common cold, can be accepted as a fact, for these sufferers are admittedly more susceptible to respiratory infections than perfectly healthy individuals. However, I know of no evidence suggesting that the administration of adrenaline increases this tendency, and most people agree that the sooner the spasm is relieved by physiological means (that is, adrenaline) the less likelihood will there be of establishing a "place of lowered resistance" in the lower respiratory tract. Such, indeed, has been my experience with asthmatics with coryza. One finds, of course, invariably that the patient coughs, sometimes very persistently, after the attack has subsided, this being due to the release of mucus which had been dammed up in the mucous glands of the bronchiolar wall.

The type of case which Dr. Bates next describes, where a patient has been given several injections of adrenaline at intervals of two or three hours and remains dyspnoeic and cyanotic, can probably be divided into two classes. A number of these are not cases of asthma but of the paroxysmal dyspnoea of left ventricular failure (formerly called cardiac asthma), in which active pulmonary congestion is certainly present but the cause of this lies in the failing heart. Other cases are probably those of true asthma which have gone into that most distressing condition status asthmaticus. For its treatment injections of adrenaline at intervals of two to three hours are often inadequate, but it will usually respond fairly quickly to Hurst's method of continuous injection of 1 or 2 minims every thirty to sixty seconds, leaving the needle *in situ*.—I am, etc.,

York, Nov. 13.

H. ROYLE.

SIR.—While agreeing with Dr. Alexander Francis (*Journal*, November 5, p. 966) as regards the effects of the topical application of adrenaline or ephedrine to the nasal mucous membrane, I feel that the latter part of his letter calls for some comment. Dr. Francis tells us that he "had one asthmatic patient who, as the result of

repeated operations for the removal of nasal polypi, had required over 60,000 injections of adrenaline." These astronomical figures caught my eye. Surely there is either an error here or else Dr. Francis is actually telling us that the patient received one injection daily for 164 years, or two daily for 82 years, or four daily for 41 years, etc.—a truly remarkable record of endurance on the part of the patient and/or faithful service on the part of his medical adviser. One is hardly surprised to read further on that "his skin became so tough and hypersensitive that he needed a specially sharpened hypodermic needle." The marvel is that he allowed any form of instrument to be brought near him at all. But as a practising rhinologist what I really must quarrel with is Dr. Francis's assertion that this intensive treatment with adrenaline was "the result of repeated operations for the removal of nasal polypi." Sweeping statements of this kind are misleading, and may be dangerous.

In the first place, as is well known, nasal polypi may be due to allergy, infection, or both; but recurrent nasal polypi indicate the presence of either malignant neoplastic changes or some underlying ethmoidal disease. Dr. Francis does not tell us how often the polypi had been "repeatedly" removed, but I can give it as my firm conviction that had the full aetiological significance of the recurrence of the polypi been appreciated, thorough investigations been made, and adequate appropriate treatment been given, then the patient's asthma would probably have been considerably benefited and he would at least have been spared from assuming the—I feel sure reluctant—role of a human pincushion.—I am, etc.,

Bath, Nov. 19.

C. A. HUTCHINSON.

Anti-pernicious Principle in Urine

SIR,—Following the paper on the anti-pernicious principle by Dr. Edouard Jéquier and Major G. R. M. Apsey, published in your issue of November 5 (p. 934), it may be of interest to record the preparation from normal urine of a concentrated fraction which would be expected to contain the anti-anaemic principle if it is present in urine in the same form as it occurs in mammalian liver.

A process (British patent 473064) which had been shown previously to give consistently active and very concentrated anti-anaemic fractions from liver was applied to normal urine. The fraction obtained was prepared for parenteral use so that 1 ml. of the final solution was derived from 1,750 ml. of normal urine. Professor L. S. P. Davidson kindly tested this preparation on a patient suffering from pernicious anaemia with an initial red blood cell count of 1.31 million; 16 ml. of the concentrated urine preparation (derived from 28 litres of normal urine) were given intramuscularly over twenty-three days, without any significant reticulocyte response. A preparation of known potency subsequently gave a satisfactory response.

Although an isolated test is in no way conclusive evidence of the absence of the anti-anaemic factor in normal urine, this result may be of interest to other workers in this field.—I am, etc.,

B. D. THORNLEY,
Chief Chemist, Bengel
Laboratories.

Holmes Chapel, Cheshire, Nov. 19.

New Menstruation Toilet

SIR,—During the last few months I have often been asked by young women whether I considered this new practice of plugging the vagina with absorbent tampons instead of using sanitary pads advisable and healthy. My reply is that it is not at all a good thing to do, because

vaginal plugs become very offensive and infected even when introduced by the surgeon under the best aseptic technique, and when introduced by a woman herself, under ordinary daily conditions during menstruation, the dammed-up blood in the vagina forms a perfect culture medium, and a profuse growth of septic organisms results. This practice is likely to result in vaginitis, cervicitis, and *B. coli* infections, with quite a possibility of sterility following as well as the other well-known complications of the above conditions.

Is it realized how popular this practice is becoming? The "outfits" are procurable at many big stores, and are presented to girls by women who extol their harmlessness and many advantages. For health and beauty classes, dancers, factory girls, etc., they have great attractions, as they require no belt and are comfortable and unseen. The literature accompanying them is all that these young women have to guide them. Quite a lot of doctors seem to be recommending them, but I feel sure that they have forgotten what a vaginal plug is like after its removal; indeed, this is a job usually left to nurses. I shall shortly have a series of reports from bacteriologists on the growths obtained from the discharge before and after the use of these popular vaginal plugs, but in the meantime I think it is only fair to the female public to give some advice on the subject, or is it a matter for the Ministry of Health?—I am, etc.,

London, W.1, Nov. 11

E. LAWTON MOSS.

Evacuation of Air Raid Casualties

SIR,—Now that the crisis is over we have time to reflect on the inadequacy of the emergency plans made for dealing with air raid victims in our large cities, and we can prepare plans in advance for dealing with such a situation should it unfortunately occur again.

It is, I think, generally accepted that in a future war our large cities, and particularly London, would become virtually our "front line," and, as every ex-regimental medical officer knows, one of the most important jobs is to find means of evacuating the wounded to the back areas as soon as possible, where they can receive the attention which is not available in the front line. This was often difficult under shell fire in France, although there one was dealing with disciplined troops.

I suggest that in a great city containing a large untrained civil population, liable to panic when subjected to intensive high explosive and incendiary bombing, the difficulties would be infinitely greater, and especially if road transport were used for the conveyance of the wounded to the safety zones. The roads would probably be blocked by fallen masonry, fires, and the petrol-containing cars of refugees. Also the patients would have to be conveyed, not the three miles or so to the casualty clearing station as in the last war, but a distance of at least forty miles to the safety zone without medical attention, and open to further bombing the greater part of the way. A great strain would be placed on the railways in time of war in moving war munitions and food, and moreover the big termini would be obvious targets.

One therefore has to think of an alternative route which would not be subject to these objections or useful for other purposes, and one recalls the excellent use made of the French canal system in the last war for evacuating wounded in barges with a medical officer and orderlies in attendance. The advantages of such a method were obvious in France, and I suggest they are very much more so in London and our big provincial cities. There are between fifty and seventy steam launches on

the Thames, each capable of taking from 150 to 250 passengers from London to Oxford, besides many smaller launches and barges. They could be converted into hospital launches in forty-eight hours, and by that means alone approximately 10,000 wounded could be evacuated per day. Furthermore, the barges on the Grand Junction Canal, which connects the Thames at Brentford with all the big cities of the Midlands and most of those in the North, could be converted into hospital barges, thereby doubling the number of evacuations. The wounded from these large provincial cities could also be evacuated down this canal to rural districts in the Midlands.

The safest place in an air raid would, I suggest, be the middle of the Thames above Westminster. The Thames is not a target but a ranging mark to an enemy bomber. An incendiary bomb will not "set the Thames on fire," and high explosive, excluding a very lucky direct hit, would displace nothing but water. I would therefore like to offer for consideration the use of the Thames and our canals as a practical method of evacuating large numbers of wounded from our big cities to the safety zones in time of war.—I am, etc.,

H. GRAHAM HODGSON, C.V.O., F.R.C.P.

London, W.1, Nov. 16.

Air Raid Precautions

SIR,—It is small comfort to find one's pessimism concerning A.R.P. at the time of the recent crisis—based, be it said, on personal observation, some personal experiences, together with some unimpeachable information—was so fully justified. It is not, however, until one reads Colonel Nathan's remarks in Parliament (*Journal*, November 12, p. 1021) pertaining to London and Dr. W. M. Ash's account of difficulties in the country (p. 1016) that one realizes the full magnitude of the chaos then impending. The statement made at a meeting at the Ministry of Health and quoted by Colonel Nathan is indeed illuminating: "Gentlemen, this emergency hospital service has just been created. You must expect bombs to fall on London at any moment. Do the best you can." Yet we have been told for months past that the casualties would run into tens of thousands! The dead, according to Colonel Nathan's remarks, were to be given about the same amount of attention as the living, and to quote Colonel Nathan again, "the authorities [local] had no instructions and no information, and no intention, unless instructed, of dealing with the situation." And yet one bomb can easily kill an unlimited number of persons!

The above two illustrations, coming as they do from the ends of the administrative chain, show that the chain forged in times of peace snapped at the critical moment in the face of a war emergency. It is not surprising that this occurred, for who could possibly imagine that two Government Departments—the Home Office and the Ministry of Health—could administer, let alone co-ordinate, a scattered and mixed bag of authorities, organizations, and individuals constituting A.R.P. from headquarters in London? A trained and disciplined army requires a full staff from the War Office downwards, and if A.R.P. is going to be of any use whatsoever a modified but similar system of staff control is required, and required quickly, before many otherwise enthusiastic volunteers become tired of the muddle and procrastination. An adequate nucleus to these A.R.P. staffs, having full staff officer's status, could be formed from the county and borough officials, etc., providing, as they would, a permanent personnel constantly available for duty, thus maintaining a skeleton emergency staff.

Granted the foregoing, it should not be beyond possibility to split the country up into x A.R.P. command areas, similar to the military commands in this country, and subdivide these areas into x county areas, which would contain x districts, small towns being regarded as one district, large towns being regarded as two or more districts. London could be treated as a command area, subdivided into sub-areas, and again divided into districts. Thus an administrative chain would be formed from district to county area, thence to command area, thence to the directorate of A.R.P., London, whereas in London itself a similar procedure would be followed, though with a different nomenclature. In conclusion I would like to say that I cordially agree with Mr. J. Johnston Abraham's letter in the *Journal* of October 29 (p. 915).—I am, etc.,

W. V. FAWKNER-CORBETT,
Major R.A.M.C. (ret.); formerly
D.A.D.M.S., 8th Army Corps,
B.E.F., France.

London, W.1, Nov. 14.

Social Pathology

SIR,—I am encouraged by the amplification by Dr. J. L. Halliday (*Journal*, November 12, p. 1012) of my letter on this topic (October 8, p. 762). May I point out to him, however, that I spoke of the disintegration not merely of "this country" but of Western civilization as a whole. Like Oswald Spengler, I believe civilization to be of a piece. I suggested that for many years the social services had mainly been alleviating symptoms, and that, in carrying on these services, the best brains and energies of all countries had been progressively diverted from the task of safeguarding the health of the social organism proper—that is, of this whole Western civilization that I speak of. Dr. Halliday's way of putting it is to remind us that man is not in essence an animal but a living soul, a psyche, an individual; that to this essence his animal nature is subordinate; and that a civilization in which the public health and other services envisage only this "veterinary" aspect, while neglecting or even frustrating the psychological needs of its component individuals, is bound to perish. He sees, indeed, civilization ("this country," he calls it) destroying itself, as is evidenced notably by statistics of (a) a rising suicide rate; (b) a rising incidence of psychoneurotic and psychosomatic illnesses; and (c) a declining birth rate. To this he might perhaps add an increasing use of drugs; and in this connexion I am glad to see a letter from Mr. A. S. Playfair (November 5, p. 968) on science in advertising, which carries further the argument I had advanced in your correspondence columns of June 4 (p. 1235) under the heading "The Psychology of the Medical Profession."

Dr. Halliday has done well to include the falling birth rate as evidence of social dissolution. He seems, however, to have momentarily forgotten the most striking evidence of all—namely, the drift to world war. He will doubtless agree with me that the time is more than ripe for envisaging the disease of which all these are but symptoms or stages; piecemeal treatment has long since proved itself altogether ineffective. There are ominous signs of approaching collapse. What, then, is this disease that passes through the stages of declining birth rate and of mechanization and bureaucratization to world war, or, as we might more pithily put it, this movement from birth control to bombs? Can the essence of its pathology, and therefore of its treatment, be expressed in a formula? I think it can, but before venturing to bring such a formula forward I should much like to know whether any of my fellow practitioners are thus far in agreement with me; whether, indeed, they consider the speculation

likely to prove of any practical value at all. Surely life is not meaningless, and there must be laws of man's social as of his psychical and animal natures, and if so the medical perhaps above all professions is qualified to discover them. At least it has become abundantly clear of late that the politicians are quite incapable of doing so. They have no theory of society.—I am, etc.,

North Queensferry, Fife, Nov. 16.

A. J. BROCK.

SIR,—I have been much interested in Dr. James L. Halliday's letter in your issue of November 12 (p. 1012). I agree with him that the absence of action against environmental factors which frustrate the basic needs of a community will lead to the decline of individual and therefore of national health.

A certain quota of social interests is essential for the maintenance of full health. My work with people who are mentally ill has led me to see how far London fails in this respect. I have been struck, indeed, by the number of lonely people of both sexes, young and old. The growth of the urban at the expense of the country population is a contributory factor here. Rapidly growing large cities do not lend themselves as do long-established village communities to adequate social intercourse. This fact alone indicates the need for measures to combat this very real threat to social integration.

I suggest that one measure to meet this evil would be the opening up of a number of mixed clubs, adequately run on a non-political and non-denominational basis by a committee of capable people interested in social welfare. The aim of such a club would be the promotion of good fellowship and common interests. It might start quite simply in one room where members could meet, talk, play games, and so on, with perhaps the run of a kitchen or other apartment where light refreshments could be served.

I am quite certain that if a chain of such mixed clubs could be opened up throughout London and other large towns it would help to reduce that loneliness and lack of understanding and fellowship which really count as social evils. Driving people in on themselves, they favour the growth of neurosis in its many forms, leading in some cases to delinquency, drug-taking, and even suicide.—I am, etc.,

London, W.1, Nov. 19.

HILDA WEBER.

Prognosis of Anxiety States

SIR,—Let me assure Dr. Arthur Harris (*Journal*, November 19, p. 1063) that no knowledge of the unconscious mind was necessary to enable the criticism of his article on the prognosis of anxiety states to be made. It was a plain inference from the facts contained in the article, and, as Dr. Harris has again misunderstood it, I shall restate it in the simplest possible way, in the form of three propositions: (1) he set out to estimate the factors of prognostic importance in anxiety states; (2) he completely excluded the factor of treatment; (3) the obvious inference is that he does not consider treatment to be a factor of prognostic importance. Sir, surely Hamlet himself could 'hardly read' into this argument more than is affirmed.—I am, etc.,

London, W.1, Nov. 18.

FREDERICK DILLON.

A new law in Latvia ordains that every person suffering from venereal disease must be treated by a registered medical practitioner, who is entitled to search for the source of infection and make the suspected person undergo treatment also.

Universities and Colleges

UNIVERSITY OF OXFORD

At a Congregation held on November 19 the following medical degrees were conferred:

D.M.—T. M. Ling, *N. Chilton, W. D. W. Brooks, C. A. Boucher.

* By proxy.

UNIVERSITY OF CAMBRIDGE

At a Congregation held on November 19 the following medical degrees were conferred:

M.D.—*J. S. Cookson.

M.B., B.Chir.—*J. H. S. Hopkins, R. S. Morris, D. J. D. Torrens, J. H. Dixon, A. H. Baynes.

M.B.—R. C. Droop, R. L. Rhodes, L. A. Hawkins.

* By proxy.

UNIVERSITY COLLEGE, HULL

At a meeting of the Council, held on November 9, Dr. J. Morrison was appointed a part-time Lecturer in Education, and the British Medical Association Prize, valued £5, was awarded to D. R. F. Atkinson.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on November 11, Mr. W. J. Lytle was appointed Honorary Lecturer in Surgical Pathology (Vice Mr. A. W. Fawcett); Dr. H. E. Harding Honorary Lecturer in Medical Pathology; and Mr. J. Hughes Honorary Demonstrator in Anatomy.

Professor H. N. Green, M.D., and Professor E. J. Wayne, M.B., F.R.C.P., were appointed two of the five representatives of the University on the Committee of Management of the Sheffield Hospitals Council.

UNIVERSITY OF GLASGOW

At a Congregation held on November 12 the following medical degrees were conferred:

M.D.—Marion Watson (with high commendation).

M.B., Ch.B.—W. H. R. Lumsden.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates for the degrees of M.B., B.Ch. have satisfied the examiners in the subject indicated:

MEDICINE.—Alice Davies, Miriam E. Davies, G. C. D. Evans, W. L. Ll. Rees.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

ANNUAL MEETING OF FELLOWS AND MEMBERS

The annual meeting of Fellows and Members of the Royal College of Surgeons was summoned for November 17, but after waiting for the prescribed time it was announced, for the second year in succession, that no quorum had been obtained, and therefore no resolutions could be moved.

Mr. Hugh Lett, the President, made a few remarks from the chair on the Annual Report. He said that during the past year primary examinations had been held in Melbourne, Sydney, Dunedin, Bombay, and Cairo; these had been quite satisfactory, and it was proposed this year again to hold examinations in India and Egypt. The College museum had attracted visitors from all over the world, and it had been enriched by a number of acquisitions. The library also had received a number of important gifts, among which he mentioned Sir D'Arcy Power's collection of transcripts of mediaeval MSS. of the works of John Arderne, the fourteenth century English surgeon. Professor Grey Turner had deposited on permanent loan his collection of autograph letters of John and William Hunter. The new Bernhard Baron research laboratories had been completed during the year, and the good work already done had aroused the interest of the surgical

world, not only in this country but over-seas. Grants had been made to research workers in the laboratories by the Medical Research Council, the Rockefeller Foundation, and the British Medical Association among other bodies.

Dr. Redmond Roche took up a remark in the report that the number of candidates admitted to the final examination during the year August 1, 1937, to July 31, 1938, was 1,372, an increase of 95 upon the figure for 1936-7, and of 195 upon that of 1935-6, and asked for comparative figures of the numbers admitted by the other licensing bodies.

The President replied that, taking surgery only, there had been increases of candidates for 1937 as compared with 1935 as follows:

| | |
|--|----------------|
| Conjoint Board | 1,235 to 1,290 |
| London University | 294 to 429 |
| Cambridge University | 224 to 243 |
| Society of Apothecaries | 117 to 141 |
| Durham University | 74 to 78 |
| Oxford University | 40 to 73 |
| Manchester University | 48 to 53 |
| Birmingham University (a decrease) | 50 to 46 |

Dr. Albert James Clarke, who had been chosen to move the usual resolution regarding the representation of Members on the Council, was unable to do so as the meeting was not properly constituted, but he was invited to make the speech he had prepared. He said that the present time would be a fitting one for the College to vindicate what was, after all, a principle of democracy—the right of representation of those who made a contribution to the commonwealth. Having regard to the changes which were taking place, not only in the social order but in matters affecting the profession, and also to the increasing number of candidates who were taking their medical degrees at the universities, he pleaded that the best interests of the College and of all whose welfare was bound up with it would be served if steps were taken to increase its corporate strength. This could be done, not by divorcing the Members from all participation in College affairs, but by according them some measure of representation.

Dr. P. B. Spurgin, president of the Society of Members, said that he felt that the Fellows entertained very friendly feelings towards the Members. They all belonged to a great College and were anxious to do all they could to promote its interests. What was wanted was greater co-operation, and a concession to the democratic principle of representation was the best way of bringing this about. Dr. Redmond Roche drew attention to some remarks made by Dr. Robert Hutchison, President of the Royal College of Physicians, at the opening of the new session at Westminster Hospital Medical School (*British Medical Journal*, October 8, p. 758), when he urged students not to be satisfied with a simple qualification to practise but to go on to a degree. That was a serious statement to come from such a quarter, apparently deprecating the value of the licence of the speaker's own College as well as that of the diploma of the Royal College of Surgeons. Dr. H. H. Sanguinetti also spoke in support of the request.

The President said that the various points made would be communicated to the Council at its next meeting. He appreciated what had been said about co-operation, and he sincerely regretted that the by-laws did not permit him to put the resolution to the meeting.

SOCIETY OF APOTHECARIES OF LONDON

Revision of Regulations for the Licence (L.M.S.S.A.Lond.)

New regulations and schedules, designed to meet the resolutions of the General Medical Council, in regard to professional education have been drawn up and may now be obtained from the registrar of the Society, Apothecaries' Hall, Water Lane, Queen Victoria Street, E.C.4. The new regulations and schedules take effect from October 1, 1939, and will be put into operation as follows:

Candidates presenting themselves for the pre-medical examination for the first time after October 1, 1939, will do so under the new regulations. Candidates who have sat for the examination before that date will be allowed to complete it under the old regulations, but thereafter will be governed by the new; after October 1, 1939, all candidates will take the primary examination under the syllabus of the new regulations; all candidates who pass the primary examination under the old regulations after October 1, 1938, will be required to take the finals under the new regulations.

The Services

DEATHS IN THE SERVICES

Major-General Sir JAMES MURRAY IRWIN, K.C.M.G., C.B., late R.A.M.C., died at Bideford on November 7, aged 80. He was born on February 13, 1858, the son of the Rev. James William Irwin, rector of Sharon, County Donegal, and was educated at Trinity College, Dublin, where he graduated M.B., B.Ch., M.A.O. in 1881; nearly forty years later (in 1919) he received an honorary M.D. from his University. He was a prominent member of the Trinity College football fifteen. He passed into Netley in 1881, and joined the Army as surgeon on February 4, 1882. He became colonel on December 11, 1911, acted as major-general as Deputy Director of Medical Services in France during the war of 1914-18, and received an honorary step in rank as major-general when he retired on June 3, 1919. From 1906 to 1910 he held the post of Assistant Director-General at the War Office, and there, and subsequently as Assistant Director of Medical Services at Aldershot, took a prominent part in the reorganization of the Royal Army Medical Corps, which was effected under the late Sir Alfred Keogh as Director-General. He served in the Nile campaign under Kitchener in 1898, and received the medal and the Egyptian medal; and in the South African War from 1900 to 1902, when he took part in operations in the Orange Free State and in the Transvaal, including actions at Zand River, Johannesburg, Pretoria, Diamond Hill, Reit Vlei, and Belfast, was mentioned in dispatches, and received the Queen's medal with six clasps and the King's medal with two clasps. In the war of 1914-18 he served as Director of Medical Services of the Third Army under Lord Allenby; was mentioned in dispatches in the *London Gazette* of January 4, 1917, May 29, 1917, December 24, 1917, and December 30, 1918, and received the C.B. in 1917 and the K.C.M.G. in 1918; also the rank of Chevalier of the Legion of Honour. He joined the British Medical Association in 1882.

Major WALTER CROKER POOLE, R.A.M.C. (ret.), died in London on November 16, aged 75. He was born on February 27, 1863, in Northern India, and was educated at Trinity College, Dublin, where he graduated M.B., B.Ch. in 1885; he also took the Diploma in State Medicine in 1887. He entered the Army as surgeon on February 5, 1887, became major after twelve years' service, and retired on May 3, 1911. He served in the North-West Frontier of India campaign in 1897-8 with the Malakand Field Force, receiving the frontier medal with a clasp, and throughout the South African War of 1899-1902, when he took part in operations in the Orange Free State, the Transvaal, and Cape Colony, receiving the Queen's medal with three clasps and the King's medal with two clasps. He had been a member of the British Medical Association for forty-nine years.

Lieutenant JAMES WILSON GREENFIELD, R.A.M.C., died at Khartoum on September 20. He was educated at St. Andrews University, where he graduated M.B., Ch.B. only last year (1937). He entered the Royal Army Medical Corps on September 1, 1937, so had barely a year's service at the time of his death.

No. 29 GENERAL HOSPITAL DINNER

The twentieth annual reunion dinner of the 29th General Hospital will be held on December 3 at the Langham Hotel, Portland Place, W., when Lieutenant-Colonel S. H. Withers, C.M.G., will preside. Officers who wish to be present should communicate with the honorary secretary, Captain Percy Groves, Heronfield, Meadowcourt Road, Leicester.

Dr. W. A. Daley, a principal medical officer on the central administrative staff of the London County Council, has been appointed by the Council deputy medical officer of health to take charge of the public health department during any absence of the medical officer of health.

Obituary

SIR JAMES BARR, M.D., F.R.C.P.

Consulting Physician, Liverpool Royal Infirmary;
Past-President, British Medical Association

Sir James Barr died at his home, 16, Wilderost Manor, Putney Heath, on November 16 at the age of 89 years. He practised medicine in Liverpool for fifty years and retired from active work in 1926.

He was born at Cumber, Londonderry, on September 25, 1849, and was educated at Londonderry and at Glasgow University, where he obtained his qualification in 1873. His first appointment was as house-physician at the Royal Infirmary, Glasgow, and in the following year he was appointed house-physician at the David Lewis Northern Hospital, Liverpool. A few years later he succeeded Dr. Mitchell Banks (later Sir William Mitchell Banks) as medical officer to Kirkdale Gaol, a position in which his strong will and independence of mind manifested themselves in many ways. Through his intervention several reforms were carried out in the treatment and care of prisoners. In 1885, because of the prominence he had obtained for himself in this connexion and because of the urgency of the matter, he was ordered to Ireland by Mr. Balfour, the Secretary of State for Ireland, on the suggestion of Sir A. B. Walker, also a member of the Government, to report on the conditions prevailing in Irish prisons, which had been described as shameful by the Irish Members in the House of Commons, and in particular on the health of John Mandeville, who was then imprisoned in Tullamore Gaol for making seditious speeches. Shortly after Dr. Barr's arrival this prisoner died and the medical officer to the gaol committed suicide. Public opinion in Ireland at this time was impassioned by the activities of the Land League and the Irish Parliamentary Party, and these unfortunate events gave rise to intense indignation and political fury. Daring questions bearing baseless insinuations were asked in the House of Commons. Dr. Barr's life was threatened and he was offered police protection, but he only accepted it for his family. His expulsion from the Liverpool Medical Institution was demanded by its Irish members, but his membership was confirmed by an overwhelming majority, and the Irish minority withdrew never to return. Subsequently Dr. Barr was

presented with a testimonial signed by nearly two hundred members of the profession who resented the attacks that had been made on him while carrying out his duties. It was commonly supposed that his knighthood, bestowed by King Edward in 1905, Mr. Balfour being then Prime Minister, was a reward for these Irish prison services.

In 1887 he was appointed an honorary physician to the David Lewis Northern Hospital, Liverpool, and in 1897 an honorary physician to the Royal Infirmary, Liverpool. While holding these positions he helped to found the *Liverpool Medico-Chirurgical Journal*, of which he acted as editor for seventeen years. He became a prolific writer, papers on a great variety of medical subjects appearing in the various medical journals of the time: the earlier concerned cardiovascular diseases and mitral

stenosis in particular, the later nervous diseases, eugenics, and Abrams's box. His Ulster accent prevented him from being an attractive orator, but his writings were sincere and were faithful records of his observations in his wards, of his deductions from his reading and experience, interrupted by startling comments on matters that had little or no direct connexion with the subject. His paper on chiro-metaseosis in the *Medical Press and Circular* (October 4, 1922, p. 283) illustrates this feature of his later writings, but it also displays the leading characteristics of its author — his sturdiness, his virility, and his grim indifference to criticism.

Barr was elected President of the Liverpool Medical Institution in 1904, and his inaugural address on arteriosclerosis bristles with statements that cause surprise even to-day. An example may be quoted:

"In the case of a boy suffering from pericarditis after the removal of 20 ounces of serum, 40 minims of 1/1,000 solution of adrenaline the pulse disappeared at the wrist, and for a time the boy's life was in imminent danger. Here the cardiac failure was probably due to contraction of the coronary arteries, because the very small amount of adrenaline solution and its very rapid action preclude the idea of the failure being due to any general rise of blood pressure, or to inhibition."

He delivered the Address in Medicine at the 74th Annual Meeting of the British Medical Association at Toronto in 1906 on "The Circulation Viewed from the Periphery," and his address when he was elected President of the British Medical Association in 1912 was entitled, "What are we? What are we doing here? Whence do we come and whither do we go?" He delivered the Bradshaw Lecture before the Royal College



of Physicians of London in 1907 on "The Pleurae: Pleural Effusion and its Treatment." In these addresses it is obvious he made no pretence to literary style, preferring to drive his points home by vigorous thrusts and sledgehammer blows. Candour was his leading virtue. He revelled in giving expression to his thoughts and reasonings, such as they were. He could not maintain a discreet silence nor diplomatically turn an awkward question, yet throughout his writings it can certainly be said that there are no traces of malice or venom. His constant state of physical fitness was remarkable. He did not seem to know fatigue, and until an attack of influenza in 1918, when he was nearly 70 years, he had not experienced ill-health. His kindness was outstanding; he inspired confidence; he attracted men; yet for many years he was an outstanding leader of militant medicine and he remained a typical Ulster extremist.

He married the daughter of Mr. J. Woolley when he was aged 33 years and his domestic life was one of happiness. Their only son was killed in action in the great war. Their daughter Vera married Vice-Admiral Edward Astley Astley-Rushton, who was killed in a motoring accident in 1935. Lady Barr died in September of this year.

Professor Frank T. Paul, F.R.C.S., writes:

Sir James Barr came from Glasgow to settle in Liverpool some sixty years ago, shortly after I had been appointed resident medical officer at the Royal Infirmary. He was a keen, capable man, with the full intention of getting on in life, and was prepared to test all promising opportunities. We very soon came to know each other, and through all the rest of two long lives, though not following quite similar lines in work or holiday, we remained good friends throughout. There was not much left for either of us to do, but the break-up of such a friendship is a source of much regret.

Sir James began work as a general practitioner, but soon one of those many opportunities which he accepted occurred by the offer of a post just relinquished by the late Sir Mitchell Banks—namely, medical officer to Walton Prison. In this he soon showed his capability, which was recognized by the Government and taken advantage of by a request that he should inspect certain Irish prisons. His report proved to be valuable, and was, I believe, much appreciated. A more bright and happy change in his life soon followed, which I recall very well—his marriage with the charming and handsome lady who recently died. They had a son and a daughter. The former joined the Army and had the misfortune, when on a winter sports holiday with his father, to lose some of his toes by frostbite. However, he recovered without much permanent damage, and continued his life as an officer. He served in the great war and, with so many others, lost his life.

Sir James, after a few years of life in general practice, soon became immersed in the great changes which were taking place in the medical life of Liverpool. He gave much time and interest to the Medical Institution and was editor of the journal which reported its proceedings. He worked for many years in connexion with this Society, which has ever since been one of the most popular in the country. At the same time the Royal Infirmary was rebuilt on modern lines, and is a very successful institution. Sir James became a physician and we worked as corresponding colleagues for years together. In conjunction with Manchester, Liverpool shared the advantages of a university; but with the liberal help of our wealthy citizens we were able to establish the University of Liver-

pool. These times of great changes offered work for all, and so active a worker as Sir James Barr gave his share of valuable assistance in regenerating the old town to become one of the leading British cities.

After years of energetic life, and having succeeded in obtaining the honours Liverpool had to give him and the popular distinction of a knighthood, the time arrived when advancing age led him to decide on retirement. He left his Liverpool home—as usual in Rodney Street—and spent three years in hunting for the best spot in which to rest from work. He decided on Hindhead in Surrey, well worthy of his choice. When I had occasion to adopt the same line at the age of 80 he recommended his district, and we selected a home surrounded by woods and large commons at Grayshott. It was a great comfort to have such a good friend and capable physician near us. Only about a year ago, after we had been at Grayshott for about seven years, Sir James seemed to be in failing health, and Lady Barr was also far from being strong. Hence their daughter naturally felt that she would like to collect the remainder of her family to be near her in the neighbourhood of Putney, where she would be able to give them the intimate help they needed. Sir James was always a strong type of man; but strength has to yield to age in us all, and so those long years of friendship were broken, and the teaching of our mutual friend and much appreciated colleague, Sir Oliver Lodge, appeals with rather cold comfort to the surviving friend.

Dr. Alfred Cox writes:

Since his retirement from practice Sir James Barr has been little seen by his medical friends, and to the younger generation I suppose he is little more than a name. But his contemporaries will remember him as a forceful and combative personality. I suppose there never was a man who more loved a fight. I knew him first as a member of our Council in the early years of the century, but saw much more of him later in connexion with the historic Insurance Act fight. He was our President at the time the fight was at its hottest, and his contributions to the debate were never calculated to lower the temperature—quite the contrary. He was an individualist and an Ulster Tory to the core—whatever his nominal politics may have been. At Liverpool in 1912 he made remarks about the Insurance Bill and its author which received wide publicity. They certainly did not increase any reputation he may have had for moderation or judiciousness. His prophecies about the system read strangely to-day. One of his milder references to it was that it was "the most gigantic fraud that had been perpetrated on a confiding public since the days of the South Sea Bubble"! But Barr always called a spade at least a spade, and loved to rouse the spirit of combat. Away from his pet prejudices he was one of the kindest of men. As President he gave us a reception which yields for cordiality to none in my memory, and he was most ably seconded by his gracious wife. I remember vividly his presidential address, partly because of its extreme length, its many references to the Bergsonian theories, then much in vogue, and to eugenics, of which Barr was a warm supporter; its gibes at legislators and the occasional touches of his characteristic sardonic humour.

Those of us who knew Sir James in his prime will remember him not so much for the way in which we frequently and decidedly differed from him as for his zest in life and his invariable personal kindness.

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PATRICK WATSON-WILLIAMS, M.D.

Consulting Surgeon, Ear, Nose, and Throat Department,
Bristol Royal Infirmary

Patrick Watson-Williams died at his home at Rodney Place, Clifton, Bristol, on November 14. By his death we have lost a most valuable and enterprising member of that small band of pioneers who in this country changed oto-rhino-laryngology from a casual occupation to a highly developed specialty.

Watson-Williams was educated at Clifton College and at the Bristol Medical School. He qualified with the diploma of M.R.C.S. in 1884, took the M.B. degree of London University in 1885, and the M.D. in 1890. In 1887 he was appointed house-



physician at the Bristol Royal Infirmary, and on the formation of the obstetrical department at that institution in the same year he was a candidate for the appointment, but withdrew his application before the election. The following year he was appointed assistant physician, which appointment he held for seventeen years before a vacancy occurred which enabled him to become a full physician. During this

period he took a particular interest in laryngology, and he was put in control of the nose and throat department which was formed in 1906; to this, four years later, was added the ear department, which had previously been under a general surgeon. Watson-Williams was in charge of the combined department until 1921; he was also lecturer in charge of the department of laryngology and otology at the University of Bristol from its inception until 1922. On attaining the age limit he relinquished his hospital and university appointments, but continued in active practice up to the time of his death.

As with some others during the evolution of oto-rhino-laryngology, Watson-Williams, having started his career as a general physician with an interest in diseases of the larynx, had to change to an operating surgeon, which change he carried out with such success that he achieved an international reputation in his specialty, particularly in association with the diagnosis and operative treatment of diseases of the nasal sinuses and of their importance in general medicine. His courage and enthusiasm are shown by the fact that he was also one of the founder members of the old Laryngological Society of London, helping his distinguished senior colleague and friend Sir Felix Semon in the formation of this society, which subsequently became the Laryngological Section of the Royal Society of Medicine. Watson-Williams was one of the earlier presidents of this section, and at the meeting in Bristol in 1911, during his year of office, the establishment of the Semon Lectureship in Laryngology in the University of London was announced. This lectureship was founded largely by the efforts of Watson-Williams in recognition of the services which Semon had rendered to the advancement of the new specialty. He was appointed Semon Lecturer in 1925, and took as his subject "The Toll of Chronic Nasal Focal Sepsis on Body and Mind." In 1911 he represented

the Royal Society of Medicine at the Berlin International Laryngological Congress, and was *président d'honneur* at the first International Congress for Tuberculosis in Paris. During the war he served as a major in the R.A.M.C.(T.) at the Second Southern General Hospital, and was appointed consultant for diseases of the ear, nose, and throat to the Southern Command.

Watson-Williams was a man of boundless energy. In his native city Bristol he not only took a prominent part in the organization and advancement of his department at the Royal Infirmary, but he was also for twelve years assistant editor of the *Bristol Medico-Chirurgical Journal*, and for a further fourteen years, from 1912 to 1926, its editor. His eminence in the profession, as well as his work for the University, was recognized in 1932 by the conferment upon him of the honorary degree of M.D. in the University of Bristol.

His life work may be summed up into three periods. The initial phase was that of the physician taking an interest in laryngology, and particularly in helping it to evolve into a recognized specialized branch of surgery. In the second phase, having appreciated the wide possibilities open to the laryngologist by the evolution of modern surgery, he threw himself with extraordinary perseverance, ingenuity, and intelligence into the elaboration of the technique of operations, particularly those designed for the treatment of infections of the nasal accessory sinuses. As a result of this phase of his work instruments and methods devised by him are in use in all parts of the world. The third phase is represented by a combination of the outlook of the general physician and the operating surgeon. Here he set himself to emphasize the neglected close association between infection, particularly in the region of the nose and throat, and general constitutional disease, his opinions on this subject being well in advance of his time. He has left behind him many contributions to medical literature, and, apart from articles in the various journals, he wrote a textbook, *Diseases of the Upper Respiratory Tract*, and articles on diseases of the nose, throat, and trachea in Clifford Allbutt's *System of Medicine*. More recently, as evidence of the third phase, he wrote a book, *Chronic Nasal Sinusitis and its Relation to General Medicine*. As an artist he was highly accomplished, evidence of this gift being furnished by the many illustrations in his work which emanated from his own pencil. It was a real pleasure to watch him rapidly sketch pathological conditions which he might be demonstrating.

Patrick Watson-Williams was a man of considerable charm of manner and of bountiful hospitality. While he never failed to give of his own experience and opinions, he always received courteously the views of others. He leaves a widow, the daughter of the late Dr. Long Fox, an eminent Bristol physician in whose memory a lectureship has been founded; and one of his sons, Eric Watson-Williams, is in charge of the department which his father founded at the Bristol Royal Infirmary.

A. J. W.

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The following well-known foreign medical men have recently died: Dr. ERNEST MALVOZ, an eminent medical sociologist of Liège, aged 76; Dr. ALONZO GALE HOWARD, emeritus professor of orthopaedics at the Boston University School of Medicine, aged 68; and Dr. PAUL STRASSMANN, an eminent Berlin gynaecologist, aged 72.

JANE WALKER, C.H., LL.D., M.D.

Founder of the Medical Women's Federation; Medical Superintendent, East Anglian Sanatorium, Nayland

Dr. Jane Walker died at her home in Harley Street on November 17 at the age of 79. Dr. Walker was well known as one of the pioneers of the open-air treatment of tuberculosis, and was perhaps the oldest medical woman still in practice in this country. She remained at work until a few days before her death.

Born in Dewsbury, Yorkshire, on October 24, 1859, Jane Harriett Walker was educated at Southport and at the London School of Medicine for Women. She took

the L.R.C.P.I. and L.M. in 1884, and the L.R.C.S.Ed. in 1889. She continued her studies abroad, and became an M.D. of Brussels in 1890, at a time when she could not have obtained a doctorate in medicine from any British university. She was always interested in paediatrics, and acted as a clinical assistant at the East London Hospital and later as resident medical officer to the Wirral Children's Hospital. She was later in general practice for a while, but the work by which she will be remembered



began in 1892. A visit to the Nordrach Colony in the Black Forest, which had been founded in 1888, made her one of the early advocates of the open-air treatment of tuberculosis. Advocacy became action in 1892, when she took a farmhouse at Downham Market, Norfolk, and created there a small sanatorium. This centre, which began with only six beds, developed rapidly, a small home for paying patients being opened in a neighbouring village, and in 1901 was transferred to Maltings, near Nayland, Suffolk, as the East Anglian Sanatorium. To this sanatorium a department for the poorer members of the community was added in 1904; a ward for children in 1912; a section for tuberculous soldiers in 1916, and for officers in 1919.

Dr. Jane Walker was a woman of great energy and force of character, with many interests in life both within and outside her profession. She was a founder and for a long time treasurer of the Medical Women's Federation, and afterwards its president and honorary secretary. She had been physician to the Elizabeth Garrett Anderson Hospital; a member of the Departmental Committee on the provision for treatment of tuberculosis (the Astor Committee); and she served on the West Suffolk Agricultural Committee and other public bodies. She wrote numerous articles on social questions of the day, and published a book, *The Modern Nursing of Consumption*, which reached a second edition in 1924, and a *Handbook for Mothers*. She was one of the early suffragists, and for eighteen years treasurer of the Association for Moral and Social Hygiene. Her outstanding services to medicine and the community were recognized in 1931 by the award of the Companionship of Honour; in the same year she received the honorary degree of LL.D. from the University of Leeds. Dr. Walker joined the British Medical Association forty-five years ago, and was vice-president of the Section of Tuberculosis at the Portsmouth Annual Meeting in 1923. She was also a regular attendant at the meetings of the Joint Tuberculosis Council.

In October, 1939, Dr. Jane Walker would have been 80, and would have been able to celebrate the diamond jubilee of her entry into medicine. A scheme was on foot to establish in celebration of this event a Jane Walker Juvenile Research Clinic at Nayland.

Lady Barrett, C.H., M.D., writes:

With the passing of Dr. Jane Walker another pioneer for the equal rights of men and women has left us. Liberty and opportunity for the development of the inherent powers in every human being were the aims for which she strove, and difficulties and opposition but fed in her the will to achieve. It was natural therefore that politically she stood with the Labour Party, and in foreign affairs her sympathy was with the right of small nations to retain their freedom. Others will doubtless speak of her life-work in tuberculosis and the introduction of occupational therapy in her sanatorium for sufferers after the war. It may surprise some, who met her only in the worlds of medicine and politics, to realize that in the life of this active fighter there was time for a very real appreciation of the arts, especially music and painting. A lovable friend was Jane Walker, who could swear at you at one moment and grasp your hand in real and eternal friendship the next.

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A. BOSWORTH WRIGHT, J.P., M.R.C.S.

We announce with regret the death on November 9 of Dr. A. Bosworth Wright of Southsea. Alfred Bosworth Wright was born at Wellingborough on July 11, 1872, son of the late Dr. Brampton Wright. His family moved to Southsea, and he was educated at the Portsmouth Grammar School, entering the London Hospital in 1890, where, after qualifying M.R.C.S., L.R.C.P., he became house-physician, receiving-room officer, and house-surgeon. He started practice in Southsea and became a member of the British Medical Association in 1899. When the Royal Portsmouth Hospital was reorganized he was appointed assistant surgeon, a post he held from 1900 to 1908, when he became full surgeon. With the late C. P. Childe and Munro Ford the surgical work of the Royal Portsmouth Hospital rapidly went forward, and Bosworth Wright took his full share in its development. In spite of a large general and surgical practice he found time to do much hospital surgical work, and his cheerful disposition and general good fellowship made him deservedly popular with everyone.

Dr. Wright was an original member of the Portsmouth Rotary Club and later became its president, but he was chiefly known for his great interest in the Boys Club and the boys' work generally. He entered public life in 1920 as a member of the Portsmouth City Council, and became Alderman in 1935. From 1922 to 1923 he was president of the Southern Branch of the British Medical Association, and in 1923 was vice-president of the Section of Obstetrics and Gynaecology at the Annual Meeting at Portsmouth. Owing to the twenty years' rule for full surgeons at the Portsmouth Hospital he had to retire from the active staff at the early age of 56, but he threw himself with energy into the work of transforming the Poor Law infirmary into a modern general hospital—St. Mary's Hospital, of which he was governor. His splendid physique began to show signs of strain, and two or three years ago he was ill for some weeks with threatening heart trouble. It was obvious that he was working at too great a pressure, and the end came suddenly after a short illness of about a day and a half. Ever ready to do a kindness and

to help any of his professional brethren, or indeed anyone in Portsmouth, he will be greatly missed, and his experience and skill will be difficult to replace, particularly in the work of the city council, to which he gave so much of his time. There was a large and representative gathering at Portsmouth Cathedral on November 12 to pay its last respects to a colleague greatly loved and greatly missed. He leaves a widow, to whom much sympathy has gone out.

Dr. A. E. Sears of Milford-on-Sea writes:

My knowledge of and friendship with "A. B. W." extend over forty-eight years, from the time when we entered the London Hospital as students together in 1890. The outstanding feature of his personality was his lovable disposition, which embraced all classes, and his detestation of all shams and affectations. His never-failing sense of humour, his cheerful and hearty manner, and, above all, his transparent honesty, made him trusted and respected by all who knew him. He always had a touch of the seaman's roll in his walk, and his leisurely progress down the streets was interrupted by frequent cheeks. Perhaps it was an urchin who sold papers and who was addressed as "George" or "Bill" with an inquiry as to "how business was," or an elderly matron in a small shop to ask after the health of herself or her family. In fact, progress was so slow that he would be left while his companion hurried on to the evening meal, to which Wright would return when food and plates were almost cold, with apologies to the landlady and the cheerful assurance that he preferred a lukewarm dinner. From class-consciousness he was entirely free, and though he was a respecter of persons entitled to regard by reason of their abilities or personal attributes, his manner to the pretentious was one of good-humoured tolerance. In short, "A. B. W." was a big man with a big heart, with a shrewd insight into character and a belief in the innate goodness of his fellow men, which sprang from the greatness of his own individuality.

We regret to announce the death on November 12 of Dr. ETHEL STACY of Bedford. Dr. Stacy studied medicine at the London School of Medicine for Women, and qualified L.S.A. in 1902 and M.B., B.S. Lond. in 1904. She had been a member of the British Medical Association for thirty-five years. A colleague writes: Dr. Ethel Stacy established herself as a general practitioner in Bedford when a woman still needed something of the pioneer spirit in order to engage in the practice of medicine, especially in the provinces, and the same spirit informed her many activities in the town of her adoption. She took a prominent part in organizing the first infant welfare centre in Bedford, which was later taken over by the town council, and an active interest in the Bedford District Nursing Association, the County Red Cross Association, and the Bedford and County Girls' Home, of which she was for many years honorary medical officer. She also found the time to sit on the Maternity and Child Welfare Subcommittee of the British Medical Association, and on the Board of Governors of the East Anglian Sanatorium, Nayland. Her determined optimism, sound common sense, complete disregard of self, and refreshing unconventionality of outlook made her a most valued member of committee as they made her a most valued friend, and in either sphere she never refused any call that was made upon her. As a family doctor she had a remarkable power of absorbing all the details of her patients' daily lives and surroundings, and never lost sight of the patient in treating the disease or failed to treat the patient because the disease was incurable. Her own optimism was of a quality which could scarcely fail to communicate itself even to the most severely ill. As physician, as friend, and as a worker in all good causes she leaves a place that cannot be filled, and her untimely death will be deeply mourned.

Medical Notes in Parliament

Business set down for the House of Lords this week included the Marriage (Scotland) Bill. The House of Commons considered the possibility of aiding refugees, and Palestine policy was down for discussion.

The Parliamentary Medical Committee met at the House of Commons on November 21, Sir Francis Fremantle in the chair, and sent a message of sympathy to Dr. Salter, who had been ill. Dr. Hill, Deputy Secretary of the British Medical Association, attended the meeting and gave an account of the efforts by the Association in the past eighteen months to prepare the part of the medical profession in air defence. He stated that a few weeks before the recent crisis 95 per cent. of the profession accepted further obligations. The Government had now undertaken to keep up the register then compiled. Dr. Hill pointed out deficiencies which required to be made good in the national preparations for the use of medical men's services and the need for co-operation between Government Departments. The Committee showed its interest in the motion on these matters, which is to be moved by Sir Francis Fremantle in the House of Commons on November 30.

Dr. Elliot has accepted an invitation to dine with the Parliamentary Medical Committee at the House of Commons on December 14. Former members of the Committee will also be invited.

Major B. H. H. Neven-Spence has become Parliamentary Private Secretary to Dr. Elliot.

The annual reports of the National Radium Trust and Radium Commission for 1937-8 have been presented to both Houses.

New Bills

The Voluntary Hospitals (Relief from Rating) Bill proposes that notwithstanding anything contained in any local or general Act of Parliament no body or person shall be liable to pay rates in respect of any lands or buildings used for the purposes of a voluntary hospital. "Voluntary hospital" is defined as an institution, not being an institution which is carried on for profit or which is maintained wholly or mainly at the expense of the rates, which provides medical or surgical treatment for in-patients. The Bill does not extend to Scotland or Northern Ireland.

The Expiring Laws Continuance Bill was introduced in the House of Commons on May 16.

Mental Reform Bill: Proposals for Mental Cases

The text of the Criminal Justice Bill was issued on November 16. This measure has been introduced by Sir Samuel Hoare. The following are its proposals concerning mental cases.

Clause 38 proposes to give improved facilities to courts of summary jurisdiction in England and Wales to obtain a medical report on the mental condition of an offender in order to assist the court in deciding how to deal with him. At present such a report can be obtained if the offender is remanded to prison, but it may be difficult for a court to obtain such a report otherwise. The clause enables the court to remand an offender on bail with a requirement that he submits himself to medical examination, and provides for payment of the cost of medical examinations at approved institutions or by approved persons. This clause does not apply to Scotland.

If an offender is certifiable as a mental defective the court, in lieu of sentencing him, may, under the existing law, make an order for him to be dealt with as a mental defective. If an offender is certifiable as insane, a court of summary jurisdiction in England and Wales has no similar power. Clause 39 will enable courts of summary jurisdiction to make an order for the treatment of an offender who is certifiable as insane in the same way as they can at present make an order for the treatment of an offender who is mentally defective. This clause does not apply to Scotland.

There are offenders who, though not certifiable as insane or mentally defective, are suffering from some form of mental illness or abnormality which is susceptible to treatment. Clause 19 provides that probation orders may include a provision requiring such persons to submit themselves to mental treatment, and Clause 6 enables payment to be made for such treatment as part of the expenses of probation committees. These clauses do not apply to Scotland.

Persons who, when committed for trial on indictment, are found to be insane on arraignment or are found guilty but insane, and persons certified insane while serving a term of imprisonment or penal servitude, become "criminal lunatics" and are liable to detention in the State Criminal Lunatic Asylum at Broadmoor or a mental hospital. Analogous provisions are in operation in Scotland. It is proposed by Clause 67 to substitute for the term "criminal lunatic" the term "State mental patient," and to call the State institution at Broadmoor the Criminal Lunatic Department of Perth Prison, and the State Asylum now being built in Lanarkshire, "State Mental Hospitals."

It is also proposed by Clause 68 to transfer the responsibility for the control and management of the Broadmoor institution to the Board of Control, which is the authority responsible for the management of the State institution for mental defectives and for the supervision of all mental institutions in England and Wales. The responsibility as regards the discharge from custody of State mental patients will still remain with the Secretary of State.

STATE REMAND HOMES

On Clause 11 the following explanation is furnished:

In addition to the remand homes provided at present by local authorities under the Children and Young Persons Acts for persons under 17, there is need for special remand homes for "problem" cases of children and young persons under 17 requiring special medical observation. The number of such cases arising in the area of any one local authority is limited, and such a special remand home will serve a large region comprising many local authorities. In view of the difficulty of arranging for local authorities to provide such a regional institution, it is proposed by Clause 11 to authorize the Secretary of State to provide such places, and to preserve the existing financial arrangement under which the cost of remand homes is divided between the Exchequer and local authorities, by requiring the local authorities using the State remand home to contribute to the cost. This clause does not apply to Scotland.

CORPORAL PUNISHMENT

Clause 32 proposes to give effect to the recommendation of the Departmental Committee on Corporal Punishment that the existing powers of the courts to pass sentences of corporal punishment should be abolished.

Clause 47 gives effect to the Committee's recommendations for amending the law relating to corporal punishment as a method of dealing with certain serious prison offences.

Other clauses deal with the treatment of young offenders, the classification of prisoners, and other ameliorations of the penal system.

Milk Industry Bill

Mr. W. S. Morrison introduced the Milk Industry Bill on November 16.

Part I provides for the constitution of a Milk Commission and of a Milk Advisory Committee.

Part II provides, in respect of the period ending September 30, 1943, for the offer of increased inducements by milk marketing boards, with the assistance of substantial Exchequer contributions, for the provision of cleaner and purer milk. It is proposed that these provisions shall operate retrospectively as from October 1, 1938, and in anticipation of this the Milk Marketing Board for England and Wales and the Scottish Milk Marketing Board have already made arrangements, so far as practicable, for paying increased rates of premiums corresponding to those foreshadowed in the white paper on milk policy on the designated milks concerned and milk from attested herds.

Part III of the Bill extends until the end of September, 1943, the period during which Exchequer assistance will be available to enable milk marketing boards to operate the milk-in-schools schemes, and the proposed schemes for the provision of milk at reduced prices for nursing and expectant mothers and young children.

Part VII of the Bill enables the Minister of Health or the Department of Health for Scotland to make pasteurization orders on the application of a local authority, if the Minister or Department, after consultation with the Milk Commission, is satisfied that it is proper in the circumstances so to do having regard to the needs of consumers and the interests of retailers in the area. Such orders will prohibit, after a specified date, not earlier than two years after the making of the order, the sale by retail in the area concerned, for human consumption, of milk that is not either pasteurized, sterilized, tuberculin tested, or certified. Provision is, however, made for securing that retailers in the area who obtain 80 per cent. of their supplies from a single herd may secure exemption for such milk for a further three years after the prohibition would otherwise operate. A local authority that intends to apply for an order is required to give at least four weeks' notice of its intention, and provision is made for an inquiry into objections to the making of any order. A pasteurization order may, with necessary adaptation, extend also to cream.

Part VIII of the Bill provides for the co-ordination of expenditure by the various sections of the industry on research.

Road Accidents and Speed Limit

A motion viewing with concern the continued high rate of road accidents and calling for more effective action for the public safety was moved on November 16 by Mr. F. C. Watkins. Mr. WATKINS said that during the past ten years 70,000 people had been killed and more than 2,000,000 injured on the roads. Over a number of years one in every seven of the people killed had been either 5 or 6 years of age. Nearly a quarter of the injured were boys and girls. The Ministry of Transport analysis of accidents showed that where there was a facility for increased speed, however good the lighting and the surface, people were killed and the hospitals received the injured.

Mr. BURGIN said the statistics of the Registrar-General showed some 20,000 fatal accidents in a year from a variety of causes. Deaths on the roads were the shocking figure of 6,000 or 6,500. Deaths on the roadways of the United States in 1937 were over 40,000 and in Germany approximately 8,000. Of road accidents in Great Britain involving persons injured 70 per cent. occurred in daylight, 4 per cent. in dusk, and the rest in the dark. Of all accidents 76 per cent. happened in areas where there was a speed limit, because accidents and congestion were two aspects of the same problem. The human factor was and would remain the principal cause of accidents.

The House carried without a division the motion proposed by Mr. Watkins.

Abolition of the Death Penalty

On November 16 Mr. VVYAN ADAMS moved a motion declaring that the House of Commons would welcome legislation by which the death penalty would be abolished in time of peace for an experimental period of five years. He said that yearly, in the past decade, fifty-five persons were charged with murder, excluding infanticides, which on the average numbered about fifteen. Twenty was a normal yearly figure for death sentences, and as a rule fewer than ten were executed. Juries were frequently reluctant to convict on capital charges and might return a verdict of "Guilty but insane." Lord Darling, giving evidence before the Select Committee on the Abolition of the Death Penalty, had said: "I have heard several people in charge of criminal asylums say that there are several people in the asylums as sane as the judges who tried them."

Mr. MAXWELL FYFE moved the rejection of the motion. Mr. GEOFFREY LLOYD said this was the first occasion on which the House had been asked to declare itself in favour of an experiment of this kind. The only recent occasion on which capital punishment was debated in Parliament was in 1929. As a result a Select Committee was set up on the subject. The report of that committee contained a recommendation in the terms of the motion moved by Mr. Vyvan Adams, but that report was presented after six members of

committee had withdrawn. It could not be accepted as expressing the views of representative members of all parties in the House. Mr. Lloyd added that there was no support, in the experience of the Home Office, for the presumption that juries in murder cases were reluctant to convict.

Mr. Vyvyan Adams's motion was carried by 114 to 89.

Insurance Practitioners and Postgraduate Courses.—On November 14 Dr. Elliot informed Mr. Roston Duckworth that fifty-eight of the insurance practitioners practising in England attended a short series of experimental courses of postgraduate medical instruction in the autumn of 1937, and 862 would have attended courses this year when the current programme was completed this month.

Medical Certificates.—On November 14 Mr. RIMS DAVIES asked the Minister of Health if he was aware that although panel doctors received the same fee of 9s. per annum in respect of young persons between 14 and 16 years as for those between 16 and 65, some of them charged a fee for medical certificates for the first category when required for claiming benefit from sources other than national health insurance, though they were compelled to issue certificates for the second category for the same panel fee. Dr. ELLIOT replied that an insurance practitioner was obliged to give medical certificates without charge only if they were required for the purposes of national health insurance. He was entitled to make a charge for a certificate which was not required for those purposes, whether in respect of a juvenile contributor or of an adult insured person.

Vaccination Fees.—Mr. LEACH asked, on November 10, under what Act of Parliament or Ministerial Order a borough council acted when paying vaccination fees to persons other than public vaccinators and vaccination officers. Dr. ELLIOT, in reply, said the Public Health (Small-pox Prevention) Regulations, 1917, authorized the payment of fees to medical officers of health for the vaccination and revaccination of contacts. The Vaccination Order, 1930, empowered local authorities to appoint "assistants" to vaccination officers.

Medical News

The annual reunion dinner of the London (Royal Free Hospital) School of Medicine for Women will be held at the Savoy Hotel on Thursday, December 1, at 7 for 7.30.

The annual dinner of the Westminster Hospital Medical School, which was postponed from October 1, will be held at the Trocadero Restaurant, Piccadilly, W., on Tuesday, December 13, at 7.30 for 8 p.m. with Dr. Adolphe Abrahams, dean of the medical school, in the chair.

The next dinner of the Oxford Graduates Medical Club will be held on December 16 at the Langham Hotel, London, when the chair will be taken by Mr. H. S. Souttar. The price of tickets is 12s. 6d. each person (exclusive of wine). Further information may be obtained from the honorary secretary, Mr. E. A. Crook, 99, Harley Street, W.1.

A dinner will be held on November 29 at the Savoy Hotel, London, in aid of funds for the Institute for the Scientific Treatment of Delinquency. The chair will be taken by Viscount Hailsham, and the speakers will be the Lord Chancellor, Viscount Samuel, Lord Roebuck, Mr. St. John Hutchinson, and Dr. Denis Carroll. The Institute is entirely dependent on voluntary contributions, and funds are urgently needed both for the maintenance of existing activities and for future research work. Tickets, 30s. each, may be obtained from the chairman of the dinner committee, the Countess De La Warr, 20, Chester Square, S.W.1.

The second annual dinner of the London Manchester Medical Society will be held at the Trocadero on Thursday, December 8, at 7.45 for 8 p.m. Tickets (12s. 6d. each) are obtainable from the secretary, Mr. Albert Davis, 93, Harley Street, W.1, from whom further particulars may be obtained.

Work on the northern wing of the British Medical Association's new building has now begun and it has been necessary to put the existing garage out of action until the completion of the new car accommodation to be provided in the basement. The loss of this garage renders the task of parking cars at B.M.A. House a difficult one, and members visiting the House and attending meetings are asked to co-operate with Headquarters by refraining from using their cars whenever it is possible, in order to relieve the congestion.

The Lord Chancellor has appointed Dr. Albert Edward Evans, a Commissioner at the Board of Control, to be a Chancery Visitor of Lunatics, in the place of Lieutenant-Colonel Nathan Raw, C.M.G., M.D., who has retired.

In our advertisement columns this week the University of London invites applications for (a) the University Chair of Medicine tenable at University College Hospital Medical School, and (b) the University Readership in Medicine tenable at the British Postgraduate Medical School. The salaries attached to the posts are £2,000 per annum and £800 per annum respectively.

The annual dinner of the Old Epsomian Club will be held at the Café Royal, Regent Street, W., on Thursday, December 8, at 7 for 7.30 p.m.

The Glasgow University Club, London, will dine at the Café Royal, W., on Friday, December 2, at 7.15 for 7.30 p.m., with Mr. W. Craig Henderson, K.C., D.Sc., in the chair. Any Glasgow University men who, though not members of the club, desire to attend are requested to communicate with the honorary secretaries, 62, Harley House, N.W.1.

A meeting of the Listerian Society of King's College Hospital will be held at the hospital (Denmark Hill, S.E.) on Wednesday, November 30, at 8.30 p.m., when Sir Harold Gillies will give an address on "Plastic Surgery," and will show cases and films. Dr. W. Sheldon will occupy the chair.

The German clinics in Prague which were closed at the time of the occupation of the Sudeten districts have been reopened under the direction of Professor W. Nonnenbruch.

The Society of Chemical Industry celebrated on November 24 the centenary of Sir William Perkin, the discoverer in 1856 of the first aniline dyestuff, mauve.

On November 10 Queen Mary paid a visit to the new premises of the Children's Centre, Institute of Child Psychology. She was received by the vice-chairman, Dr. Hazel Chodak Gregory (in the absence through illness of the chairman, Professor Winifred Cullis). The two honorary directors, Dr. Margaret Lowenfeld and Dr. Ethel Dukes, accompanied Her Majesty on a tour of the building and explained to her the work of the Institute. In the play-therapy department the special methods of treatment were demonstrated to her. She paid visits also to the physical re-education and rhythm department, and observed intelligence tests in progress.

Major B. H. H. Neven-Spence, R.A.M.C. (ret.), has been appointed Parliamentary Private Secretary to the Minister of Health in the place of Mr. Allan Chapman.

EPIDEMIOLOGICAL NOTES*

Typhoid at Shoreditch

In the late afternoon of November 9 information of three cases of typhoid fever was telephoned to the Public Health Department at Shoreditch with a statement that two relatives of the patients were at home with similar symptoms. Inquiries at the patients' homes were put in hand forthwith and the Ministry of Health and the London County Council were notified that evening. Since that time the Public Health Department has been continually in touch with medical officers at the Ministry and has been greatly assisted by the advice and co-operation of Dr. Norman Smith. Further cases of typhoid fever have occurred or have been discovered since that date, and the position at midday, November 23, was that 24

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

cases had been notified as occurring in the borough among borough residents, 2 cases in persons working in the borough but living outside, and 1 case in a child living in Essex who came into the borough one evening a week to visit relatives who are among the borough cases. One patient had died. Medical practitioners in the borough and surrounding medical officers of health were informed of the position on Thursday, November 10, and one or two doctors who made inquiries were told that if they wished to vaccinate contacts the cost would probably be paid by the borough council. Serum was not considered advisable. Medical practitioners were further informed as to the position on the following Tuesday, and a meeting was called for the Wednesday afternoon to discuss further means of mutual co-operation. Here, with the authority of the Public Health Committee, it was agreed to have available for contacts and other suitable persons a scheme for vaccination, to be run on similar lines to the British Medical Association's diphtheria immunization scheme. Detailed inquiries suggested almost from the beginning a common source of infection through ingested foodstuffs, and events which have subsequently occurred have served to strengthen this belief. It is understood that the turnover in the sale of foodstuffs which might possibly be the vehicle for spreading infection is such that little was likely to remain unsold for more than a week, and probably none for more than a fortnight. As the date of first infection was about the middle of October the originally infected foodstuff had been disposed of before the first cases were notified. Unfortunately it has not yet been possible to trace the actual person or source responsible for the contamination, although detailed personal and family histories have been obtained from possible food-contacts and some thirty bloods tested for Widal reactions. Much work has had to be done to eliminate other sources of infection, including the water supply, milk supply, and certain other foods. The variability of the incubation period is another difficulty in differentiating between primary and secondary cases, of which latter, owing to the poorness and congestion of some of the infected houses, there are likely to be further cases during the next week or so.

Poliomyelitis

In the week under review the greatest fall, from 70 to 51, has been recorded since the present epidemic began in the first week of July. The disease remains widespread in a rather sporadic fashion. As regards the 51 cases notified in England and Wales, the counties chiefly affected were: Southampton 5 (Bournemouth 1, Eastleigh 1, Petersfield 1, Ringwood and Fordingbridge 1, Southampton 1); Leicester 4 (1 in Leicester and 3 in the administrative county); Durlam 3 (Billingham 1, Ryton 1, Stockton 1); Kent 3 (1 each in Orpington, Sevenoaks, and Maidstone); Lincoln 3 (Scunthorpe 2, Welton 1); London 3 (1 each in Deptford, Lewisham, and Southwark); Oxford 3 (Oxford 2, Witney 1); Surrey 3 (Epsom and Ewell 2, Beddington and Wallington 1); Sussex 3 (Cuckfield 2, Horsham 1); Yorks N. Riding 3 (Guisborough 2, Richmond 1); Glamorgan 3 (all in Cardiff). Of the cases in Scotland, 1 each occurred in Glasgow and Edinburgh. During the week ended October 22 the number of cases of poliomyelitis in Germany (excluding Austria) was 342, compared with 364 in the previous week; increases were recorded in Saxony 50 (39) and Hessen 19 (7). In Austria the number rose from 13 to 19. During the week under review 250 cases were recorded in Germany; there was a decline in the disease in all parts of the country except Baden, where notifications rose from 24 to 28. During the week 28 cases were reported in Holland: 15 in the Province of South Holland (10 in the Rotterdam district) and 6 in the district of Harlingen. In Denmark during September 92 cases were recorded: 15 in the Aalborg district and 17 in the district of Hjøring. During the same period 99 non-paralytic cases were recorded: 12 each in the districts of Aalborg and Hjøring and 10 in the district of Odense (Jutland). In the first fortnight of October 165 cases were recorded in Sweden, of which 37 were

non-paralytic, compared with 162 (66 non-paralytic) in the preceding fortnight. Of the 165 cases, 53 occurred in the rural district of Jämtlands, 26 in the rural district of Kristianstads province, and 13 in Västernorrlands.

Primary and Influenzal Pneumonia

In England and Wales a considerable increase was recorded: 799 as against 583, the figures for London being 97 as against 75. Deaths fell from 37 to 28 in the Great Towns, and in London from 7 to 1. The counties principally affected were: Lancaster 125 (Manchester 47, Liverpool 24); London 97 (Stepney 11, Poplar 9, Lambeth 8); Durham 49 (Sunderland 17); Essex 39; Warwick 38 (32 in Birmingham); Yorks West Riding 78 (Sheffield 23, Leeds 14). There were 5 deaths from influenza in Birmingham, 3 in Manchester, 2 in Sheffield, 2 in Walsall. Notifications of primary pneumonia in Scotland rose from 272 to 367; the centres principally involved were Glasgow 234 (183); Dundee 21 (9); Lanark Co. 21 (10); Aberdeen 13 (9); Port Glasgow 10 (0). During the week there were 6 deaths from influenza in the 16 Great Towns—5 in Glasgow and 1 in Edinburgh.

Diphtheria and Scarlet Fever

A very small decrease in the notifications of diphtheria was recorded in England and Wales during the week: 1,445 compared with 1,457, and in London 141 compared with 145. The chief centres affected were London 141 (Lambeth 18 (9), Poplar 11 (16), St. Pancras 9 (2), Camberwell 9 (8)); Birmingham 35 (24); Bristol 31 (33); Sheffield 26 (26); Liverpool 26 (48); Leeds 23 (31); Cardiff 18 (9); Easington 18 (21); South Shields 15 (25). Of the 23 deaths from diphtheria in the Great Towns of England and Wales, 4 were in Liverpool, while in no other town did more than 1 death occur. In Scotland notifications of diphtheria rose from 253 to 291; the principal centres affected were Glasgow 97 (77); Lanark Co. 20 (18); Edinburgh 18 (15); Renfrew Co. 16 (13); Aberdeen 14 (18). One death (in Glasgow) was reported.

There was a fall in the incidence of scarlet fever in England, Wales, and Ireland, and a rise in Scotland from 403 to 435. The principal towns affected were London 170 (Wandsworth 17 (13), Stepney 14 (13), Camberwell 12 (8), Lambeth 12 (11)); Liverpool 51 (62); Bristol 38 (33); Birmingham 37 (38); Manchester 34 (28); Portsmouth 33 (18); Leeds 28 (28); Sheffield 26 (25); Stoke-on-Trent 26 (31). There was one death (in London).

Measles and Whooping-cough

Twenty-five cases of measles were notified in London during the week compared with 22 in the previous week. More than 2 cases were notified in St. Pancras 4 and Stepney 3. There was one death in Dagenham. In Scotland 32 cases were notified and there were no deaths. In London notifications of whooping-cough rose from 141 to 145. The chief boroughs affected were Kensington 13, Stepney 12, St. Pancras, Islington, Poplar, and Wandsworth 11 each. Of the 169 cases of whooping-cough notified in Scotland 225 (158) were in Glasgow, 14 (11) in Paisley, 8 (4) in Greenock, and 8 (11) in Edinburgh. All three deaths reported were in Glasgow.

Cholera and Plague

During the week under review there were 391 (418) cases of cholera and 204 (229) deaths in the Central Provinces of India. 250 cases (324) and 105 (136) deaths in Bombay Presidency, and 210 cases (104) and 108 (51) deaths in the United Provinces.

In British India during the same week there were 186 (155) cases of plague with 19 (13) deaths in the Central Provinces, and 33 (30) cases and 14 (15) deaths in Bombay Presidency, and 86 (43) cases and 67 (31) deaths in Burma. Reports have come to hand of a severe outbreak of bubonic plague in the Gorlos Southern Banner district between Hsinking and Taonan. The outbreak started at the beginning of October, and by the 24th of the month over 250 fatal cases had been reported, the mortality rate being 99 per cent.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended November 12, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Death, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns (124 in 1937) in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases: a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebro-spinal fever | 19 | 2 | 6 | — | 1 | 17 | 3 | 5 | 2 | 1 | | |
| Deaths | | 1 | 2 | | | | 4 | — | | | | |
| Diphtheria | 1,445 | 141 | 291 | 92 | 28 | 1,750 | 275 | 265 | 67 | 53 | 1,537 | 226 |
| Deaths | 23 | 1 | 2 | 5 | — | 32 | 5 | 8 | 1 | 1 | | |
| Dysentery | 36 | 7 | 21 | — | — | 109 | 27 | 20 | — | — | | |
| Deaths | | | | | | | | | | | | |
| Encephalitis lethargica, acute | 5 | — | 1 | — | — | 1 | — | — | 1 | — | | |
| Deaths | | | | | | | 2 | | | | | |
| Enteric (typhoid and paratyphoid) fever | 29 | 15 | 3 | 5 | 2 | 76 | 4 | 3 | 18 | 7 | 34 | |
| Deaths | 4 | 1 | 1 | 1 | — | 5 | — | — | — | — | | |
| Erysipelas | | | 67 | 5 | 5 | | | 100 | 5 | 8 | | |
| Deaths | | | | | | | 2 | | | | | |
| Infective enteritis or diarrhoea under 2 years | | | | | | | | | | | | |
| Deaths | 39 | 8 | 10 | 3 | 3 | 41 | 14 | 12 | 6 | 5 | | |
| Measles | | 25 | 32 | — | — | | | 179 | | 40 | | |
| Deaths | 1 | — | — | — | — | 17 | — | — | — | 1 | | |
| Ophthalmia neonatorum | 103 | 12 | 34 | — | — | 88 | 14 | 20 | — | — | | |
| Deaths | | | | | | | | | | | | |
| Pneumonia, influenzal* | 799 | 97 | 8 | 3 | 11 | 707 | 53 | 13 | — | 3 | 782 | 87 |
| Deaths (from influenza) | 28 | 1 | 6 | 3 | 1 | 39 | 4 | 7 | — | 2 | | |
| Pneumonia, primary | | | 367 | 11 | — | | | 380 | 9 | — | | |
| Deaths | | 12 | | 15 | 10 | | 16 | | 15 | 7 | | |
| Polio-encephalitis, acute | 2 | — | — | — | — | 5 | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Poliomyelitis, acute | 51 | 3 | 2 | 1 | — | 22 | 3 | 1 | — | — | | |
| Deaths | | 1 | | | | | | | | | | |
| Puerperal fever | 1* | 1 | 20 | 3 | 1 | 4* | 4 | 16 | 1 | 1 | | |
| Deaths | | 2† | | | | | — | | | | | |
| Puerperal pyrexia | 168 | 15 | 25 | — | — | 174 | 19 | 23 | — | 2 | | |
| Deaths | | | | | | | | | | | | |
| Relapsing fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Scarlet fever | 1,887 | 170 | 435 | 69 | 103 | 2,404 | 179 | 590 | 99 | 101 | 2,425 | 305 |
| Deaths | 1 | 1 | 2 | 1 | — | 4 | — | 1 | — | — | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Whooping-cough | | 145 | 269 | — | 10 | | | 41 | — | 5 | | |
| Deaths | 13 | 2 | 3 | — | — | 9 | 2 | — | — | 1 | | |
| Deaths (0-1 year) | 269 | 42 | 80 | 27 | 19 | 328 | 56 | 92 | 25 | 21 | | |
| Infant mortality rate (per 1,000 live births) | 44 | 34 | | | | 55 | 47 | | | | | |
| Deaths (excluding stillbirths) | 4,237 | 781 | 586 | 195 | 123 | 4,215 | 804 | 660 | 195 | 130 | | |
| Annual death rate (per 1,000 persons living) | 10.4 | 9.9 | 11.9 | 13.2 | 10.9 | 10.4 | 10.1 | 13.5 | 13.3 | 11.5 | | |
| Live births | 6,376 | 1,223 | 867 | 355 | 210 | 5,036 | 1,165 | 803 | 355 | 209 | | |
| Annual rate per 1,000 persons living | 15.7 | 15.6 | 17.7 | 24.0 | 18.6 | 14.9 | 14.7 | 16.4 | 24.2 | 18.5 | | |
| Stillbirths | 245 | 41 | | | | 229 | 39 | | | | | |
| Rate per 1,000 total births (including stillborn) | 37 | 32 | | | | 37 | 32 | | | | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London. † Deaths from puerperal sepsis.

Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Hypertonia in Post-encephalitic Parkinsonism

Dr. E. W. DEWEY (Portsmouth) writes: I should be grateful for suggestions for the relief of muscular hypertonia occurring in a case of post-encephalitic Parkinsonism. My patient has arthritis as well, and the combination is a peculiarly distressing and disabling one, but the symptom that seems to trouble her most at present is a painful stiffness of certain groups of muscles, particularly the quadriceps, which renders sitting or remaining in one position for any length of time almost intolerable. There are no actual contractures or obvious cramps.

Varicose Veins

Dr. DANIEL M. RAYNES (London, S.W.1) writes in answer to "M. E. D." (*Journal*, November 19, p. 1070): I have had a similar case of a female patient who, according to her own account, had had numerous varicose veins of long standing injected by her previous doctor with great success. However, two very large veins, one in each leg, proved very resistant to repeated injections of various preparations. I injected each of them once, using 2 c.cm. of a 5 per cent. sodium morrhuate (B.D.H.) solution, without any result. On her return a week later it occurred to me that, since all sclerosing materials must of necessity irritate the endothelial lining of the vein before the desired thrombosis can occur, it would be useless to continue the injections unless the irritating material came into actual contact with the endothelium in that part of the vein where occlusion was desired. Accordingly I arranged for the patient herself to apply gentle but moderate pressure over the most dependent parts of the vein by means of a pad of cotton-wool that I placed along the course of that vein; this left exposed only the uppermost part of that vein, where I injected 2 c.cm. of the same solution. The patient was instructed to keep up the gentle pressure until, after withdrawing the needle and sterilizing the site of the puncture, I fixed the same pad by means of an elastoplast bandage applied fairly firmly round that part of the leg where the varicose vein was prominent. This technique apparently prevented the irritating fluid from either dropping down the drain, as it were, to where it was not required, or from becoming diluted in the comparatively large amount of blood in the previously uncompressed vein. To my amazement, on the patient's return a week later there was hardly a trace of either of the long-resistant veins after only a single injection into each one of them.

Dr. F. RYLANDS (Manchester) also writes: The quinine fails to act because in the large veins the solution is washed

away by the blood stream before it has acted on the endothelium. I would suggest that "M. E. D." should try injections with sodium morrhuate, 10 per cent. instead of the usual 5 per cent., giving 2 c.cm. at each injection. A useful tip in resistant cases is to move the needle carefully from side to side while injecting the solution within the vein.

Cattle Ringworm in Man

Dr. T. J. HOLLINS (Battle, Sussex) writes in answer to Dr. Stewart (*Journal*, November 12, p. 1027): I have found "mitigal" (Bayer) practically a specific in such cases. I paint it on each day with a camel-hair brush, and cover with a simple dressing. After five or six applications the ringworm disappears. With the permission of a local farmer I treated some calves that had well-marked ringworm. In every case it cleared up after a few applications.

Case for Diagnosis

"NEMO" writes in reply to Dr. E. S. Hawkes (*Journal*, November 19, p. 1070): I would suggest that if the rise in temperature follows the midday meal it would be advantageous to have an x-ray photograph of his patient's teeth, because root sepsis might account for the condition. In many families this meal more than any other includes butcher's meat; and as such food generally requires more mastication than other, vigorous mastication might be responsible for driving pus into the lymphatics, and so setting up a condition such as he details.

LETTERS, NOTES, ETC.

Suppression of Lactation

Dr. FREDERIC SANDERS (London, E.4) writes: In the *Journal* of October 29 (p. 887) is a paper by Drs. G. L. Foss and P. Phillips advocating oestrone for the suppression of lactation, and in that of November 5 (p. 944) an article by Mr. M. J. Petty suggesting "salyrgan" for removing superfluous fluid. Has anyone tried the latter drug for the former object? I have recently had a patient whose mountainous breasts literally poured milk.

Heparin and Thrombosis

Mr. J. E. R. McDONAGH (London, W.) writes: Heparinized tubes are convenient for collecting blood for examination which has to be sent by post. In specimens collected in this way the percentage of the blood sugar cannot be estimated; if examined soon after the blood is withdrawn the blood sugar may be either slightly raised or lowered. The sedimentation rate is always increased and so are the refractive index, the viscosity, the viscosity-refractive index, and the viscosity-protein index. The percentage of the blood urea and the protein are as a rule increased, and it is only rarely that they are unaltered or slightly lowered. The picture obtained with the dark-ground condenser shows more precipitated colloid particles and a large number of crenated and contracted red blood corpuscles. Heparin appears to have the same action as sodium poly-anethol sulphate ("liquoid"). In the terminology I am in the habit of employing, I believe that the first action of these preparations is to dehydrate the colloid particles in the blood and the subsequent action is to hydrate them. I hold the prevention of coagulation to be due to the exhibition of the latter chemico-physical change. Thrombosis when it occurs in a healthy vein I regard as due to gelation, which is one of the phenomena produced in dehydration. It is one which in my experience is best remedied by intramuscular injections of Sum 468 in doses of 0.001 to 0.002 gramme. Larger doses may be employed when it is desired to reduce the number of injections: eight or more to one or two, but in this case the injections need to be made intravenously. Thrombosis in an artery falls into a different category and requires different treatment, because it is secondary to disease of the vessel wall.

A Delivery Towel for Midwifery

Dr. R. E. M. TAUNTON (Hanwell, W.) writes: In reply to Mr. Ernest B. Hinde's note in the *Journal* of October 29 (p. 924) on the use of a special towel with a pocket, a sterile towel is not always available in general practice. I have found with practice that I can use my left elbow for pressure on the fundus just as well as my left hand, and so keep the left hand sterile. I have used this method for many years.

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Canadian Medical Association Journal

Toronto vol. 39 September, 1938

- Oesophageal Hæmorrhage D. Eisen—p. 207
 Diverticulum of Duodenum D. Wheeler—p. 214
 Unusual Lesions of Testes G. A. Heet and I. D. Ackman—p. 219
 Clinical Importance of Accessory Spleens R. T. Robertson—p. 222
 Identical Dupuytren's Contracture in Identical Twins H. Couch—p. 225
 Physiological Studies in Experimental Diabetes J. G. Barker, G. T. Hill, J. M. Jones, B. Lebel and D. W. Lowhead—p. 226
 Insulin Shock Treatment of Schizophrenia N. L. Eason—p. 229
 Intubation under Intravenous Anæsthesia in Children suffering from Chronic Respiratory Diseases K. Hutchinson, H. S. Mitchell, and H. McHugh—p. 237
 Successful Excision of Tumour of Pituitary Gland D. W. Pratt and E. F. Brooks—p. 240
 Diagnosis of Cholestatic Disease A. R. Martin and M. M. Sereda—p. 244
 Dick's Disease G. J. Stone—p. 247
 Perforation of Anæsthesia W. Roume—p. 249
 Illness other than Diabetic Complications in Insulin Patients A. J. van Wier—p. 253
 Larynx, Tonsils, and Eardrums in Treatment of Acne Vulgaris I. P. Treux—p. 257
 Skin Diseases in Children H. A. Dixon—p. 261
 Case of Appendicitis with Atypical Symptoms W. O. Stevenson—p. 263
 Acute Diverticulitis of Ascending Colon R. A. B. Shier—p. 264
 Angina Pectoris W. F. Connell—p. 265
 Some Rules for Disease of Pertussis-zinc-insulin L. A. Chase—p. 267
 Rational Treatment of Apparently Diabetic A. Fisher—p. 269
 Intrahepatic Dynamics in Relation to Artificial Pneumothorax I. G. Heaton—p. 274
 Calcium Requirements of Normal Individual R. L. Farquharson—p. 280
 Review of Recent Literature on Neuroses and Psychoneuroses A. G. Morley—p. 282
 I. J. Shepherd as Anatomist I. M. Thompson—p. 287

Diverticulum of Duodenum.—Wheeler has analysed 2,000 consecutive cases examined radiologically and has found 142 (7.1 per cent.) in which duodenal diverticula were present. He suggests that these diverticula should be divided into, primary, those which have no obvious cause and are found in the second, third, and fourth parts of the duodenum, and secondary, which are always the result of chronic duodenal ulceration and occur only in the first part of the duodenum. Like Odgers, the author believes that the majority of these diverticula do not give rise to any symptoms and that their significance has probably been exaggerated.

Deutsche Medizinische Wochenschrift

Berlin vol. 64 September 9, 1938

- Principles and New Aspects of Resuscitation of Newborn C. I. Gauss—p. 1313
 Pseudo-actinomycosis or Genuine Actinomycosis? M. Wassmann—p. 1316
 Early Recognition of Cancer of Cervix Cancer Campaign E. Reuber—p. 1320
 Treatment of Bronchitis and Pneumonia J. Triepes—p. 1323
 Diplopia after Administration of Pyramidon J. Stroder—p. 1324
 Motor Driving despite Infantile Paralysis K. H. Heydecke—p. 1324
 Promotion of Growth of Hair K. Kumazawa—p. 1325
 Induction of Labour by Aid of Drugs H. J. Lang—p. 1326
 Interpretation of Pathologically Changed ST Interval in Electrocardiogram E. Danis and C. Korth—p. 1328

Treatment of Bronchitis.—This article by Triepes consists of appreciative references to the action of felfol, which contains pyrazolon derivatives, digitalis, caffeine, and lobelia, in bronchitis and pneumonia.

Berlin vol. 64 September 16, 1938

- Biological Significance of Ultra-violet Rays in Direct and Diffused Sunlight W. Amelung and W. Kuhnle—p. 1345
 Meteorological Changes, Thrombosis, and Embolism N. Louras—p. 1349
 Need for More Extensive Employment of Culture Tests for Demonstration of Tubercle Bacilli K. E. Gerdtz—p. 1351
 Demonstration of Tubercle Bacilli by Fluorescent Microscope W. Herrmann—p. 1354

- Blood Transfusion in the Field I. Morell—p. 1359
 Therapeutic Value of Irradiated Yeast and Organic Calcium Compounds in Rickets F. W. Genthumel—p. 1357
 Internal Treatment of Diseases of Skin with Sulfur G. H. Klotzsch—p. 1359
 Case of Epidemic Cerebrospinal Meningitis treated with Ulexon H. Janaschke and H. Doppel—p. 1360
 Benign Influence of Circulatory System Hormone on Apoplexy P. Schenk—p. 1361
 Our Native Tea Varieties C. Mayer—p. 1364

Demonstration of Tubercle Bacilli.—This study comes from the bacteriological laboratory of the communal hospital in Essen, and it deals with Hagemann's microscopical fluorescent test for tubercle bacilli. A comparison was made with 1,424 specimens subjected to this test and to Ziehl-Neelsen staining. The Hagemann test invariably proved much superior to the Ziehl-Neelsen staining technique. The demonstration of even isolated tubercle bacilli was greatly facilitated by Hagemann's procedure, which did not in a single case give a negative result when the findings by Ziehl-Neelsen staining were positive.

Indian Medical Gazette

Calcutta vol. 73 September 1938

Special Tuberculosis Number

- Study of Anti-tuberculous Activities in West with Some Suggestions for Campaigns against Tuberculosis in India C. Froese-Moller—p. 343
 Campaign against Tuberculosis in Italy J. Jochy—p. 322
 Anti-tuberculous Work in Bengal A. C. Lal—p. 326
 Seriousness of Tuberculosis in India as shown by Study of Incidence and Type P. A. Benjamin—p. 340
 Observations on Experience in Tuberculosis Experiments in India P. A. Benjamin and R. M. Barton—p. 345
 Tuberculosis in the Zanzibar P. A. Ristic—p. 351
 Role of Sputum in Anti-tuberculous Work B. Jayaram and A. K. Sherriff—p. 355
 Methods of Destruction of Tubercle Bacilli in Sputum for Use in Indian Homes, with Some Experiments R. M. Barton—p. 359
 BCG Vaccination in Practice L. Neere and R. K. Guval—p. 366

Tuberculosis in India.—For India as a whole tuberculosis is a very serious disease, because of its tendency to show itself in an acute form. There is a general lack of immunity among Indians as a race. The drift of the population towards the cities is a dangerous factor in the situation.

BCG Vaccination.—The value of BCG in the prevention of tuberculosis has been definitely proved in many countries. It is effective when administered by the oral route. There is no proof that it may cause the onset of tuberculous meningitis.

Journal of the American Medical Association

Chicago vol. 111 September 10, 1938

- Some Features of Present-day Diagnosis J. Barlick—p. 981
 Evaluation of Drugs commonly employed as Diagnostic Aids in Clinical Medicine S. Mettler and C. Leake—p. 996
 Diseases of Biliary Tract associated with Disturbances in Cholesterol Metabolism J. Twiss and J. Barnard—p. 990
 Sulphanilamide and Serum in Treatment and Prophylaxis of Scarlet Fever W. Sako, P. Dwan and E. Platon—p. 995
 Mediastinal Infection from Oesophageal Perforation C. Phillips—p. 998
 True Auricular Fibrillation compared with Muscular Tremors of Polymyoclonus J. Carroll—p. 1004
 Human Requirements for Vitamin B G. Coagill—p. 1009
 Physical Therapy in Treatment of Fractures I. Dickson—p. 1010

Sulphanilamide and Serum in Scarlet Fever.—Sako and collaborators compared a series of 100 scarlet fever patients treated with sulphanilamide with 100 not so treated. The series were comparable in respect of age and of severity and duration of the disease before treatment. An initial dose of 0.05 gramme and a maintenance dose of 0.03 gramme per lb.

body weight was given in each twenty-four hours. Complications occurred in 8 per cent. (of which one was suppurative) of treated cases, as against 41 per cent. (of which nine were suppurative) of controls. Recovery from the acute toxæmic phase was the same in both series, and for this reason the authors conclude that massive intravenous serum therapy at the beginning of the disease combined with the administration of large doses of sulphanilamide throughout the whole period of the infection is the most efficacious method of treatment.

Klinische Wochenschrift

Berlin vol 17 September 10, 1938

- Resistance of Human Spermatozoa to Severe Cold F. Jähnel.—p. 1273.
Physiology and Pathology of Intermediary Fat Metabolism: (IV. H. G. Kramick and I. Müller.—p. 1275.
Epithelioma in Man produced by Handling of Benzpyrene. E. Kfar.—p. 1279.
Activity of Alkaline Phenylamine Benzedrine ("Elastonon"). H. Storz.—p. 1280.
Comparative Tests of Hepatic Function in Dogs with Eck's Fistulae. L. Sarkady and J. Martin.—p. 1283.
Medicinal Treatment of Psychic Inhibitions. I. E. Flugel.—p. 1286.
Modified Hollow-needle-capillary Method of Determination of Coagulation Time of Blood and Experiments with Blood obtained by Venesection. W. Schulz and H. Hilgenberg.—p. 1288.
New Modified Meinicke Test of Tuberculosis. St. J. Leitner.—p. 1290.
Effect of Asphyxia on Opsonic Function of Blood Serum. G. v. Ludany, L. Berta, and G. Gyory.—p. 1293.
Peculiar Effect of Large Doses of Vitamin C on Reducing Capacity of Urine. G. Albus and W. Schuchard.—p. 1294.
New Ways of Fighting Cervical Carcinoma. H. Hinselmann.—p. 1294.

Lancet

London vol 2 September 10, 1938

- Treatment of Prostatic Obstruction. H. P. Winsbury-White.—p. 603.
Administration of Hormones by Subcutaneous Implantation of Tablets. R. Deanesly and A. S. Parkes.—p. 606.
Tuberculin Patch Tests in Children. F. D. Hart.—p. 609.
Effect of Hesperidin (Vitamin P) on Capillary Fragility. H. Scarborough and C. P. Stewart.—p. 610.
Effect of Induced Hypercalcaemia on Excessive Psychomotor Activity. I. M. Cuthbert.—p. 612.
Monarticular Arthritis associated with Dysenteric Bowel Infection. J. D. Benjafield and G. S. Halley.—p. 616.
Operative Treatment of Labyrinthine Vertigo. M. Yearsley.—p. 618.
Pneumococcal Meningitis treated with M & B 693. G. C. K. Reid, with a Note by S. C. Dyke.—p. 619.
Pneumococcal Septicaemia treated with M & B 693. S. C. Dyke.—p. 621.
Estimation of Haemoglobin in Undiluted Blood using Lovibond Comparison. G. A. Harrison.—p. 621.

Administration of Hormones.—Deanesly and Parkes have investigated experimentally the effectiveness of crystalline gonadal hormones when administered by the subcutaneous implantation of solid tablets of the pure substance. The technique is particularly useful when a long-continued steady effect is required, as, for example, in the depression of the gonad-stimulating and growth-promoting activity of the pituitary by oestrogens, and in the masculinization of the female by androgens. Treatment of very long duration following one administration of hormone will apparently be possible by this method of implantation.

London vol 2 September 17, 1938

- Severe Haemorrhage from Stomach and Duodenum: Criteria of Severity. I. I. Bennett, J. Dow, I. P. L. Lander, and S. Wright.—p. 651.
Arches of Foot and Flat-foot. J. Bruce and R. Wainman.—p. 656.
Coarctation of Aorta. J. B. Walker and F. D. M. Livingstone.—p. 660.
Fits and Schizophrenia. S. W. Gillman and D. N. Parfitt.—p. 663.
Ketonaemia in Diabetes and Pregnancy. C. H. Gray.—p. 665.
Staphylococcal Septicaemia treated by M & B 693. W. J. Fenton and F. Hodgkiss.—p. 667.
Facial Carbuncle treated with Protosil Alum. H. W. Barber.—p. 668.
Immunological Connection between Burns and Sepsis. W. H. Hughes.—p. 670.
Injury by Steel Rod piercing Perineum, Abdomen, and Thorax. F. H. Hambly.—p. 672.
Acute Non-suppurative Thyroiditis. M. Sein.—p. 673.

Severe Haemorrhage.—Assessments of the severity of haemorrhage from the stomach or duodenum based on haemoglobin estimations are fallacious; the loss of blood can only be estimated reliably by calculating the blood volume. The Congo-red method was used in the investigations recorded in

this paper; details of the method, observations on normal persons, and evidence of the accuracy of the method are given, with preliminary details of 122 cases.

Medizinische Klinik

Berlin vol 34 September 9, 1938

- Organic Neurological Changes following Head Injury. H. Demme.—p. 117.
Pre-paralytic Stage of Infantile Poliomyelitis. O. Kauders.—p. 118.
Splenectomy in Diseases of Blood (continued). K. Gutzeit.—p. 118.
"Depot" Insulins. F. Bertram.—p. 118.
Observations on Course of Diphtheria 1934 to 1936. M. Vagedes.—p. 119.
Effect of Coramine on Alcohol Concentration in Blood and on Intoxication. H. Siepmann.—p. 119.
Passage of Bismuth and of Protosil into Cerebrospinal Fluid and Method for Determination. W. de Pay.—p. 119.
Comments on a Death following Intraspinal Anaesthesia with Dethal. L. W. Kaufmann.—p. 119, and O. Koenen.—p. 119.
Gonadotropic Hormones and their Therapeutic Applications. H. Bartsch and A. Freytag.—p. 119.
Marriage Law of July 6, 1938. Schlager.—p. 120.

Coramine and Alcoholic Intoxication.—Coramine had no appreciable effect on the concentration of alcohol in the blood, but had a definite antagonistic effect on the intoxication. It also counteracted severe shock in rabbits.

Medizinische Welt

Berlin vol 12 September 10, 1938

- Three Epochs in German Medicine. L. Englert.—p. 1304.
Treatment and Prevention of Diseases of Children in Hot Countries. O. Fischer.—p. 1308.
Impressions of Obstetrics in South China. R. Hellmann.—p. 1312.
German Doctors in China. G. Rose.—p. 1316.
Health Conditions of German-speaking Population in Brazil. W. Mark.—p. 1320.
Hall-caste. W. Draseher.—p. 1324.
Mistaken Impressions of Cameroons. F. v. Bormann.—p. 1327.

Münchener Medizinische Wochenschrift

Munich vol 85 September 9, 1938

- Carcinoma of Stomach. H. Kürten and A. Klotz.—p. 1377.
Vitamin C Deficiency and General Efficiency. G. Lemmel.—p. 1381.
Early Forms of Pernicious Anaemia. H. Reiners.—p. 1382.
Conservative Treatment of Renal Calculi. H. Lauher.—p. 1385.
Effect of Short Waves on Tissues. E. Hasché.—p. 1387.
Paratyphoid Epidemics. J. Wüstenberg and P. Trüb.—p. 1389.

New England Journal of Medicine

Boston vol 219 September 8, 1938

- Immediate or Deferred Surgery for General Peritonitis associated with Appendicitis in Adults. I. J. Walker.—p. 323.
Immediate or Deferred Surgery for General Peritonitis associated with Appendicitis in Children. W. E. Ladd.—p. 329.
Treatment of Peritonitis complicating Appendicitis. A. M. Shipley.—p. 333.
Acute Bowel Obstruction: Recognition and Management. O. H. Wanzel.—p. 340.
Clinical Evaluation of Some Non-volatile Anaesthetic Drugs. L. F. Siew.—p. 349.

Appendicitis in Adults.—Walker reviews 5,371 cases of acute appendicitis; the incidence of generalized peritonitis was 2 per cent. Patients moderately ill with generalized peritonitis can be operated on immediately with a comparatively low mortality. Those seriously ill, if treated in this manner, show a high death rate. Thus seventy-seven cases of generalized peritonitis treated by immediate operation gave a mortality of 42 per cent. On the other hand, a group of thirty cases treated for toxæmia and with delayed operation showed a mortality of 13 per cent. Delayed operation has, of course, no place in the treatment of the acute unruptured appendix.

Boston vol 219 September 15, 1938

- New Surgical Technique for Treatment of Post-phlebotic Varicose Ulcer of Lower Leg. R. R. Linton.—p. 367.
Osteoporosis in Hyperthyroidism. E. C. Bartels and G. E. Hargrett.—p. 373.
Rocky Mountain Spotted Fever in Massachusetts. L. S. Pilcher.—p. 374.
Ingestion of Iodine as Method of Attempted Suicide. M. Moore.—p. 374.
Ménère's Syndrome. R. J. Clark.—p. 388.

Varicose Ulcer.—Linton describes what he claims is a new method of treating post-phlebitic varicose ulcer of the leg. The essential part of the treatment is the ligation of the communicating veins.

Iodine in Attempted Suicide.—More than one-fourth of all the patients admitted to the Boston City Hospital during a twenty-one-year period after suicidal attempts had ingested iodine. Not one death due to iodine poisoning occurred among these patients (327 cases).

Nordisk Medicinsk Tidskrift

Stockholm vol 16 September 10, 1938

*Prolonged Meningococcal Meningitis treated by Continuous Drainage of Cisterna Magna. H. Jervens—p 140
Modern Conceptions of Microbic Origin of Rheumatism. M. Tesdal—p 141
Outline Treatment of Thompson's Myeloma Cerebralis. A. Wenckert—p 142

Prolonged Meningococcal Meningitis.—This is a case record illustrating the benefits to be expected from suboccipital puncture and continuous drainage of the cisterna magna in cases of prolonged meningococcal meningitis refractory to treatment with serum, protosil, etc.

Norsk Magasin for Laegevidenskaben

Oslo vol 99 September, 1938

Stenosis of Aqueduct of Sylvius from Anatomical Point of View. B. Dahl and T. Harbitz—p 961
Treatment of Internal Hydrocephalus by Permanent Drainage of Third Ventricle. R. Ingebrigtsen—p 976
*Treatment of Gallstones at Naval Hospital between 1919 and 1937. K. Haugeth—p 999
Findings and Symptoms of Temporal and Occipital Tumors. A. Torkildsen—p 996
Rare Hereditary Pigment Anomaly. H. Sundtor—p 1005

Cholelithiasis.—This statistical study of ninety-six patients shows among other things that of the patients operated on during an attack 95 per cent. were cured or greatly improved, whereas this was the case with only 71 per cent. of the patients operated on in a free interval.

Oslo vol 99 October 1938

*Acute Appendicitis in Young Children up to and including Age of Five. P. Bull—p 1065
Several Cases of Progressive Muscular Dystrophy in Norwegian Vagabond Family. K. Wagner—p 1067
Case of Spontaneous Hyperextension Tetanus. K. Thomassen—p 1069
Widmark's Micro-method employed for Determination of Ethyl Ether in Blood. O. Dilling—p 1105

Acute Appendicitis.—Professor Bull's study deals with fifty-two children operated on between 1906 and 1937. He finds that acute appendicitis in young children is often associated with diarrhoea and disorders of micturition.

Pnliclinico

Rome vol 45 September 12, 1938 (Ser Prat I)

Ambulatory Treatment of Recent Fractures of Lower Limb. O. Mazzatella—p 1673
Renal Factor in Arterial Hypertension. C. Gerbi—p 1680
Lepor Colony at Gore. C. Conradi—p 1689

Rome vol 45 September 19, 1938 (Ser Prat I)

New Anticoagulant in Blood Transfusion. F. Corelli—p 1717
On Being "Appendicitis-conscious." A. Ferri—p 1728

Rome vol 45 September 26, 1938 (Ser Prat I)

Posterior Chordotomy of Goll's Column in Spastic Paraplegia (Lille's Disease). C. Antonucci—p 1761
*Benzedrine with Belladonna in Treatment of Chronic Encephalitis Lethargica. B. Disertori—p 1768

Chronic Encephalitis Lethargica.—According to Disertori benzedrine cannot replace belladonna in the treatment of chronic encephalitis lethargica, but it is a useful auxiliary to belladonna treatment. In combination with belladonna in

large doses benzedrine led to notable improvement in two-thirds of cases, it had little effect on rigidity and tremor, but improved oedogenic crises, statorrhoea, and subjective symptoms.

Presse Médicale

Paris vol 45 September 7, 1938

*New Case of Haemolytic Anaemia with Haemoglobinuria and Haemoglobinemia. M. Bille, P. Hildbrand, and R. Gaube—p 1329
Lactulose Tolerance Test for Hepatic Insufficiency. F. Moreau, R. Riviere, R. Guyot, and A. Bermond—p 1331

Haemolytic Anaemia.—The authors describe a case of this unusual form of anaemia. The patient showed an anaemia of the haemolytic type but without fragility of the corpuscles, with haemoglobinuria and haemosiderinuria. The condition does not appear to be improved by any known form of treatment, including splenectomy.

Paris vol 45 September 10, 1938

*Prevention and Abortive Treatment of Post-operative Phlebitis. A. Chabrier—p 1345
*New Method at Classification of Streptococci. Its Clinical Significance. P. Hauduroy—p 1346

Post-operative Phlebitis.—The author describes the treatment he has used for the last ten years in over 2,000 abdominal operations. The prophylactic treatment consists essentially in allowing the patient to get up not later than forty-eight hours after the operation, under suitable conditions of observation, in order to detect the first signs of trouble. The "abortive treatment" comprises the following measures: encouraging the patient to get up and walk as much as possible; raising the foot of the bed in order to help the return circulation when the patient is lying down; and the administration of cardiac tonics and anticoagulants.

Streptococci.—After showing the unsatisfactory character of classifications used up to the present time, the author pleads for the wider adoption of Lancefield and Hare's classification, which is based on the antigenic properties of the organisms.

Paris vol 45 September 12, 1938

*Kidney in Cirrhosis. A. Tresselt and A. Vazay—p 1361
*Classification and Pathogenesis of Endemic and Sporadic Thyroidism. D. Danielopolu with Stoichita Cosma, A. Dercu, M. Dercu, I. Emanuel, N. B. Nestoresco, D. Nicolae, N. Radulesco, I. Rege, I. Tilica, and V. Vatu—p 1365

Kidney in Cirrhosis.—The authors, as a result of the detailed investigation of the metabolism of salts, creatinine, and water in their cases, come to the conclusion that the kidney does not show any constant changes capable of explaining any particular syndrome or syndrome, and that the mechanism of diuresis is much more complex than is usually thought.

Thyroidism.—The authors have managed to collect between them 38,657 observations relating to cases of endemic or sporadic thyroidism. As a result of their joint investigations they have adopted the following physio-pathological classification: (1) "normothyroidism"—that is, simple or colloid goitre; (2) hyperthyroidism—that is, all syndromes due to "thyro-vegetative hypertonia", for example, Graves's disease; (3) hypothyroidism (thyro-vegetative hypotonia), including cretinism and myxoedema; and (4) "paragoitrous" conditions, such as "thyroid idioey", thyroid deafness and dumbness, etc. As will be seen, the basis for this classification is their conviction that the thyroid has an important vegetative function in addition to its morphogenetic and metabolic functions. This thesis is admirably worked out in a diagram showing the relation of the thyroid to the endocrines and central and vegetative nervous systems.

Paris vol 45 September 17, 1938

*Influenza. General Review of Anti-influenza Serum Therapy. A. Bectere—p 1385
*New Method for Treatment of Cutaneous Leishmaniasis (Oriental Sore). E. Flaher—p 1388

Influenza.—The author reviews the history of serum therapy since it was first tried in cases of influenza in 1918 by McGuire and Redden in the form of human convalescent serum, and later by Laidlaw, Smith, and Andrews with serum prepared from immunized horses. Bédère goes on to give an account of the latest work carried out in France by Dujarrie de la Rivière, Chevé, and himself. They are at present trying to produce a serum which will be efficacious not only against the influenza virus but also against Pfeiffer's bacillus, which would appear to be the cause of the dangerous pulmonary complications in this condition.

Cutaneous Leishmaniasis.—Professor Flarer, after reviewing the various treatments which have been used up to the present for leishmaniasis (including various forms of antimony, surgery, electrocoagulation, x rays, and fadium) and deploring the usual unsatisfactory results of treatment of the cutaneous form of the disease, states that he has treated fourteen such cases with atebirin with uniformly successful results.

Schweizerische Medizinische Woehenschrift

Basle vol. 63 September 10, 1938

- *Clinical Features of Cardiac Infarction. H. Ludwig.—p. 1045.
- Pathogenesis of Neurasthenia according to Janet's Theories: II. L. Schwartz.—p. 1049.
- Old Age from Urological Standpoint. J. Minder.—p. 1053.
- Estimation of Urinary Excretion of Sexual Hormone during Menstrual Cycle. H. E. Fierz, W. Jadasohn, and U. Uehlinger.—p. 1056.
- Does Fowl Paralysis resemble Poliomyelitis? E. Frauchiger and E. Bourgeois.—p. 1057.

Clinical Features of Cardiac Infarction.—The comparative frequency of "atypical cases" without agonizing pain is emphasized—it is over 40 per cent. according to recent Basle records. In such cases a feeling of constriction in the chest and marked weakness of the peripheral circulation with tachycardia are early evident. An increase of temperature and a raised leucocyte count and sedimentation rate are usually noted. Other secondary symptoms and the electrocardiographic signs are reviewed.

Basle vol. 63 September 17, 1938

- Organic Cerebral Convulsions. F. Braun.—p. 1069.
- Affective Alterations of Blood Pressure. M. Dobreff.—p. 1075.
- Treatment of Cutaneous and General Disturbances of Climacteric or Ovarian Causation. P. J. Schwarz.—p. 1076.
- Treatment of Peritonsillar Abscess by Wide Incision followed Three or Four Days later by Tonsillectomy. T. Seiclounoff.—p. 1079.

Basle vol. 68 September 24, 1938

- Endocrine Research and Gynaecology at Present Day: I. O. Kollar.—p. 1089.
- *Myalgia Epidemica. E. Jenny.—p. 1092.
- Pulmonary Collapse from Blockage of Air Passages. H. Lachmann-Mose.—p. 1094.
- Antigenic Function of Vitamin A. J. P. Klapczak.—p. 1095.

Myalgia Epidemica.—The epidemiology, history, and clinical features are described. In two recent Swiss cases a connexion could be traced with visitors from Denmark, where the disease was epidemic at the time.

Ugeskrift for Laeger

Copenhagen vol. 100 September 8, 1938

- Jaw Surgery: Case Records. J. Foged.—p. 1015.
- Treatment of Patients with Acute Suppurative Otitis Media. V. Schmidt.—p. 1018.
- Treatment of Acute Suppurative Otitis Media with Alcohol Irrigation. A. Jørgensen.—p. 1022.
- X-ray Treatment of Chronic Medical Diseases of Joints. S. Heindl.—p. 1027.
- *Spiritualism as Causative Factor in Mental Disturbances. H. Reuter.—p. 1031.

Spiritualism.—This is an interesting case record driving home the argument that dabbling in the occult may give rise to serious mental disturbance.

Wiener Klinische Woehenschrift

Vienna vol. 51 September 9, 1938

- Radiological Examination of Appendix. J. v. Palugay.—p. 941.
- Biological Effects of Nencki's Haematoporphyryn. J. Hühnerfeld.—p. 945.
- Intestinal Lymphogranulomatosis. R. Klima.—p. 948.
- Post-diphtheritic Paralysis. A. Rottmann.—p. 951.
- Clinical Observations on Treatment of Diabetes Mellitus II. Banach.—p. 952.
- Toxicology of Arsenic. W. Busch.—p. 956.

SPECIAL JOURNALS

Acta Chirurgica Scandinavica

Stockholm vol. 81 September 16, 1938

- *Diagnosis of Fibrous Pericarditis (Ger.) S. Ingvar.—p. 99.
- *Operative Treatment of Fibrous Pericarditis (Ger.) E. Tengwall.—p. 118.
- Nerve Graft in Facial Palsy (Eng.) G. Bauer.—p. 130.
- Five Cases of Primary Psoriasis (Fr.) E. Schroeder.—p. 139.
- *Radical Treatment of Carcinoma of Rectum (Ger.) T. Eiken.—p. 155.
- Fracture of Os Calcis (Ger.) H. S. Nissen-Lie.—p. 186.
- Isolated Gonorrhoeal Tendovaginitis (Ger.) R. Wilenius.—p. 195.
- Case of Osteochondritis Dissecans in Site hitherto Unknown (Eng.) J. Heriz.—p. 213.
- Septic Osteomyelitis of Os Pubis (Ger.) S. S. Krook.—p. 221.
- *On Conditions and Results of Injection Therapy of Varices and Clinical-anatomical Study of Relapses (Eng.) K. Martensson.—p. 237.
- Report of Eight Embolotomies, including some Remarks on Avoidance of Secondary Thrombus Formation (Ger.) T. Olovson.—p. 281.
- Circulatory Problems in Peritonitis (Eng.) P. Windfeld.—p. 293.
- Fracture of Mandible with Bilateral Onward Dislocation (Ger.) P. Einton.—p. 304.

Fibrous Pericarditis.—These two articles stress the necessity for close collaboration between physician and surgeon in the diagnosis and treatment of fibrous pericarditis. Tengwall has operated on seven cases for this condition, and reports four successes. One patient died immediately after the operation; two others died two and six months after operation respectively. Extensive lime deposits in the pericardium and co-existent organic cardiac disease influence the prognosis adversely.

Radical Treatment of Rectal Carcinoma.—The author has collected nearly all the cases of carcinoma of the rectum

which occurred in Denmark between 1931 and 1935. Only 27.2 per cent. of all cases (1,444) were subjected to radical operations—that is, abdomino-perineal and perineo-sacral resections. The primary mortality of one-stage abdomino-perineal resections was 70.6 per cent., and the same operation carried out in two stages had a 60.6 per cent. mortality. Eiken recommends the two-stage sacral extirpation as the method of choice for all but very high growths.

Injection Therapy of Varices.—This is a very detailed investigation into the causes of relapse after the injection of varicose veins. The author comes to the conclusion that simple injection treatment is sufficient if only the veins of the leg are affected. Should the condition have spread to the thigh, ligation and excision of a section of the great saphenous vein should be combined with the injection treatment.

American Journal of Diseases of Children

Chicago vol. 55 September, 1938

- Intravenous Injection of Hypotonic Salt Solution containing Sulphanilamide for Streptococcal Meningitis. G. R. Retan.—p. 483.
- *Effect of Milk Supplement on Physical Status of Institutional Children. II. Ossification of Bones of Wrist. V. MacNair and L. J. Roberts.—p. 494.
- Sedimentation Rate in Nutritional Anaemia of Infants and Children: I. Response to Treatment with Ferrous Sulphate. C. H. Smith.—p. 517.
- Erythrocytes and Haemoglobin of Blood in Infancy and in Childhood: II. Variability in Number, Size, and Haemoglobin Content of Erythrocytes during First Five Years of Life. G. M. Guest, E. W. Brown, and M. Wing.—p. 529.

Human Passive Transfer Antibody: III. Serial Titrations on Treated and Untreated Patients with Hay Fever. W. M. Schmidt and V. W. Lippold. — p. 450.

*Minimal Vitamin C Requirements of Artificially Fed Infants. Study of Four Hundred and Twenty-seven Children Under Controlled Dietary Regimen. B. M. Himm, L. Reynolds, M. W. Poole, and L. G. May. — p. 491.

Comparative Study of Tuberculin Patch Test and Mantoux Intracutaneous Test. H. Volmer and L. W. Goldstrein. — p. 554.

Milk Supplements.—Radiographs of the wrists and hands of 108 children were taken at the beginning and end of a calendar year and the progress in osseous development, as indicated by changes in the Carter ossification ratio, was noted. One-third of the children were kept on the usual institutional diet; one-third were given a pint equivalent of evaporated milk; and the remaining third received an equal amount of irradiated evaporated milk. The groups given the supplements showed greater progress than the control group, and the differences were significant and all tended in the same direction. There was, however, no significant difference in the two groups receiving milk supplements. The subjects of this experiment comprised all the residents in an institution caring for approximately 150 children of ages ranging from 1 to 15 years. The authors conclude that the daily addition of the constituents of a pint of milk proved "a factor of safety in a rather mediocre institutional diet."

Vitamin C Requirements.—In Detroit 427 infants were studied during the first year of life. About 10 mg. of vitamin C was made available to each infant daily by giving supplements of powdered lemon juice. Each infant was examined monthly or oftener. From their findings the authors conclude that "the condition which has usually been considered latent scurvy is actually definite mild scurvy." During the course of the study according to the criteria of Park and others twenty-one infants had mild scurvy.

American Review of Tuberculosis

Baltimore vol. 35 October, 1938

*Molecular Weight, Electrochemical and Biological Properties of Tuberculin Protein and Polysaccharide Molecules. I. H. Siebert, K. O. Pedersen and A. Juelius. — p. 199.

Incidence and Control of Tuberculosis in High-school Children. H. V. Hetherington, H. L. Israel, and J. P. B. Kreutz. — p. 459.

Tuberculosis Studies in Tennessee. R. S. Gans, R. L. Gould, L. I. Harrison, H. C. Stewart, and W. C. Williams. — p. 441.

Mass Case-finding. A. B. Richards. — p. 445.

Results of Treatment of Tuberculosis in Negro. G. D. Kettlerkamp, P. Murphy, and J. Trumpe. — p. 458.

Vaemia of Pulmonary Tuberculosis. M. M. Blaverman. — p. 474.

Normal Sedimentation Rate in Open Pulmonary Tuberculosis. A. L. Banya and E. Caldwell. — p. 491.

Erythrocyte Sedimentation: Its Practical Value in Ambulatory Tuberculosis Clinic. H. T. Pevsar and A. Hurst. — p. 495.

Culture of Tubercle Bacilli. W. Steenken, jun. and M. M. Smith. — p. 503.

Medium for Culture, Isolation, and Dissociation of Tubercle Bacilli. W. Steenken, jun. and M. M. Smith. — p. 514.

Tuberculosis of Lumbar Spinal Cord. E. Kupka and R. E. Olsen. — p. 517.

Tuberculin Protein and Polysaccharide Molecules.—This is a summary of the results of an intensive study made by Florence Siebert (in collaboration with two Swedish workers)

into the chemical structure of the group of substances with tuberculin activity and the variation in their biological effects. The work was carried out in the laboratories of Professor Svédberg, director of the Institute of Physical Chemistry, Uppsala, Sweden. Siebert found that "purified protein derivative" itself was not perfectly pure, but contained substances with large and small molecular weights in addition to the main bulk of the product, which possessed a molecular weight of 16,000.

Annales de Dermatologie et de Syphiligraphie

Paris vol. 9 September, 1938

Some Botanical Eruptions. L. A. Lenzin. — p. 778.

Experimental Researches into Alteration of Cutaneous Reactivity in Course of Repeated Irritation of Skin (concluded). L. Török. — p. 793.

Annales de l'Institut Pasteur

Paris vol. 61 August, 1938

Differences in Rabbit Virulence among Strains of Tubercle Bacilli of Human Type. L. Neze and J. Bretet. — p. 169.

*Metastatic Lesions Produced by Dead Tubercle Bacilli embedded in Paraffin. N. Rist. — p. 121.

Action of Pilocarpine and Chaulmoogra Oil on Acid-fast Bacilli and on Experimental Tuberculosis in Guinea-pigs. E. Dirrurs. — p. 172.

Relative Protective Capacity of Serum of Rabbits Immunized against Rabies with Dead Cord and Phosphated Vaccine. L. Craveghier, P. Leprieux and C. Viala. — p. 185.

Incubation Period of Rabies in Dog. I. Dodaro. — p. 193.

Reinforcement Phenomenon in Chemotherapy. I. L. Krutshchinski. — p. 205.

Lesions produced by Dead Tubercle Bacilli.—Rist has confirmed the observations of several other authors on the effects produced by dead tubercle bacilli suspended in hard or liquid paraffin, olive oil, or vaseline. Whereas dead bacilli in saline produce only a local lesion when injected subcutaneously, their effect when suspended in any of these oily bases is to cause not only a more extensive local reaction but also distant lesions in lymph glands and in the lungs, to which particles of the substance containing the tubercle bacilli are carried. Such animals also develop marked tuberculin sensitivity. Immunizing effect is known to vary with the manner of administration (diphtheria toxoid, for example, has little immunizing power when given intravenously), and it is suggested that the greatly enhanced action of dead tubercle bacilli protected against rapid destruction by suspension in oil may serve as a model for more efficient methods of active immunization.

Archives of Pathology

Chicago vol. 25 August, 1938

Cholecystitis and Hypertrophy of Muscularis of Gall-bladder. R. B. Lawrence and S. Warren. — p. 449.

*Experimental Hypercholesterolaemia in Dogs. W. C. Corwin. — p. 456.

Destruction of Ganglion Cell in Infant Brain. C. R. Tuttle. — p. 453.

Tooth Ringe Analysis. IV. Neonatal Dental Hypoplasia. Analysis of Teeth of Infant with Injury of Brain at Birth. I. Schour and R. Kronfeld. — p. 471.

Comparison of Cutaneous Lesions produced in Rabbits by Intracutaneous Inoculation of Spirochaetes from Yaws and Syphilis. H. W. Ferris and T. B. Turner. — p. 481.

New and Simple Method for Detection of Bled by Heating. A. M. Moody, F. Prosser, and J. L. Carr. — p. 501.

Pathological Anatomy of Hypophysis and Adrenals in Anencephaly. D. M. Anzenberger. — p. 467.

Occlusion of Entire Inferior Vena Cava. Case Report with Review of Subject. A. L. Sparks and H. Fox. — p. 519.

Syphilis of Heart and Pericardium. E. A. Haam and M. A. Ozden. — p. 527.

Tray for Dehydration, Clearing and Paraffin Impregnation of Large Quantities of Tissue. H. Wood. — p. 532.

Subdural Haematoma. A. B. Baker. — p. 535.

Hypercholesterolaemia.—A high fat diet, when it does not cause too frequent vomiting, will usually produce a moderate hypercholesterolaemia in dogs, and this can be markedly accentuated by also giving lecithin. The dog may therefore prove a suitable animal for studying the possible relationship between hypercholesterolaemia and atheroma.

Brain

London vol. 61 September, 1938

*Pick's Disease. Specific Type of Dementia. I. C. Nichols and W. C. Weizner. — p. 237.

Thalamus of Chimpanzee. A. E. Walker and J. F. Fulton. — p. 250.

Tonic Foot Response to Stimulation of Sole. Its Physiological Significance and Diagnostic Value. K. Goldstein. — p. 269.

Note on Nucleus Ruber Magnocellularis and its Efferent Pathways in Man. K. Siegm. — p. 284.

Local Sweat Response to Faradic Stimulation. R. W. Wilkins, H. W. Newman, and J. Doupe. — p. 250.

Dissemination of Glioma of Spinal Cord in the Leptomeninges. K. C. Eden. — p. 298.

*Tetralateral and Fasciculation in Voluntary Muscle. D. Dennis-Brown and J. B. Pennybacker. — p. 311.

Pick's Disease.—The literature on this disease is briefly reviewed and a case is described clinically and pathologically. The authors conclude that the condition is a specific

type of dementia. Clinically there are psychical inertia, stereotypy, and disturbances of general and ethical judgment, and a special feature is that memory is not lost but cannot be used in the formation of new ideational material. Pathologically there is atrophy of the frontal, temporal, and insular areas, so that the encephalogram is useful in diagnosis. The degenerating nerve cells show argentophil bodies, and there is intense gliosis.

Tonic Foot Response.—This phenomenon consists in a flexion and adduction movement of the toes associated with a curving of the foot elicited by a touch or pressure stimulus to the sole of the ball of the foot. It is a pathological phenomenon, and is considered one of the earliest signs of a lesion of the frontal lobe. Cases showing the sign are described and its explanation is discussed.

Fibrillation and Fasciculation in Muscle.—After a detailed review of physiological observations on muscular function the authors record the results of a clinical and electromyographic study of involuntary fibrillary twitching in muscle. The following phenomena are described: fine fibrillation in a muscle completely deprived of its nerve supply; the fasciculation of muscle in motor neurone disease; fascicular tremor observable in patients with wasting diseases; myokymia; post-paralytic facial contracture; and myoidema. The possible nature of these phenomena as revealed by the electromyographic findings in the muscle is discussed.

Bruns Beiträge zur Klinischen Chirurgie

Berlin vol. 168 October 12, 1938

- Relationship of Bone and Joint Tuberculosis to Pulmonary Tuberculosis. H. Frank.—p. 337.
Injuries of Biliary and Pancreatic Duct during Resection of Duodenal Ulcers. M. Paraskevas.—p. 350.
Chloride Excretion in Bile in Hypochlorhaemic Uraemia after Operations on Biliary Passages. W. Nell.—p. 359.
Ointment-Plaster-of-Paris Bandage in Treatment of Wounds. G. Burgass.—p. 384.
Accidental Amputations of Extremities. H. Angerer.—p. 391.
Question of Congenital Origin of Lateral Cervical Fistulae and Cysts. J. Marx.—p. 435.
Excretion of Prolan A before and after Cancer Operations. K. Katz.—p. 448.
Question of Extra- and Intra-splenic Aneurysms of Splenic Artery. G. W. Günther.—p. 457.
Endo-urethral Resection of Prostatic Carcinoma. H. Wille-Naumkauff.—p. 467.

Bulletin of the New York Academy of Medicine

New York vol. 14 August, 1938

- *Treatment of Haemolytic Streptococcus Infections and Newer Applications of Sulphanilamide. R. Ottenberg.—p. 453.
Modern Treatment of Diabetes. J. R. Scott.—p. 480.
Hicromyos Muenzer and Other Fifteenth Century Bibliophiles. E. P. Goldschmidt.—p. 491.

Haemolytic Streptococcus Infections.—This is a review article based on a survey of some ninety papers, full references to which are given. It discusses classification, the "five known toxins" of the haemolytic streptococcus, and the treatment of infections by serum and in particular by chemotherapy.

New York vol. 14 September, 1938

- *Experimental Hypertension induced by Renal Ischaemia. H. Goldblatt.—p. 523.
Endoscopic Prostatic Resection. J. F. McCarthy.—p. 554.
Specific Prevention of Diphtheria. J. G. Fitzgerald, D. T. Fraser, N. E. McKinnon, and M. A. Ross.—p. 566.

Experimental Hypertension.—Goldblatt's review of the experimental hypertension which may be induced by renal ischaemia is based on a survey of some 200 papers. Of particular interest is a tabular classification of the procedures undertaken from 1879 onwards in investigating experimentally the possible renal origin of hypertension. The author concludes: "All of the investigations that have been directed toward the study of the pathogenesis of this type of experimental hypertension have yielded results that indicate the existence of a humoral mechanism of renal origin that is

responsible for the vascular constriction and consequent increased peripheral resistance which produces the elevation of the blood pressure."

New York vol. 14 October, 1938

- Studies in Cortical Representation of Somatic Sensibility. P. Bard.—p. 535.
Present Status of Gynaecological Endocrine Therapy. H. C. Taylor, jun.—p. 608.
Pathological Responses to Vitamin Deficiencies. G. Daldorf.—p. 635.
Vitamin B₁ Supply in Relation to Human Needs. V. R. Williams.—p. 641.

Journal of Bone and Joint Surgery

Boston vol. 23 October, 1938

- Treatment of Scoliosis by Wedging Jacket and Spine Fusion. A. D. Smith, F. L. Butte, and A. B. Ferguson.—p. 825.
Correction of Extreme Flexion Contracture of Knee-joint. S. L. Hux—p. 839.
*Sciatic Pain of Unknown Origin: Effective Method of Treatment. G. E. Haggart.—p. 851.
Scalenus Anterior Muscle in Relation to Shoulder and Arm Pain. J. A. Freiberg.—p. 860.
Giant-cell Tumours of Bone. B. L. Coley and N. L. Hizinbotham.—p. 870.
Mechanics of Formation of "Secondary Acetabulum" in Congenital Dislocation of Hip. A. Farkas.—p. 885.
Primary Haemangioma Involving Bones of Extremities. C. F. Geschickter and J. H. Maseritz.—p. 888.
Bone Block for Painful Hips. J. B. L'Evesque.—p. 901.
Healing of Joint Fractures: Clinical and Experimental Study. K. O. Halteman.—p. 912.
Operative Technique for Hallux Valgus. M. A. Levine.—p. 923.
Recurrent Anterior Dislocation of Shoulder: Eleven Cases operated on by Method of Roberts. B. S. Burnet.—p. 926.
*Results of Treatment of Osteogenic Sarcoma. H. W. Meyerding.—p. 933.
Roentgenotherapy in Acute Osteoporosis: New Type of Treatment. E. B. Mumford.—p. 949.
Review of Campaign for Establishment of Surgical Principles in Treatment of Fracture of Neck of Femur. R. Whitman.—p. 960.
Clinical and Anatomical Study of Semimembranosus Bursa in Relation to Popliteal Cyst. P. D. Wilson, A. L. Eyre-Brook, and J. D. Francis.—p. 963.
Gas-Bacillus Infection as Complication of Fractures. D. M. Boworth.—p. 985.
*Backache: Manipulative Treatment without Anaesthesia. F. A. Jostes.—p. 990.
Adamantinoma of Tibia: Two Cases. B. Wolfert and D. Sloane.—p. 1011.
Ewing's Tumour (Endothelial Myeloma): Unusual Case Report with Necropsy. W. C. Campbell and F. Hamilton.—p. 1019.
Superior Pulmonary Sucus Tumour simulating Subacromial Bursa. L. Nathanson, L. A. Hoelberg, and R. Perlman.—p. 1034.
Primary Endothelioma (Ewing's Tumour) of Sacrum. A. E. Slav and A. M. Reichtman.—p. 1034.
Hodgkin's Disease of Bones. H. S. Lieberman.—p. 1039.
Opera-glass Hand in Chronic Arthritis: *La Main en Lorgnette* of Marie and Leri. L. S. Nelson.—p. 1045.
Turnbuckle Lig for Wedging Jackets for Scoliosis. N. J. Giannettas.—p. 1050.
Two Rare Dislocations of Metatarsals at Lisfranc's Joint. E. R. Easton.—p. 1053.
Wire Tightener. P. G. Shifrin.—p. 1057.
Acute *Micrococcus catarrhalis* Arthritis. W. M. Solomon and H. R. Tuckwell.—p. 1061.

Sciatic Pain of Unknown Origin.—For those cases of sciatica in which the aetiology is obscure the author has used perineural injections of 1 per cent. novocain with considerable success. This treatment may be combined with traction applied to the lower extremity, or low-back manipulation under general anaesthesia.

Osteogenic Sarcoma.—This paper deals with the results obtained at the Mayo Clinic during the years 1909 to 1934 in the treatment of cases of osteogenic sarcoma. A definite relationship can be established between the grade of malignancy as determined by the pathologist and the survival rate. Grade 1 cases had a five-year survival rate of 60 per cent., while only 11.1 per cent. of Grade 4 patients were alive after five years. Of 158 patients treated by any method, 23.4 per cent. lived for five years or more.

Backache.—A large series of patients suffering from low-back pain have been subjected to manipulative treatment without anaesthesia. Careful investigation of each case is necessary in order to eliminate gross lesions which would obviously constitute a contraindication to any manipulation. Cases of acute sprain and those of chronic trauma produced by faulty posture are greatly benefited by this treatment.

Journal of Immunology

Baltimore vol. 35 August, 1938

- Group-specific Agglutinins in Rabbit Serum for Human Cells. IV. Immune Group-specific Agglutinins. S. Battey, C. A. Stuart, and J. K. M. Wheeler—p. 74
- Incidence of Agglutinins for Paratyphoid Bacteria in Serum from Human Beings and from Animals. H. T. Seely, L. Schwichtenberg, and M. Schwichtenberg—p. 81
- Quantitative Studies of Reaction of Complement Fixation with Tuberculous Immune Serum and Antigen. A. Wadsworth, I. Mahner, and E. Mahner—p. 91
- Quantitative Studies of Reaction of Complement Fixation with Syphilitic Serum and Tissue Extract. A. Wadsworth, I. Mahner, and E. Mahner—p. 105
- Rapid Method for Standardization of Antimicrobiological Horse Serum Type I. P. A. Little—p. 117
- Further Observations on Toxic Properties of Haemolytic Streptococci. J. M. Coffey—p. 121
- Studies of Staphylococcal Toxin: Toxic-red-cell Reaction. B. S. Levine—p. 131
- Study of Strains of Pneumococci Immunologically Closely Related to Both Type XI and Type XVI Pneumococci. M. Finland and J. W. Brown—p. 141

Dysentery Agglutinins.—Many specimens of serum obtained for the Wassermann test or from medical students in a district where dysentery is rare were examined for dysentery agglutinins. In no case were Shiga or Sonne suspensions agglutinated at a greater serum dilution than 1 in 20, but with Flexner suspensions more than half the specimens were positive up to 1 in 40 and about a fifth at 1 in 160. Similar results were obtained in a small series of tests with blood obtained from the umbilical cord at birth. There was no significant difference in the proportion of positive results between males and females. These findings make it appear doubtful whether the presence of agglutinins for *Bact. dysenteriae* Flexner is evidence of previous infection by this organism. Sonne suspensions are almost invariably agglutinated by ox and sheep blood, less often by blood from rabbits and guinea-pigs.

Journal of Laboratory and Clinical Medicine

St. Louis vol. 23 August, 1938

- Congenital Cystic Lung Disease. D. B. Cole and W. L. Nafis—p. 1111
- Normal Plasma Phosphate Values (Henric-Kay Method). A. S. Mills and S. Hurwitz—p. 1117
- Pigeon Reticulocytes: Uncertain Index of Haemopoietic Activity. S. Nites—p. 1119
- Serum Potassium in Hyperthyroidism. S. Pedersen, W. G. Maddock, and S. Winslow—p. 1123
- Reaction of Urobilinogen with *p*-dimethylaminobenzaldehyde. H. N. Naumann—p. 1127
- Differential Diagnosis of Multiple Myeloma and Hyperparathyroidism by Biopsy. W. W. Sager, R. M. Chovver, and G. L. Welter—p. 1132
- Clinical Significance of Eosinophilia. R. C. Kirk—p. 1137
- Changes in Colloidal Gold Curve of Normal and Pathological Spinal Fluids after Ultra-violet Irradiation. J. Warren—p. 1146
- Present Status of Staphylococcus Food Poisoning Problem. T. C. Grubb—p. 1150
- Effect upon Sodium Chloride Crystal Growth of Contamination with Normal and Abnormal Cerebrospinal Fluids. I. Finkelman—p. 1154
- Sensitization in Convulsive States, with Special Reference to Heterophile Antigen: J. Heterophile Haemolysis. E. W. Lavelle—p. 1160
- Comparative Study of Selective Media for Isolation of Typhoid Bacilli from Stool Specimens. A. A. Hajna and C. A. Perry—p. 1185
- Apparatus for Opening Keidel Tubes. R. A. Greene and E. L. Breazeale—p. 1193
- Simple Procedure for Diagnostic Culture of Tubercle Bacilli. H. J. Correr—p. 1195
- Portable Air-losing Metabolimeter. C. V. Perrill and H. C. Sanderson—p. 1202
- Method of Collecting Small Blood Specimens. J. A. V. Davies—p. 1206
- Simple Method for Qualitative Determination of Urinary Protein. J. E. Smadef—p. 1209
- Use of Swabs Impregnated with Acetic Fluid in Laboratory Diagnosis of Gonorrhoea. R. A. Greene and E. L. Breazeale—p. 1211
- Relation of Vitamin C to Schick Test in Guinea-pigs. L. A. Weed and R. Fenlon—p. 1213
- Practical Method of Staining *Treponema pallidum* by Low Surface Tension Stain. R. D. Haire—p. 1215

Sensitization in Convulsive States.—The presence of heterophile antibody was investigated in the blood of thirty-six insane epileptics by several techniques, the results of which are given in detail. These results do not appear conclusive, but, together with the fact that attacks seem to be pre-

cipitated by certain foods and that the antibody content of the blood is reduced after an attack, they are considered to indicate that sensitization to foreign animal protein plays a part in this disease.

Journal of Urology

Baltimore vol. 45 July 1938

- Surgery of Horseshoe Kidney with Post-aortic Infractus. W. D. Jaiman—p. 1
- Simple Solitary Renal Cyst. L. J. Robinson and W. O. Wilder—p. 10
- His Secretary Urography replaced Retrograde Pyelography in Diagnosis of Renal Tuberculosis? J. L. Emmett and W. F. Branch—p. 15
- New Method of Instrumental Dilatation of Ureter. J. E. Doss—p. 24
- Nephrosarcoma Testis. P. F. Donohue—p. 27
- Similarity of Interstitial Cystitis (Hunner Ulcer) and Lupus Erythematosus. G. M. Teter—p. 37
- Congenital Absence of Cervical Urethra. E. S. Goodyear—p. 52
- Cardiosclerosis complicating Prostatism. W. S. Middleton—p. 66
- Section of Alcohol by Genital Tract. J. J. Farrell—p. 62
- Tuberculosis of Male Genital Tract. J. G. Menzies and J. I. Priestley—p. 66
- Future of Unilaterally Nephrectomized Patient. C. L. Deming—p. 74
- Cystoscopic Removal of Large Ureteral Calculi. E. P. Alvey—p. 81
- Stricture of Human Ureter. N. F. Ockerblom—p. 101
- Obstructions at Vaginal Neck in Children. O. Grant—p. 114
- Clinical Data concerning Prostatic Resection. G. J. Thompson—p. 121
- Utravastation from Lower Urinary Tract. J. J. Raveland—p. 129
- Hormonal Treatment of Benign Prostatic Hyperplasia. H. W. E. Walther and R. M. Wilhoobby—p. 135
- Influence of Anterior-posterior Principle on External Genitalia of Young Boys. W. O. Thompson, N. J. Hecker, and A. D. Bevan—p. 144
- Clinical Experiments with Use of Male Sex Hormones. I. Testosterone Propionate in Hypogonadism. S. A. Vest, jun. and J. E. Howard—p. 144
- Recurrent Renal Lithiasis. C. C. Higgins—p. 154
- Sodium Bicarbonate Therapy in Acidosis of Renal Origin. R. Deakin—p. 191
- Orchitis and Epididymitis due to Undulant Fever. A. G. Isaac—p. 201
- Local Repair following Transurethral Prostatic Resection. Its Role in Clinical Events associated with this Operation. R. H. Flocks—p. 205
- Use of Sulphanilamide in Genitourinary Infections. C. McMartin, W. H. Schmitz, and W. J. McMartin—p. 233
- Surgical Procedure for Correction of Hypoparathyroidism. C. K. Smith—p. 239
- Cystometric Study of Cystoceles and Urethroceles. D. K. Rose—p. 249
- Impaction of Ureteral Stump. R. A. Hennessy—p. 262

Surgery of Human Ureter.—The author reviews the range of modern ureteral surgery, and describes the methods of approach for the various operations upon each section of the ureter; also briefly referred to are transurethral cystoscopic operations upon the ureter. The author warns against the too energetic use of ingenious contrivances for grasping ureteral stones and pulling them down into the bladder.

Recurrent Renal Lithiasis.—Higgins refers to the wide diversity of opinion in published reports on the frequency of recurrence of renal calculi. He reviews the factors found to be operative in his series of 100 cases: age, sex, race, site of recurrence, time of recurrence, concurrent infection, focal infection elsewhere in the body, and the significance of vitamin A deficiency. By the application of prophylactic measures, directed especially to the correction of any vitamin A deficiency, his recurrence rate has been reduced from 16.2 per cent. to 4.7 per cent.

Local Repair after Transurethral Prostatic Resection.—The process of healing following prostatic resection with the McCarthy resectoscope is described, as are subsequent changes in contour and structure. The author discusses also various factors in relation to the technique of the operation, occurrence of haemorrhage, and recurrence of bladder-neck obstruction, and the incidence of incontinence and post-operative infection.

New Orleans Medical and Surgical Journal

New Orleans vol. 31 October, 1938

- Insulin Allergy: Report of Severe Case with Successful Desensitization. A. H. Herold—p. 163
- Causes of Blindness in Louisiana. Review of 700 Cases. H. F. Brewster—p. 166
- Eye and Ear in Industrial Social Life. D. Bean—p. 173
- Symptoms, Diagnosis, and Treatment of Carcinoma of Rectum and Sigmoid Colon. R. C. Garnett and L. L. Davidge—p. 177
- Nephrosis of Testes. F. L. Loria—p. 187
- Banana and Banana-powder Therapy in Dermatological Diseases of Infants and Young Children. E. A. Scofield—p. 192
- Urinary Infections and their Management. J. B. Reagon—p. 196

Public Health Reports of the U.S.A.

Washington vol. 53 September 16, 1938

- *Incidence of Rheumatic Heart Disease among College Students in United States: Based on Replies to Questionary. O. F. Hedley.—p. 1635.
- Susceptibility of Mice to Spontaneous Induced, and Transplantable Tumours: Comparative Study of Eight Strains. H. B. Andervont.—p. 1647.
- Incidence of Induced Subcutaneous and Pulmonary Tumours and Spontaneous Mammary Tumours in Hybrid Mice. H. B. Andervont.—p. 1665.
- Deaths during Week ended August 27, 1938: Deaths in Group of Large Cities in United States; Death Claims reported by Insurance Companies.—p. 1671.
- Infectious Disease Returns: United States, Foreign, and Insular.—p. 1672.

Rheumatic Heart Disease in Students.—The results of an investigation embracing 104,163 students in eighty-six colleges and universities are collated and discussed, especially in relation to pulmonary tuberculosis. All forms of heart disease from valvular lesions to adherent pericardium were considered. The case rate among women students was higher than that among men—14.9 per 1,000 as against 9.5. In contradistinction to the adult type of pulmonary tuberculosis, the reported incidence of heart affections was lower in institutions with well-organized health services. Emphasis is laid upon the necessity for careful and individual examination, as there is no "mass method" of diagnosis comparable to tuberculin testing and screening as in tuberculosis. The problem is not confined to mere case-finding, but extends to correct evaluation of the physical signs, and involves ascertainment of the prognosis so far as it affects the career of the students in college and in after-life.

Washington vol. 53 September 23, 1938

- Studies on Dental Caries: VII. Sex Differences in Dental Caries Experience of Elementary School Children. H. Klein and C. E. Palmer.—p. 1685.
- *Studies of Sewage Purification: VII. Biochemical Oxidation by Activated Sludge. C. C. Ruehlhoff, P. D. McNamee, and C. T. Butterfield.—p. 1690.
- Hospital Facilities in United States.—p. 1719.
- Deaths during Week ended September 3, 1938: Deaths in Group of Large Cities in United States; Death Claims reported by Insurance Companies.—p. 1720.
- Infectious Disease Returns: United States, Foreign, and Insular.—p. 1721.

Sewage Purification.—This is an elaborate discussion of the chemical, biological, and mathematical factors involved in sewage purification by activated sludge methods. A collection of postulates, axioms, and guide-rules in relation to efficient working of the process is given in the summary. The general result of the investigation goes to show that there is no fixed optimum of in-fed activated sludge for sewage plants in general, but each plant has its own characteristic. Upon the correct determination of this factor depends the efficiency of the installation.

Washington vol. 53 September 30, 1938

- Prevalence of Communicable Diseases in United States: August 14 to September 10, 1938.—p. 1733.
- *Motetted Inamel Survey of Bauxite, Arkansas, Ten Years after Change in Common Water Supply. H. I. Dean, I. S. McKay, and E. Elvove.—p. 1736.
- Deaths during Week ended September 10, 1938: Deaths in Group of Large Cities in United States; Death Claims reported by Insurance Companies.—p. 1738.
- Infectious Disease Returns: United States, Foreign, and Insular.—p. 1739.

Water Supply and Fluorosis of Teeth.—The production of an unusually severe type of endemic fluorosis (mottled enamel) of the teeth at Bauxite, Arkansas, was arrested when a change was made from the former water supply, which contained a comparatively large amount of fluorides, to a new one with a low fluoride content. This is the second instance in the United States where a change from an otherwise satisfactory water supply has been made on account of its disastrous effect on the teeth of children, the other being at Oakley, Idaho. The article is accompanied by a dozen photographic plates illustrating the dentures of affected children.

Washington vol. 53 October 7, 1938

- Report of Two Cases of Rocky Mountain Spotted Fever in Ohio. M. L. Cooper, M. A. Kutzner, S. I. Wilson, and R. E. Dyer.—p. 1775.
- *Simple Method of Concentrating Vitamin E. C. G. Mackenzie, J. B. Mackenzie, and L. V. McCollum.—p. 1774.

- City Health Officers, 1938. Directory of those in Cities of 10,000 or more Population.—p. 1783.
- Deaths during Week ended September 17, 1938: Deaths in Group of Large Cities in United States; Death Claims reported by Insurance Companies.—p. 1800.
- Infectious Disease Returns: United States, Foreign, and Insular.—p. 1801.

Concentration of Vitamin E.—A vitamin E concentrate, potent in doses of from 3 to 7.5 mg., has been prepared by the elimination of substances insoluble in methanol at dry ice temperature from the unsaponifiable fraction of wheat-germ oil. The technique of preparation and the method of assay are described.

Strahlentherapie

Berlin vol. 63 October, 1938 Heft 2

- Dosimetry in Ultra-violet Ray Therapy. W. Friedrich.—p. 225.
- Dosimetry in Ultra-violet Ray Therapy: Erythema and Pigmentation Tests. M. Hensecke and R. Schulze.—p. 236.
- Relationship between Surgery and Radiotherapy in Malignant Conditions from Point of View of Surgeon. F. Sauerbruch and K. Middeldorpf.—p. 250.
- Relationship between Surgery and Radiotherapy in Malignant Conditions from Point of View of Radiotherapist. H. R. Schinz.—p. 268.
- Technique and Method of Irradiation of Oesophageal Carcinoma: Contribution to Problem of Prolonged Rhythmic Irradiation of Cancer. A. Adam.—p. 316.
- *Evolution of Radiotherapy of Several Generalized Affections during Last Ten Years. R. Gilbert.—p. 385.
- Radiotherapy of Chronic Tonsillitis. P. Hers.—p. 393.
- Radiotherapy of Sinusitis. J. Popp.—p. 399.

Radiotherapy of Generalized Affections.—The therapeutic value of "total" irradiation (panteleradiotherapy) in leukaemias, erythrocythaemia, and lymphogranulomatosis varies. So far the best results have been obtained in the leukaemias, particularly in the myeloid forms, and in erythrocythaemia. However, apart from the last affection, the results of total irradiation are not yet such as to justify the abandonment of the older methods of regional irradiation; on the other hand, total irradiation has proved successful in some cases in which regional irradiation had ceased to have any effect. The method is not without dangers, and individual sensitivity to total irradiation varies greatly.

Surgery, Gynecology and Obstetrics

Chicago vol. 67 September, 1938

- *Conization of Cervix. N. F. Miller and O. E. Todd.—p. 265.
- Tuberculosis Peritonitis: Analysis of 257 Cases. J. G. Stubenhold and J. Spies.—p. 269.
- Urinary Stress Incontinence: Anatomical Defect found and Rational Method for its Treatment. J. W. Davies.—p. 273.
- Clinical and Radiological Data associated with Congenital and Acquired Small Kidney. W. F. Braasch and J. W. Merriks.—p. 281.
- Investigation of Surgical Anatomy of Ligaments of Knee-joint. T. Horvath.—p. 287.
- Behaviour of Haemoglobin after Blood Transfusion. W. L. Sibley and J. S. Lundy.—p. 293.
- X-ray Diagnosis of Erythroblastosis. L. M. Hellman and F. C. Irvine.—p. 295.
- Theca Interna Cone and its Role in Ovulation. E. O. Strassmann.—p. 299.
- Aetiology of Extra-uterine Pregnancy. A. J. Osakima-Rojdestvenskaia.—p. 303.
- Surgery of Stomach and Duodenum: Procedures for Peptic Ulcer and Gastric Cancer. E. C. Cutler and R. Zollinger.—p. 318.
- *Ankylosis of Temporo-mandibular Joint. V. H. Kazanjian.—p. 333.
- Injection of Right Stellate Ganglion with Alcohol in Paroxysmal Tachycardia. E. P. Coleman and D. A. Bennett.—p. 349.
- Simple Fixation Guide for Fractured Hips. D. Sloane.—p. 354.
- Fracture of Femoral Neck: Rapid and Accurate Method of Internal Fixation using a Flanged Metallic Nail. E. A. Doole.—p. 356.
- Problems in Surgery of Thyroid Gland. G. Crile.—p. 363.

Conization of Cervix.—A complete review is given of the technique and results of, and indications for conization of the cervix. It is considered that electrosurgical conization is the best method of treating stubborn chronic cervicitis in women past childbearing age. Particulars are given of the results obtained in a series of 899 cases.

Temporo-mandibular Ankylosis.—In this article a clinical study is presented of thirty-three cases of chronic ankylosis of the jaw. The aetiology and pathology are fully discussed and methods of treatment are described and fully illustrated. A detailed report is given of ten cases which present fair examples of the more unusual problems met with in this condition.

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THE LANCET, October 29, 1938. Pages 983-987

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UNIVERSITY OF LONDON.

The Senate invite applications for the UNIVERSITY CHAIR OF MEDICINE tenable at UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL. Salary £2,000 a year.

Applications (twelve copies) must be received not later than first post on January 16th, 1939, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars should be obtained.

UNIVERSITY COLLEGE HOSPITAL, GOWER STREET, W.C.1.

Applications are invited for the post of whole-time ASSISTANT to the DEPARTMENT of RADIO-THERAPY. Some clinical experience essential. Commencing salary £350 per annum, rising by annual increments of £50 to £500 per annum. The successful applicant to commence duties on February 6th, 1939.

Applications must reach the Secretary of the Hospital not later than mid-day on Monday, December 19th, 1938.

WOMEN'S HOSPITAL, MELBOURNE.

Date for receipt of applications for PATHOLOGIST has been postponed until December 5th, 1938. Salary £1,000 per annum. Further particulars from the Secretary, Universities Bureau of the British Empire, 88a, Gower Street, London, W.C.1.

THE GUEST HOSPITAL, DUDLEY. (General Hospital, 139 Beds.)

The Resident Staff consists of a Resident Surgical Officer and Three House Surgeons.

HOUSE SURGEON (male) required. Salary at the rate of £150 per annum, with furnished apartments, board and laundry. Candidates must be fully qualified and registered.

Applications, stating age, qualifications and experience, accompanied by copies of testimonials, to be sent to the undersigned.

II RAYMOND HURST.

House Governor and Secretary

November 21st, 1938.

SALFORD ROYAL HOSPITAL. (256 Beds.)

Applications are invited from registered candidates (male) for two HOUSE SURGEONS for six months from January 1st next. Salary £125 per annum.

Forms of application, obtainable from the undersigned, must be delivered on or before December 6th.

B. Ord. of the Board.

II. H. SHILLSWELL.

General Superintendent and Secretary.

November 21st 1938.

NOTICE OF ELECTION. MIDWIVES (IRELAND) ACT, 1918

1. Notice is hereby given, pursuant to the Midwives (Ireland) Act, 1918, as amended and adapted by the Central Midwives Board Order, 1923, and the Regulations under the said Act, that the Returning Officer will, at the Offices of the Board, 33, St. Stephen's Green, Dublin, on Friday, 16th day of December now next ensuing, between the hours of 11 a.m. and 1 p.m., proceed to the nomination, and, if there is no opposition to the election of FOUR MEMBERS, of the Central Midwives Board.

Every registered medical practitioner is qualified to be nominated as a candidate.

Each candidate must be nominated by a separate nomination paper.

Every registered medical practitioner resident in Eire is entitled to take part in nominating four candidates, but no more.

Every nomination paper must state the names, address, and qualification or qualifications of the candidate nominated; it must be signed by not less than six registered medical practitioners resident in Eire, as nominating such candidate, and the address and registered qualification or qualifications of each medical practitioner so signing must be appended to his signature.

Every nomination paper must contain a declaration in writing, signed by the person nominated, acknowledging that such person consents to be nominated.

2. Forms of nomination paper may be obtained at the Central Midwives Board Offices, 33, St. Stephen's Green, Dublin, between the hours of 11 a.m. and 1 p.m. on any day (not being a Sunday or public holiday) before the said 16th day of December, 1938.

Any application for a nomination paper is to be sent by post must be accompanied by a prepaid addressed envelope.

Every nomination paper must be delivered to the Returning Officer by post or otherwise, either at the place above appointed for the purpose between the hours of 11 a.m. and 1 p.m. on the 16th day of December, or at any place at which the Returning Officer may be found at any time on any day before the said 16th day of December, 1938.

In the event of the election being contested, voting papers will be issued to the persons entitled to vote thereat as soon as practicable after the said 16th day of December, and the day for the counting of the votes will be the 18th day of January, 1939.

Votes cast by voting papers received by the Returning Officer on or after the said 18th day of January will not be counted.

(Signed) EDWARD COEY BIGGER, Returning Officer.

LONDON COUNTY COUNCIL

Applications invited from Medical Practitioners of at least one year's standing to undesignated positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Grade D) —Salary £350-£425-£425, with board, lodgings and washing.

(a) ARCHWAY HOSPITAL, Archway Road, Highgate, N.19.—Medical duties, experience in anaesthetics desirable.

(b) ST. ALFEGE'S HOSPITAL, 48, Vanbrugh Hill, Greenwich, S.E.10.—Surgical duties.

(c) ST. MARY ABBOTS HOSPITAL, Marlborough Road, Kensington, W.8.—Surgical duties; fracture experience essential.

ASSISTANT MEDICAL OFFICERS (Grade III) —Salary £250 a year, together with board, lodgings and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(d) BETHNAL GREEN HOSPITAL, Cambridge Road, E.2.—Medical duties, experience in diseases of child desirable.

(e) HEMSTEAD HOSPITAL, Hemstead Street, Essex.—Anaesthetics desirable.

*No accommodation for a woman.

(f) LAMBETH HOSPITAL, Brook Drive, Kennington Road, S.E.11.—Duties mainly medical; experience in obstetrics desirable.

(g) ST. GEORGE-IN-THE-EAST HOSPITAL, Raine Street, Wapping, E.1.—Medical duties, experience in anaesthetics desirable.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, 2, County Hall, S.W.1, returnable by December 5th.

Canvassing disqualified.

LONDON COUNTY COUNCIL

Applications invited from registered medical practitioners of at least one year's standing, resident in the neighbourhood, for appointment as VISITING MEDICAL OFFICER (part-time) at Princess Mary's Convalescent Home, Maryvale, S.W.15, a year.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, 2, County Hall, S.W.1, returnable by December 5th.

Canvassing disqualified.

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry at the end of March, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list. Marriage Allowance is paid under the same conditions as for other Naval Officers.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1939.

HULL CORPORATION HEALTH DEPARTMENT.

DEPUTY MEDICAL SUPERINTENDENT CITY HOSPITALS AND SANATORIUM

Applications are invited from duly qualified unmarried medical men, under the age of 40 years and of not less than three years' standing in their profession, for the above-mentioned residential appointment at the Tuberculosis Sanatorium, Cottingham.

Salary £450 per annum, rising, subject to satisfactory service, by annual increments of £25 to £550, plus residential emoluments valued for superannuation purposes at £150 per annum.

Candidates must hold a registered degree or diploma in State Medicine or Public Health. Residential sanatorium experience essential; infectious diseases hospital experience desirable.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on forms to be obtained from the undersigned, are returnable not later than 10 a.m. on Thursday, December 1st, 1938.

NICOLAS GEBBIE, M.D.,
Health Department, Medical Officer of Health
Guildhall, Hull
November 1938

HULL CORPORATION HEALTH DEPARTMENT.

ANLABY ROAD INSTITUTION (HOSPITAL) (550 Beds.)

ASSISTANT MEDICAL OFFICER

Applications are invited for the above appointment from registered medical practitioners, of either sex, under the age of 40 years.

Salary £350 per annum, rising by annual increments of £25 to £450 per annum, together with an allowance at the rate of £150 per annum for board and residence outside the hospital.

The hospital is equipped with modern X-ray and Radium Departments.

The appointment will be designated under the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on forms to be obtained from the undersigned, are returnable not later than 10 a.m. on Monday, December 5th, 1938.

NICOLAS GEBBIE, M.D.,
Health Department, Medical Officer of Health
Guildhall, Hull
November 14th, 1938.

BOROUGH OF SALE MEDICAL OFFICER OF HEALTH

The Council for the Borough of Sale invite applications from gentlemen holding the necessary qualifications for the position of Medical Officer of Health for their District.

The duties appertaining to the office will be in all respects, those set out in Article 17 of the Sanitary Officers (Outside London) Regulations, 1935, and applicants should be registered in the Medical Register as holders of Diploma in Sanitary Science, Public Health, or State Medicine.

The successful applicant will be required to devote the whole of his time to the duties of the office, which will include attendance at the County Child Welfare Centre, the fees in respect of which will be received by and paid into the funds of the Council, will be restricted from engaging in private practice and will be required to enter into an agreement with the Corporation.

The inclusive salary will be at the rate of £800 per annum, rising by annual increments of £25 to a maximum of £900 per annum, together with a car allowance of £50 per annum.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, accompanied by copies of three recent testimonials, should be addressed to the undersigned, and should reach him not later than Monday, December 5th, 1938.

Town Hall, I. W. L. FOULKES, Town Clerk
- Sale
November 15th, 1938

CORNWALL COUNTY COUNCIL COUNTY MEDICAL OFFICER

Applications are invited for the appointment of County Medical Officer of Health. Candidates must be qualified, in accordance with the Local Government Act, 1933, and the Regulations thereunder to carry out the statutory duties of the office and such other duties as may be prescribed by the Minister of Health or the County Council.

Inclusive salary £1,200 a year, with travelling allowance on the County scale.

Applications, stating age, qualifications and experience, with copies of three recent testimonials, should reach the undersigned by December 6th, 1938.
County Hall, T. A. H. SHEERS, Clerk of the County Council
Truro
November 15th, 1938.

COUNTY BOROUGH OF HALIFAX THE HALIFAX GENERAL HOSPITAL (1405 Beds)

JUNIOR RESIDENT MEDICAL OFFICER (Male)

Applications are invited from duly qualified registered medical practitioners for the above appointment for duties mainly in the surgical wards.

Salary £250 per annum, together with board, residence and laundry. The appointment will be for a term not exceeding twelve months and is not renewable.

Forms of application and conditions of appointment can be obtained from the Medical Officer of Health, Powell Street, Halifax.

Completed applications, together with copies of not more than three recent testimonials, endorsed "Junior Resident Medical Officer," should be forwarded to the undersigned as early as possible.

Candidates, either directly or indirectly, will be a disqualification.

The Council has not adopted a superannuation scheme.
Town Hall, PERCY SAUNDERS, Town Clerk
Halifax
November 15th, 1938.

WEST SUFFOLK COUNTY COUNCIL ASSISTANT COUNTY MEDICAL OFFICER AND ASSISTANT SCHOOL MEDICAL OFFICER

Applications are invited (from men only) for the above whole-time appointment, which includes duties in School Medical Inspection, Maternity and Child Welfare, Tuberculosis, Venereal Diseases, etc., work. Applicants must be registered Medical Practitioners and not exceed 35 years of age, holding the Diploma in Public Health. Salary £500 per annum, rising by annual increments of £25 to a maximum of £700, plus travelling allowance.

Particulars of appointment and forms of application may be obtained from the undersigned, by whom applications, accompanied by copies of not more than three recent testimonials, must be received not later than December 5th, 1938. Candidates in any form, direct or indirect, will be disqualified.

L. G. H. MUNSEY, Clerk of the County Council.
Shire Hall, Bury St Edmunds,
November 19th, 1938.

MIDDLESBROUGH EDUCATION COMMITTEE

APPOINTMENT OF ASSISTANT SCHOOL MEDICAL OFFICER

Applications are invited from duly qualified men for a position as Assistant School Medical Officer in connexion with the medical inspection and treatment of school children, and such other duties as may be required by the Education Committee. The person appointed will be generally responsible to the School Medical Officer.

Commencing salary £500 per annum (provided the successful candidate has had not less than three years' postgraduate experience), rising by annual increments of £25 to £700 per annum. The Committee may at their discretion take into account previous experience as an Assistant School Medical Officer in determining the amount of the commencing salary. The successful candidate will be required to devote his whole time to the duties of the office. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass satisfactorily a medical examination. The appointment will be terminable by two calendar months' notice on either side.

Forms of application may be obtained on application to the Director of Education, Education Offices, Woodlands Road, Middlesbrough, to whom completed forms should be returned not later than Monday, December 12th, 1938.

Canvassing in any form will disqualify.
PRESTON KITCHEN.
 Town Clerk's Office, Town Clerk,
 Municipal Buildings, Middlesbrough.
 November 19th 1938

CITY OF BIRMINGHAM EDUCATION COMMITTEE

APPOINTMENT OF ASSISTANT SCHOOL MEDICAL OFFICER.

Required, to begin duty as soon as possible, an Assistant School Medical Officer (male or female). Candidates must have had at least three years' experience in the practice of their profession subsequent to obtaining a registrable qualification. Salary according to "Askwith" scale (£500 to £700 by annual increments of £25). In fixing commencing salary previous service in Class II of "Askwith" scale may be taken into account £10 per annum travelling expenses allowed.

Forms of application (to be returned not later than first post on Monday, December 5th), together with further information, obtainable from the undersigned on receipt of stamped, addressed foolscap envelope. Communications should be endorsed "Assistant School Medical Officer." Canvassing will disqualify.

P. D. INNES,
 Chief Education Officer

Education Office,
 Margaret Street,
 Birmingham, 3
 November 14th 1938

COUNTY BOROUGH OF DERBY.

DERBY CITY HOSPITAL.

ASSISTANT RESIDENT MEDICAL OFFICER

Applications are invited for the post of Assistant Resident Medical Officer (male) at the above Hospital of 300 beds. This Hospital provides treatment for acute medical and surgical cases, obstetrics and children's diseases etc.

Candidates must be registered in medicine and surgery.

The appointment is for a period of six months, two months' notice of termination of duties may be given on either side. The successful applicant will be required to commence duties on January 1st, 1939.

Salary at the rate of £200 per annum, with board and residence.

Applications, stating age, experience, and accompanied by three recent testimonials, should be sent to the undersigned as soon as possible.

GORDON LILICO,

Medical Officer of Health

Health Department,
 1, Deane Street, Derby

BIRMINGHAM POSTGRADUATE MEDICAL SCHOOL

There are three vacancies for HOUSE SURGEONS in the SURGICAL UNIT, British Postgraduate Medical School, Hammersmith Hospital. The appointments are for six months and are not renewable. Salary £105 per annum, with board, residence, and laundry. Duties to commence on January 1st, 1939.

Duties are mainly in General Surgery, but one appointment is to the Department of Traumatic and Orthopaedic Surgery. Applicants must have held a previous House appointment.

Applications with copies of testimonials, should be sent to the Dean, British Postgraduate Medical School, Duane Road, Shepherd's Bush, London, W.12, to arrive not later than the first post on Monday, December 12th 1938.

COUNTY COUNCIL OF DURHAM.

DISTRICT TUBERCULOSIS MEDICAL OFFICER.

The County Health Committee invite applications for a District Tuberculosis Medical Officer, at a commencing salary of £600 per annum, rising by annual increments of £25 to £700 per annum. Travelling allowance will be paid by the County Council in accordance with a scale to be approved from time to time.

The appointment will be held subject to three calendar months' notice on either side, and to the following conditions:

(1) The officer appointed must be a registered medical practitioner under the age of 50 years, must devote the whole of his time to the duties of the office, and must not engage in private practice.

(2) He should have held a previous appointment as Tuberculosis Medical Officer, with the approval of the Minister of Health, or

(i) have had at least three years' experience in the practice of his profession; or

(ii) have spent in general clinical work a period of not less than eighteen months, of which not less than six months have been spent in a hospital as Resident Medical Officer in charge of beds occupied by general medical or surgical cases; and

(iii) have received special training for a period of not less than six months in the diagnosis and treatment of tuberculosis.

(3) He will be attached to the County Health Department and will, subject to the direction of the County Medical Officer, be under the control of the Central Tuberculosis Medical Officer.

(4) He will be required to reside in his dispensary area, or such other area as required by the Council.

(5) He must be prepared, if called upon, to act as locum tenens to other members of the medical staff of the County Medical Officer.

(6) The holding of a Diploma in Public Health will be deemed an additional qualification for the post.

The candidate appointed will be required to pass the County Council's medical examination and will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, endorsed "District Tuberculosis Medical Officer," and accompanied by copies of not more than three recent testimonials, must be addressed to the County Medical Officer, Shire Hall, Durham, and must be received by him not later than first post on Monday, December 5th, 1938.

J. K. HOPE,

Clerk of the County Council
 Shire Hall, Durham,
 November 14th, 1938.

COUNTY BOROUGH OF ROTHERHAM.

MEDICAL SERVICES COMMITTEE.

JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (Male).

ALMA ROAD HOSPITAL.

Applications are invited for the post of Junior Assistant Resident Medical Officer at the Alma Road Hospital, Rotherham, at a salary of £180 per annum, together with the usual emoluments. The appointment will be for a period not exceeding twelve months, determinable by one month's notice on either side.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

The hospital is a general training school for nurses and is a recognized school for the training of midwives. The medical staff is composed of visiting consultants, a medical superintendent, and four resident medical officers.

The person appointed will be required to act under the general direction of the Medical Superintendent.

Forms of application may be obtained from the Medical Officer of Health, Municipal Offices, Rotherham, and must be returned to the undersigned endorsed "Junior Assistant Resident Medical Officer" not later than noon on December 7th, 1938.

Municipal Offices, CHAS. L. DES FORGES,
 Rotherham. Town Clerk.

AYR COUNTY COUNCIL.

HAEMATOLOGICAL TECHNICIAN.

Applications are invited from experienced LABORATORY TECHNICIANS for the above post. The person appointed will be required to work under the County-Obstetrician, and the duties will consist in routine haemoglobin investigations and blood counts as required upon all patients attending the County Ante-natal Clinics and Maternity Hospitals. Salary will be at the rate of £240 per annum, subject to deduction for superannuation.

Applications, stating age, sex, experience, and present appointment, along with copies of three recent testimonials, to be submitted to the Medical Officer of Health County Buildings, Ayr, before December 15th, 1938.

LEICESTERSHIRE COUNTY COUNCIL

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH AND DISTRICT MEDICAL OFFICER OF HEALTH.

Applications are invited for the joint whole-time appointment of an Assistant County Medical Officer of Health for the Administrative County of Leicester and Medical Officer of Health for the Rural District of Barrow-upon-Soar in the said County at a salary of £800 per annum, with a travelling allowance of £140 per annum. Office accommodation and clerical assistance will be provided by arrangements to be agreed upon by the appointing Authorities. The estimated total population of the Sanitary District is 38,340, the acreage of the area being 54,804.

Applicants, who should not be over forty-five years of age, must be duly qualified and registered male medical practitioners with experience in Public Health duties and must hold the Diploma in Public Health or its equivalent. The Officer appointed will be required to reside at such place in or adjacent to the Sanitary District as shall be approved. As regards the duties of an Assistant County Medical Officer of Health the Officer will act under the general control of the County Medical Officer of Health and will be required to perform such duties as may from time to time be prescribed. As regards his duties as District Medical Officer of Health the Officer will be subject to the sole control and direction of the Local Sanitary Authority.

The joint appointment is subject to the approval of the Minister of Health and the Board of Education and also, so far as the Office of District Medical Officer is concerned, to the provision of the Sanitary Officers (Outside London) Regulations, 1935. The joint appointment will be one under the Local Government Superannuation Act, 1922, and the selected candidate will be required to pass a medical examination. The joint appointment will be determinable by three months' written notice on either side, subject so far as the Office of the District Medical Officer of Health is concerned to the consent of the Minister of Health.

Forms of application, together with a list of duties, may be obtained from the undersigned and, accompanied by copies of not more than three recent testimonials, should be returned to him not later than December 13th, 1938.

Canvassing, directly or indirectly, will be deemed a disqualification.

County Offices, LUCAS E. RUMSEY,
 Grey Friars, Clerk of the County Council
 Leicester, November 21st, 1938.

SURREY COUNTY COUNCIL

PUBLIC HEALTH DEPARTMENT.

KINGSTON COUNTY HOSPITAL (305 Beds)

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the appointment, which will be vacant in January, 1939, of Resident Assistant Medical Officer at the Kingston County Hospital.

The Medical Officer appointed must have had postgraduate hospital experience in the administration of Anaesthetics as his duties will be largely those of Anaesthetist.

The appointment is for a period of six months, renewable for a further period of six months, and the salary is at the rate of £250 per annum, together with full residential emoluments valued at £125 per annum.

Applications, stating age, qualifications, and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the Medical Superintendent, Kingston County Hospital, Wolverton Avenue, Kingston-upon-Thames, so as to be received not later than December 3rd, 1938.

County Hall, DUDLEY AUKLAND,
 Kingston-upon-Thames, Clerk of the Council
 November 14th, 1938.

HEBBURN URBAN DISTRICT COUNCIL

MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Urban District Council invite applications from fully qualified Medical Practitioners for the whole-time appointment as Medical Officer of Health and School Medical Officer, at a total exclusive annual salary of £800. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

The successful applicant will be required to devote the whole of his time to the duties of the appointment, and will not be allowed to engage in private practice.

Further particulars, together with a form of application, may be obtained from the undersigned.

Applications, accompanied by copies of not more than three recent testimonials, endorsed "Medical Officer of Health," must reach the undersigned not later than November 30th, 1938.

Canvassing the Members of the Council in any form will be a disqualification.

Council Offices, ERNEST FOXALL,
 Hebburn, Co. Durham, Clerk of the Council.
 November 15th, 1938

COUNTY COUNCIL OF DURHAM ASSISTANT WELFARE MEDICAL OFFICER

The County Health Committee invite applications for an Assistant Welfare Medical Officer (woman) at a commensurate salary of £400 per annum to rise by annual increments of £25 to £500 per annum. Travelling allowance will be paid by the County Council in accordance with a scale to be approved from time to time.

The appointment will be held subject to three calendar months' notice on either side and to the following conditions:

(1) The officer appointed must be a registered medical practitioner between the ages of 25 and 45 years, must devote the whole of her time to the duties of the office, and must not engage in private practice.

(2) She should either have had a previous appointment as Medical Officer of an antenatal clinic, with the approval of the Minister of Health, or have had at least three years' experience in the practice of her profession as medical or dental officer of a public authority, and antenatal work. The holder of a Diploma in Public Health will be deemed an additional qualification for the post.

(3) She will be subject to the directions of the County Medical Officer of Health.

(4) She will be required to reside in Durham City, or such other place as required by the Council.

(5) She must be prepared to undertake any duties in connection with the Maternity and Child Welfare Services of the County Council, including attendance at Birth Control Clinics.

(6) She must be prepared, if called upon, to act as locum tenens to other members of the medical staff of the County Medical Officer of Health.

(7) The appointment will terminate on marriage.

(8) The candidate appointed will be required to pass the County Council's medical examination, and will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, endorsed "Assistant Welfare Medical Officer," with copies of not more than three recent testimonials, must be addressed to the County Medical Officer of Health, Shire Hall, Durham, and must be received by him not later than Saturday, December 10th, 1938.

K. HOPE, Clerk of the County Council
November 21st, 1938

COUNTY COUNCIL OF DURHAM DEPUTY COUNTY MEDICAL OFFICER OF HEALTH

The County Health Committee invite applications for the appointment of a Deputy County Medical Officer of Health at a salary of £960 per annum. Reasonable travelling and out-of-pocket expenses will be paid by the County Council.

Applicants must be duly registered medical practitioners, holding a degree or diploma in Public Health, and the gentleman appointed will be required to devote the whole of his time to the duties of the office and to reside in the City of Durham or other approved centre. The appointment will be held subject to three calendar months' notice on either side.

He will be expected to undertake any duties required of him by the Council bearing on the health and medical services of the County, and will act under the administrative control of, and be responsible to, the County Medical Officer of Health for his duties.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to a medical examination as required by the Council for the purposes of the Act, and the statutory contributions to the Superannuation Fund under that Act will be deducted from the salary.

Applications, marked "Deputy County Medical Officer of Health," together with copies of not more than three recent testimonials, must be sent to the County Medical Officer of Health, Shire Hall, Durham, not later than Saturday, December 10th, 1938.

J. K. HOPE, Clerk of the County Council
November 21st, 1938

CHELSEA HOSPITAL FOR WOMEN Arthur Street, S.W.3.

There is a vacancy for a REGISTRAR AND RADIUM OFFICER (Gynaecological). Candidates must be Graduates in Medicine of a recognized university, or Fellows or Members of one of the Colleges of Physicians of London, Edinburgh, Ireland, or Fellows of one of the Colleges of Surgeons of England, Edinburgh, or Ireland. They must be registered under the Medical Act and engaged in consulting practice only. There is an honorarium of £75 per annum.

Applications are invited for the above post and must be sent to the undersigned, accompanied by copies of three testimonials, not later than Wednesday, December 7th.

GEORGE W. COOLING, Secretary.

WEST RIDING OF YORKSHIRE MENTAL HOSPITALS BOARD

APPOINTMENT OF MEDICAL SUPERINTENDENT

WADSWORTH MENTAL HOSPITAL near Sheffield

The West Riding of Yorkshire Mental Hospitals Board invite applications from duly registered medical practitioners for the appointment of a Medical Superintendent in their service at the Wadsworth Mental Hospital near Sheffield.

Candidates must have had previous experience as the Medical Superintendent or a Senior Medical Officer at a Mental Hospital. A special consideration will be given to candidates holding Membership of the Royal College of Physicians or a degree of a British University and who possess the Diploma in Psychological Medicine.

The person appointed will be required to devote his whole time to the duties of the office and to act in conformity with the provisions of the Lunacy and Mental Treatment Acts, and the general rules and regulations of the West Riding of Yorkshire Mental Hospitals Board.

The minimum and maximum salaries fixed for the position are £1,100 and £1,400. The appointment is for five years. The commensurate salary to be paid will, within this limit, be according to qualifications, experience, and in accordance with the provisions of the Board.

The person appointed will be provided with an establishment which will be deemed to be valued, for superannuation purposes at the sum of £50 per annum. There are no other emoluments attached to the position. The salary and value of the establishment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Application must be made in a form which can be obtained together with any other particulars from the undersigned, to whom the completed form should be returned not later than December 10th, 1938.

Candidates in any form will be disqualified from Board Office. G. H. H. BARNES, Clerk of the Board
West Street, Wakefield
(P.O. Box No. 25)

CITY OF MANCHESTER

CRIMINAL HOSPITAL (154 Beds)
Underwritten under the Regulations for the F.R.C.S.I.

The Public Health Committee invites applications from registered medical practitioners for the post of RESIDENT ASSISTANT OBSTETRICAL OFFICER at the above-named hospital which will become vacant in mid-January, 1939.

The salary for the appointment is £250 per annum, with board, residence and laundry in addition, subject to the Manchester Corporation Council's order of service.

The appointment will be made in the first instance for a period of six months renewable for a further six months but not renewable thereafter.

Full information and forms of application may be obtained from the Medical Officer of Health, Town Hall, Manchester, 2, and applications for the post must be received by him not later than Monday, December 5th, 1938.

Town Hall, Manchester, 2 R. H. ADCOCK, Town Clerk
November 21st, 1938.

MIDDLESEX COUNTY COUNCIL

WEST MIDDLESEX COUNTY HOSPITAL
Twickenham Road, Isleworth, Middlesex

Non-resident ASSISTANT RADIOLOGIST, registered medical practitioner holding D.M.R.E., experienced in diagnostic and therapeutic x-ray work.

Inclusive salary £450-£525-£600 p.a. on pensionable staff, subject to medical examination and three months' notice. Whole-time duties under direction of Medical Superintendent and Radiologist. Any fees received payable to County Council.

"Closing date, December 10th, 1938."
Written applications from the undersigned in envelope enclosed in top left-hand corner "2" and "W. Midx.-Asst. Rad." enclosing copies of not more than three recent testimonials.

Candour direct or indirect, disqualified.
C. W. RADCLIFFE, Clerk of the County Council.

Guildhall, Westminster, S.W.1

VIOLET MELCHETT INFANT WELFARE CENTRE Flood Walk, Chelsea, S.W.3.

Applications are invited for the position of MEDICAL OFFICER in charge of WEEKLY ANAESTHETIC and POST-NATAL CLINIC. Wednesdays, 2 to 4 p.m.; £115. 6d. per session. Good experience essential.

Applications, with full particulars and three testimonials, should be sent to the Hon. Secretary by December 9th, 1938.

(AMENDED ADVERTISEMENT.) COUNTY BOROUGH OF SOUTHEND-ON-SEA

SOUTHEND MUNICIPAL HOSPITAL

The Health Committee of the Town Council invite applications for the following appointment at their Municipal Hospital situated at Rockford, Essex. The Hospital at present comprises 450 beds but considerable extensions are in course of erection. There is a staff of Visiting Consultants, and the Hospital is a recognised Training School for Nurses.

DEPUTY MEDICAL SUPERINTENDENT (RESIDENT)—Commensurate salary £500 per annum rising by annual increments of £25 to a maximum of £600 per annum together with full residential emoluments valued for superannuation purposes at £150 per annum. Candidates must hold a higher University Degree in Medicine or be a Member of the Royal College of Physicians, and must have had considerable general hospital experience, including administration.

SURGICAL OFFICER (NON-RESIDENT)—Commensurate salary £400 per annum rising by annual increments of £25 to a maximum of £500 per annum with a non-resident allowance of £150 per annum. Candidates must be Fellows of the Royal College of Surgeons, and must have had considerable experience in emergency surgery and the treatment of fractures.

Both appointments are designated posts under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidates will be required to pass a medical examination. Letters of application, together with further particulars of the appointments may be obtained from the Medical Officer of Health, Municipal Health Centre, Warner Square, Southend-on-Sea, and applications should be received by him not later than Monday, December 5th, 1938.

H. J. MORWOOD, Town Clerk
November 15th, 1938.

NORTHUMBERLAND COUNTY COUNCIL

ST GEORGE'S HOSPITAL, MORPETH

APPOINTMENT OF RESIDENT ASSISTANT MEDICAL OFFICER

The Visiting Committee of the above-named Hospital invite applications from fully-qualified and registered medical practitioners for the above appointment. The successful candidate will be required to reside in the Hospital.

The commensurate salary will be £450 per annum together with the usual emoluments—i.e., furniture, attendance, board, laundry and attendance valued for superannuation purposes at £100 per annum. An increase of £25 per annum will be granted on completion of twelve months' satisfactory service, and a further annual increment of £25 to a maximum salary of £450 per annum. A further £50 will be paid in the event of the successful candidate holding the D.P.H.

The candidate appointed will be required to pass a medical examination and to contribute under the Asylum Officers' Superannuation Act, 1909.

Applications stating age (not over 45 years) and full particulars of qualifications, experience, and appointments held accompanied by copies of three recent testimonials should be enclosed in an envelope endorsed "Mental Hospital Assistant Medical Officer," and addressed to the undersigned, so as to be received not later than December 12th, 1938.

C. HAROLD CARTER, Clerk of the Visiting Committee.
County Hall, Newcastle-upon-Tyne, 1.
November 22nd, 1938.

BATTERSEA BOROUGH COUNCIL

TEMPORARY ASSISTANT MEDICAL OFFICER (Male)

Applications are invited for the appointment of Temporary Assistant Medical Officer (male) at a salary of £600 per annum. The appointment will be for twelve months' time.

The duties will be divided between the Council's scheme of air raid precautions and the general public health work of the Council.

Forms of application containing further particulars may be obtained from me on sending a stamped addressed envelope, and applications must be received by me by 5 p.m. on Friday, December 16th.

Town Hall, Battersea, S.W.11. P. G. BERRY, Town Clerk.
November, 1938.

EAST HAM MEMORIAL HOSPITAL Shrewsbury Road, E.7. (104 Beds.)

Applications are invited for the post of HOUSE SURGEON AND CASUALTY OFFICER (male) for six months commencing January 1st. Salary at the rate of £120 per annum, with board residence and laundry.

Applications, stating age, nationality, experience, and full particulars, together with copies of three recent testimonials, should reach the undersigned by December 14th.

REGINALD PERRY, Secretary.

THE LONDON LOCK HOSPITAL.

Applications are invited for the appointment of two **SURGICAL REGISTRARS** (male) to the Lock Hospitals at Dean Street (Men) and Harrow Road (Women). Candidates must be Fellows (or Members) of the Royal College of Surgeons of England, or Surgical Graduates of a University of the United Kingdom. One candidate should preferably have had some previous obstetrical experience. The appointments are for one year in the first instance, commencing as at December 1st. Honorarium at the rate of £100 p.a.

Applications, with three copies of testimonials, must be in the hands of the Secretary not later than first post on Tuesday, November 29th, from whom any further information relating to the appointment can be obtained.

283 Harrow Road, W.9.

November 4th, 1938.

UNIVERSITY COLLEGE HOSPITAL.
Gower Street, London, W.C.1.

Applications are invited for the whole-time post of **FIRST ASSISTANT** in the **CHILDREN'S DEPARTMENT** of **UNIVERSITY COLLEGE HOSPITAL**.

The appointment will be as from January 1st, 1939, or as soon as possible thereafter, and will be tenable for a period of one year subject to re-appointment for a further period of two years.

Commencing salary £250 per annum.

Applications, with copies of three testimonials, to be made not later than Friday, December 2nd, 1938 and to be addressed to the Secretary, University College Hospital Medical School, University Street, W.C.1, from whom copies of the conditions governing the appointment can be obtained.

THE ELIZABETH GARRETT ANDERSON HOSPITAL,
Euston Road, N.W.1

The Managing Committee invite applications from fully qualified medical women for the appointment of **HONORARY ASSISTANT GYNAECOLOGIST**. Applicants must be Fellows of the Royal College of Surgeons and Gynaecologists. Duties to begin January 1st, 1939. Candidates are requested to apply to the undersigned for particulars of the post and to forward before Friday, December 2nd, 1938, twelve copies of application with copies of three recent testimonials for the Managing Committee. It is also necessary to send a copy of application to each member of the Honorary Medical Staff (twenty-three).

JEAN R. MURRAY,

Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL,
Euston Road, N.W.1

The Managing Committee invite applications from fully qualified medical women for the appointment of part-time **ASSISTANT RADIOLOGIST** with charge of the x-ray therapy. Duties to begin January 1st, 1939. Honorarium £100 per annum. Candidates are requested to apply to the undersigned for particulars of the post and to forward before Friday, December 2nd, 1938, twelve copies of application with copies of three recent testimonials for the Managing Committee. It is also necessary to send a copy of application to each member of the Honorary Medical Staff (twenty-three).

JEAN R. MURRAY,

Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL,
Euston Road, N.W.1

The Managing Committee invite applications from fully qualified medical women for the appointment of **HONORARY PHYSICIAN** to take charge of the Electro-therapy and Massage Departments. Duties to begin January 1st, 1939. Candidates are requested to apply to the undersigned for particulars of the post and to forward before Friday, December 2nd, 1938, twelve copies of application with copies of three recent testimonials for the Managing Committee. It is also necessary to send a copy of application to each member of the Honorary Medical Staff (twenty-three).

JEAN R. MURRAY,

Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL,
Euston Road, N.W.1

Applications are invited from fully qualified medical women for the part-time post of **SURGICAL REGISTRAR**—non-resident—honorarium £100 per annum. Duties to commence January 1st, 1939.

Particulars of the post can be obtained from the undersigned, in whom applications, with copies of three recent testimonials, should be sent before December 2nd, 1938.

JEAN R. MURRAY,

Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN.
Hackney Road, London, E.2.
(160 Beds.)

RESIDENT MEDICAL OFFICER required on January 1st, 1939.

The appointment is made for six months, and may be extended for further periods of six months, but cannot be held for more than two years. The Resident Medical Staff consists of the Resident Medical Officer as above, two Casualty Officers, two House Physicians, and two House Surgeons.

Salary (inclusive of panel fees) £200 per annum, with board, residence, and laundry. Candidates must have held a responsible resident appointment at a recognized hospital.

Forms of application may be obtained from the undersigned, and must be completed and returned on or before December 6th, 1938.

CHARLES H. BESSELL,

November 14th, 1938 Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN,
Hackney Road, London, E.2.
(160 Beds.)

HOUSE PHYSICIAN required, January 1st, 1939.

Six months' appointment. Salary at the rate of £100 per year, with board, lodging, and laundry.

Applications must be made on forms to be obtained from the undersigned, and be sent in, with copies of not more than three testimonials, on or before December 6th, 1938.

CHARLES H. BESSELL,

November 14th, 1938 Secretary.

THE GORDON HOSPITAL
For Diseases of the Rectum and Colon.
Vauxhall Bridge Road, S.W.1.
(62 Beds, extending to 102 in the future.)

Applications are invited for the post of **RESIDENT SURGICAL OFFICER** at the above Hospital. The appointment is for a period of six months to June 30th, 1939. It is desired that the successful candidate should commence duty January 1st, 1939. Salary is at the rate of £150 per annum (plus £25 for the six months to cover all duties relating to private patients), together with board, residence, and laundry.

Applications, accompanied by copies of three recent testimonials, should reach the undersigned by December 1st, 1938, and envelopes should be endorsed R.S.O.

E. S. FOLEY,

Secretary.

THE HOSPITAL FOR WOMEN,
Soho Square, W.1.

Applications are invited for the posts of **HONORARY CLINICAL ASSISTANTS TO THE SURGEONS IN CHARGE OF OUT-PATIENTS**. The appointments will be for attendance at one or two out-patient sessions per week for a period of six months, commencing January 1st, 1939. Sessions are held at 1.45 every week-day except Saturday.

Applications must reach the undersigned by Monday, December 12th, 1938.

J. P. HEMING,

Secretary.

THE PRINCESS BEATRICE HOSPITAL,
Earl's Court, London, S.W.5.
General Hospital (81 Beds)

RESIDENT SURGICAL OFFICER (male) required for a period of six months in the first place from January 1st, 1939, eligible for re-election. Salary at the rate of £200 per annum, with board, residence, and laundry (together with £25 to cover all duties during the six months relating to private patients). Previous resident experience and F.R.C.S. essential.

Applications, with copies of three recent testimonials, should be received by the Secretary not later than 9 a.m., Monday, December 5th, 1938.

THE PRINCESS BEATRICE HOSPITAL,
Earl's Court, London, S.W.5.
General Hospital (81 Beds)

Applications are invited for the appointment of **HONORARY ASSISTANT SURGEON** to the Ophthalmic Department of The Princess Beatrice Hospital. Candidates must be F.R.C.S. Eng. and engaged in consulting practice only.

Applications, together with copies of three recent testimonials, should be received by the Secretary by the first post on December 5th, 1938.

WOMEN'S HOSPITAL, CATHERINE STREET, LIVERPOOL.
(Gynaecological Hospital—120 Beds.)

HOUSE SURGEON wanted for six months from January 1st, 1939. Salary £100 per annum.

Applications and copies of testimonials to reach the Secretary of the Medical Board not later than December 8th, 1938.

THE HOSPITAL FOR SICK CHILDREN,
Great Ormond Street, London, W.C.1.

The post of **CLINICAL PATHOLOGIST** will be shortly vacant. Salary £750 per annum.

The appointment is whole-time and non-resident. Facilities, within certain limits, will be given for private pathological practice.

The successful candidate will be required to take up his duties preferably on March 1st, 1939.

Candidates must be registered Medical Practitioners with special experience in bacteriology and clinical pathology.

Applications, accompanied by not more than three testimonials given specially for the purpose, must be delivered to the undersigned not later than noon on Monday, December 19th, 1938.

Candidates must be prepared to appear before the Joint Committee on Wednesday, December 21st, 1938, at 4.45 p.m.

Forms of application and details of the appointment are obtainable from the undersigned.

HERBERT F. RUTHERFORD,

November, 1938 Secretary.

WEST HAM HOSPITAL FOR NERVOUS AND MENTAL DISORDERS.
Goodmayes, Ilford, Essex.

Applications are invited for a Male **JUNIOR ASSISTANT MEDICAL OFFICER** at the above Hospital. Candidates must be unmarried.

The commencing salary is at the rate of £350 per annum, rising by annual increments of £25 to a maximum of £650 per annum, together with emoluments consisting of board, laundry, and attendance, valued for superannuation purposes at £150. The person appointed will also be paid, in addition to his salary, the sum of £50 per annum on obtaining the Diploma of Psychological Medicine.

The appointment is subject to six months' probation, and to the provisions of the Asylum Officers' Superannuation Act, 1909, Class 1, and to a satisfactory medical examination.

The Hospital is situated ten miles from London. Applications, stating age and experience accompanied by copies of three recent testimonials must reach the Medical Superintendent not later than December 12th, 1938.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL.
Shooters Hill, London, S.E.18.
General Hospital (112 Beds)

The Board of Management invites applications from suitably qualified male candidates for appointment as **CASUALTY OFFICER** for six months from January 1st, 1939. The remuneration will be at the rate of £100 per annum, plus board, residence, and laundry. The candidate appointed will act as deputy for the Resident Surgical Officer, and consequent opportunities for major surgery.

The closing date for the receipt of applications (which should be made on the prescribed form obtainable from the undersigned) is Monday, December 12th, 1938, and short-listed candidates will be invited to meet the Appointments Committee (at the Hospital) on Thursday, December 15th, at 4.45 p.m.

R. S. G. HUTCHINGS,

Secretary.

THE SALVATION ARMY, THE MOTHERS' HOSPITAL,
Lower Clapton Road, Clapton, E.5

Applications are invited for the appointment of a **WOMAN VENEREAL DISEASES OFFICER** to the Mothers' Hospital. (Salary 416 guineas per annum.)

Details of the appointment may be obtained from the Secretary-Superintendent, to whom the application, with details of previous experience and three recent testimonials, should be sent by November 30th, 1938.

FRED HAMMOND, Secretary

VICTORIA HOSPITAL, BLACK POOL
(182 Beds.)

HOUSE SURGEON (Male) REQUIRED TO SURGICAL UNIT, 2.

The appointment is recognized by the Royal College of Surgeons of England in connection with the Final Fellowship Examination.

There are four resident Medical Officers. Appointment is for six months. Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, with copies of three recent testimonials, should be sent to the

GENERAL SUPERINTENDENT.

VICTORIA HOSPITAL, BLACK POOL
(182 Beds.)

HOUSE PHYSICIAN (Male) REQUIRED.

There are four resident Medical Officers. Appointment is for six months. Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, with copies of three recent testimonials, should be sent to the

GENERAL SUPERINTENDENT.

CHARING CROSS HOSPITAL REGISTRAR

Applications are invited for the post of Registrar (male) to the Nose, Throat, and Ear Department. Candidates must be registered Medical Practitioners and have a minimum of five years' experience of the specialty. Attendance, four half-days per week. Appointment tenable for one year, eligible for re-election. Honorarium £100 per annum.

Applications, in writing, stating age, qualifications, and experience, should be made to the undersigned not later than first post Monday, November 28th, 1938.

GEORGE J. JONES, Secretary

CHARING CROSS HOSPITAL, W.C.2

The Council invite applications for the post of CLINICAL ASSISTANT (male) to the Dermatology Department.

Candidates should send in their applications, together with copies of three testimonials, to the undersigned not later than first post Monday, November 28th, 1938.

GEORGE J. JONES, Secretary

ALL SAINTS HOSPITAL FOR GUNTO URINARY DISEASES

RESIDENT HOUSE SURGEON (male) required on January 1st, 1939, for six months, leave three months as Junior House Surgeon with salary at £100 per annum, followed by three months as Senior House Surgeon with salary at £150 per annum.

Applications, giving particulars of age, experience, qualifications, and enclosing copies of three recent testimonials, should reach me not later than December 1st, 1938.

D. H. FADE, Secretary

CONNAUGHT HOSPITAL, E.17

for Walthamstow, Leyton, Waltham, and Chingford.
(118 Beds and extending.)

Applications are invited for the post of HONORARY DERMATOLOGIST to the above hospital. Gentlemen desirous of applying should be Fellows or Members of the Royal College of Physicians, and, preferably, on the staff of a London Teaching Hospital.

Applications should be received by Saturday, December 3rd. Further details can be obtained upon application to the undersigned.

R. HALTON HARRISON, Secretary

BOLINGBROKE HOSPITAL

Wandsworth Common, S.W.11.
(135 Beds)

CASUALTY OFFICER (male, unmarried) required. The appointment is for six months, commencing on January 1st, 1939. Salary £120 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to undersigned on or before December 7th, 1938.

W. S. RANDOLPH BISS, Secretary-Superintendent

CITY OF LONDON MATERNITY HOSPITAL

City Road, E.C.1.

Applications are invited for the post of MALE ASSISTANT RESIDENT MEDICAL OFFICER, vacant January 1st, next, salary £90 per annum. Three months' appointment. At the end of the period the candidate will, if satisfactory, be appointed Senior for three months at £100 per annum. Forms of application, returnable not later than December 2nd, may be obtained from the undersigned.

RALPH B. CANNINGS, Secretary

HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars

The Committee of Management will shortly appoint an additional member of the HONORARY STAFF. Candidates should be either Members of the Royal College of Physicians (London) or Fellows of the Royal College of Surgeons (England).

Applications, with testimonials in support, must be sent before December 12th to L. Mundy, Secretary to the Hospital for Diseases of the Skin, 71, Blackfriars Road, S.E.1, from whom any further information may be obtained.

APPLICATIONS ARE INVITED FOR THE appointment of HONORARY PHYSICIAN to the BRITISH HOSPITAL FOR FUNCTIONAL MENTAL AND NERVOUS DISORDERS, 72, Camden Road, N.W.1. Candidates must hold the Diploma in Psychological Medicine and address their applications to the undersigned.

DENIS C. WILLIAMS, Secretary

HOSPITAL FOR TROPICAL DISEASES. RESIDENT MEDICAL SUPERINTENDENT

The Committee of Management of the Southern Hospital Society invite applications for this post, falling vacant on January 1st, 1939. The appointment will be tenable for two years. Minimum emolument £250 p.a. with board, residence, and laundry. Candidates must be male, single, and fully qualified and registered. Membership of the Royal College of Physicians and some knowledge of tropical medicine is desirable but not essential.

Applications, stating age, with copies of not more than three recent testimonials, to be sent on or before December 15th, 1938, to:

D. A. C. PRICE, Secretary
Hospital for Tropical Diseases,
25, Gordon Street, W.C.1

NATIONAL HOSPITAL, QUEEN SQUARE, W.C.1

RESEARCH FELLOWSHIP

By the generosity of a private donor a FULL-TIME RESEARCH FELLOWSHIP has been created for the investigation of DISORDERS OF THE MIND at the National Hospital, Queen Square, London, W.C.1.

The Fellowship will be open to graduates in science or medicine and is of the value of £100 per annum, tenable for one year in the first instance.

Applicants should state their previous experience and the method of investigations they propose to adopt.

Further particulars may be obtained from the Secretary, National Hospital, Queen Square, W.C.1, and applications should reach him by January 15th, 1939.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL

(Incorporated by Royal Charter)
High Holborn, W.C.1

Applications are invited for the office of ASSISTANT SURGEON. Two appointments will be made.

Candidates for this office must be Fellows of the Royal College of Surgeons of England, and in addition must have served the office of Clinical Assistant or House Surgeon at an ophthalmic hospital or ophthalmic department of a recognised general hospital for three years. They must also produce a certificate of age.

Applications, together with copies of three testimonials, should be forwarded on or before Wednesday, December 8th, 1938, to the Secretary from whom further particulars can be obtained.

DREADNOUGHT SEAMEN'S HOSPITAL

Greenwich, S.E.10

JUNIOR PATHOLOGIST, Desport Pathological Laboratory

The Committee of Management of the Seamen's Hospital Society invite applications for this post. The appointment in the first instance will be for one year at a salary of £400 per annum, but the elected candidate will be eligible for re-election for a second year.

Applications, stating age and experience, with copies of not more than three recent testimonials, to be sent in on or before Friday, December 9th to the undersigned.

DREADNOUGHT HOSPITAL, GREENWICH, S.E.10

(Seamen's Hospital Society)

One HOUSE PHYSICIAN and one HOUSE SURGEON required for six months from January 1st, 1939. Salary £100 per annum and a proportion of fees, with board, residence and laundry. Candidates must be male and single.

Applications, with copies of three testimonials, to be sent in on or before December 1st to the undersigned.

November 11th, 1938 I. A. LYON, Secretary

KING'S COLLEGE HOSPITAL

The Committee of Management invite applications for the post of ASSISTANT PHYSICIAN. Applications, with copies of three testimonials, should be sent before December 10th to the House Governor, King's College Hospital, Denmark Hill, S.E.5, from whom particulars of the duties may be obtained. Candidates must be Members or Fellows of the Royal College of Physicians of London.

HAMPSHIRE GENERAL HOSPITAL

Haverstock Hill, N.W.3

Applications are invited from single medical men for the post of HOUSE SURGEON for six months, vacant January 1st next. Salary £100 per annum.

Applications on the prescribed form, with copies of three testimonials, to be returned to the Secretary by December 10th.

QUEEN MARY'S HOSPITAL FOR THE EAST END, St. Dunstons, London, E.15.

Applications are invited from fully qualified and registered medical men (only) for the following posts:

| | Salary | Period |
|---------------------------|-----------|----------|
| 1 HOUSE SURGEON | £120 p.a. | 6 months |
| 1 HOUSE PHYSICIAN | £120 p.a. | 6 months |
| 1 OBSTETRIC HOUSE SURGEON | £120 p.a. | 3 months |
| 1 OUT-PATIENT OFFICER | £150 p.a. | 6 months |

The appointment will date from January 1st, 1939, and will be for six months except in the case of one House Physician, which will be for three months. In the case of the Obstetric House Surgeon, above referred to, the appointment will be for three months as Junior at £110 per annum and for three months as Senior at £130 per annum, six months in all.

The Hospital contains 219 beds including 50 for Maternity.

Candidates, who must be single, should send applications, accompanied by copies of testimonials to the undersigned, not later than Wednesday, November 10th, 1938.

RAPHAEL JACKSON, Major, Secretary

ROYAL MASONIC HOSPITAL

Ravenhill Park, W.6.

A post of RESIDENT MEDICAL OFFICER (male), preferably with M.R.C.P. qualification, will be vacant on January 1st, 1939. Salary at the rate of £300 per annum, with board, residence and laundry. The appointment is for twelve months. Candidates must be registered and must have held resident appointments in General Hospitals.

The Institution (145 beds at present, but to be increased) is primarily for raising patients of both sexes of moderate means usually unable to afford ordinary Nursing Home treatment, etc.

Applications, stating full particulars, to be sent on or before Monday, December 5th, 1938, to the Honorary Secretaries, from whom further information can be obtained.

ST. PAUL'S HOSPITAL FOR UROLOGICAL AND SKIN DISEASES

Trench Street, London W.C.2

Applications are invited for the post of male HOUSE SURGEON. Candidates must be qualified and registered. Salary £100 per annum, with board and residence. The appointment is for three months in the first instance, and the holder will later be eligible for the post of Resident Medical Officer. During his appointment as House Surgeon the duties involve work in the surgical wards and in the Out-patient Department.

Applications, with copies of recent testimonials to be submitted not later than December 15th. The successful candidate will be required to take up duty about the end of December.

I. P. KEY CHISLETT, Secretary

ROYAL CHEST HOSPITAL

City Road, E.C.1

Applications are invited for the post of PLSDENT MEDICAL REGISTRAR (male). Candidates must be registered Medical Practitioners of at least two years' standing, and have held at least two previous house appointments.

The appointment is for fourteen months from January 1st, 1939. Particulars concerning remuneration and emoluments amounting to approximately £256 with board and residence, together with necessary forms of application and rules, can be obtained from the undersigned.

Applications, with copies of three testimonials, should be sent by December 2nd to:

GILBERT G. PANTER, Secretary

THE LONDON CHEST HOSPITAL

Victoria Park, E.2.
(Bus, Tram and Rly. Cambridge Heath, L. and N.E. Rly.)

SURGICAL REGISTRAR (Male) (Part-time).

Applications are invited for the above post. Four sessions a week, Tuesday and Friday mornings essential. Appointment is for one year. Honorarium £100 per annum.

Applications, with copies of three testimonials, should be sent to the undersigned on or before Tuesday, December 13th, 1938.

THOMAS BROWN, Secretary

NATIONAL TEMPERANCE HOSPITAL

Hamstead Rd., N.W.1.

Applications are invited for the following post: HOUSE SURGEON. Salary £100 p.a., board, residence and laundry allowance. The appointment is for a period of six months as from December 1st. Preference will be given to those who have held resident posts. Candidates must submit applications stating qualifications, age, etc., with copies of not more than three testimonials, by Monday, 28th instant, addressed to the Secretary.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumheugh Gardens, Edinburgh).

(a) British Islands

| Town or District | Town or District | Town or District |
|---|---|---|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(contd.) | CONTRACT PRACTICE—(contd.) |
| ABERTYSSWG MEDICAL AID SOCIETY (Medical Officer) | SHID PHONDDA MEDICAL AID SOCIETY (Medical Officer) | OAKDALE, SIMON (Medical Officer for Medical Aid Association) |
| BLAENAVON MEDICAL SOCIETY (Medical Officer) | SLATH AND DISTRICT (Medical Officer Association) | PUBLIC HEALTH |
| GILFACH GOCH GLAMORGAN (Workmen's Medical Scheme) | OGMORI VALLEY GLAMORGAN (Workmen's Medical Scheme) | COUNTY OF ROXBURGH (Assistant Medical Officer of Health) |
| LIVANYPOL, CLYDACH VALL PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme) | | WIGTOWN COUNTY COUNCIL (County Medical Officer of Health) |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch |
|---|--|---|---|--|--|
| NEW SOUTH WALES (All Friendly Societies' Appointments) | The Medical Secretary New South Wales Branch, 115, Macquarie Street, Sydney N.S.W. | VICTORIA (All Institute or Medical Officers' Vacancies) | The Honorary Secretary Victorian Branch British Medical Association Medical Society, Hall, Albert St., East Melbourne, Victoria | WESTERN AUSTRALIA (Contract and Locum Practitioners) | The Hon. Sec. Western Australian Branch British Medical Association, "Shell House", 208, St. George's Terrace, Perth, Western Australia |
| QUEENSLAND (Brisbane Associate Friendly Societies' Institute) | The Hon. Sec., Queensland Branch, British Medical Association B.M.A. House, 225 Wickham Terrace, Brisbane, B.17. | | | | |

November 23, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

COUNTY MENTAL HOSPITAL, LANCASTER

Applications are invited for the post of ASSISTANT MEDICAL OFFICER (female). Candidates must be single and under 35 years of age. Commencing salary £550 per annum, rising to £600 after one year's satisfactory service, with further increases on promotion, subject to a deduction of 3 per cent. under the Asylum Officers' Superannuation Act, 1909. There are no emoluments.

The selected candidate will be required to live in the Hospital, and she will be provided with board, lodging, etc. for which a charge of £150 a year is made.

The possession of a Diploma in Psychological Medicine will entitle the officer to an additional £50 per annum.

Applications, giving full particulars, with testimonials (copies only), should be forwarded to the Medical Superintendent on or before November 30th, 1938.

CHILDREN'S HOSPITAL, NOTTINGHAM.

Applications are invited for the post of RESIDENT HOUSE SURGEON (woman). The salary will be at the rate of £150 per annum, with apartments, board and laundry. The appointment will be for six months, duties to commence on January 1st, 1939.

Applications, together with testimonials, stating age, qualifications and experience, to be sent to the Honorary Secretary, 1, King John's Chambers, Broadsmith Gate, Nottingham, on or before Tuesday, November 29th. Selected candidates will be required to attend at the Hospital for a personal interview.

COSHAM MEMORIAL HOSPITAL, KINGSWOOD, BRISTOL.

The Managing Body invite applications for the post of HONORARY ANAESTHETIST. Small honorarium paid. Applications to the Secretary.

ALEXANDRA HOSPITAL FOR CHILDREN WITH TUBERCULOSIS, SWANLEY, KENT

(100 Beds for Children with Bone and Joint Tuberculosis and other Orthopaedic Conditions.)

Applications are invited for the post of SECOND RESIDENT MEDICAL OFFICER at this hospital, which will become vacant in January next. Candidates for the appointment must be fully qualified, and should preferably hold a higher surgical qualification or be working for such higher qualification. The appointment is for six months, with eligibility for re-election. The salary will begin at the rate of £240 to £250 a year, according to qualifications and experience. Board and lodging are provided.

Applications, stating age and giving full particulars of qualifications and previous surgical experience, with copies of two testimonials, should be sent not later than December 14th to the undersigned at the London Office, 107, Southampton Row, W.C.1, from whom further particulars of the duties and conditions of the appointment can be obtained.

November, 1938.

STANLEY SMITH,
Secretary.

THE BOLTON ROYAL INFIRMARY, (318 beds, including 20 Auxiliary Hospitals.)

ASSISTANT PATHOLOGIST.

Applications are invited from qualified medical men or women for the above post. Post-graduate experience in the routine methods of a general hospital laboratory is essential.

The appointment is a whole-time one. Salary £600 per annum.

Further information may be obtained from the undersigned, to whom applications stating age, nationality and experience, and enclosing two copies of recent testimonials, should be sent not later than November 28th, 1938.

H. CORLESS,
Secretary.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, Pendlebury near Manchester (252 Beds.)

RESIDENT MEDICAL OFFICER

Applications are invited for the post of RESIDENT MEDICAL OFFICER. Salary £150 per annum. The appointment is for a period of six months, commencing January 1st, 1939. Candidates must be unmarried and duly registered. Previous hospital experience essential.

Applications, stating age, and accompanied by copies of not more than three recent testimonials, to be sent to the undersigned not later than Friday, December 2nd. Canvassing directly or indirectly is disallowed.

By Order,
H. HEARDMAN,
Secretary.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

Applications are invited for the post of RESIDENT ANAESTHETIST AND EMERGENCY OFFICER (male). The appointment will be for three months from January 1st, 1939. Salary at the rate of £130 per annum, with board, residence and laundry. Candidates, who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four recent testimonials, to the undersigned on or before Wednesday, November 30th, 1938.

J. A. BEARDSALL,
Secretary-Superintendent.

ST. PAUL'S EYE HOSPITAL, LIVERPOOL.

HOUSE SURGEON required January 1st, 1939. Six months' appointment. Salary £145 per annum, with board, residence, etc.

Applications, with copies of testimonials, should be sent to the Secretary on or before December 10th.

(Appointments continued on p. 51)

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Applications are invited for the post of AURAL REGISTRAR from duly qualified Medical Practitioners.

Duties will include attendance at the Out-patient Clinics held at Garrade Street, Manchester, on Monday mornings and Thursday afternoons, administration of anaesthetics, and occasional attendance on in-patients at Fendlebury. Salary at the rate of £75 per annum. Previous experience in aural surgery essential.

Applications, together with copies of three testimonials, to be sent not later than Friday, December 2nd, to the undersigned, from whom further particulars relating to the post may be obtained.

By Order,

H. HEARDMAN,
Secretary.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, Fendlebury, near Manchester. (232 Beds.)

RESIDENT HOUSE SURGEON.

Applications are invited for the post of Resident House Surgeon for a period of six months, commencing February 1st, 1939. Salary £100 per annum. Candidates having previous experience in the administration of anaesthetics will be given preference.

Applications, stating qualifications and past experience, together with testimonials, to be sent to the undersigned not later than Thursday, December 26th, 1938.

Candidates, directly or indirectly, may disqualify themselves by Order.

H. HEARDMAN,
Secretary.

ROYAL UNITED HOSPITAL, BATH.

HONORARY SURGICAL REGISTRAR.

Applications are invited for the post of Honorary Surgical Registrar.

Candidates must be Graduates in Surgery of a University of Great Britain or the British Empire.

Applications, stating age, qualifications and full particulars of experience, together with a copy of three testimonials, should be addressed to the undersigned on or before December 15th.

J. LAWRENCE MEARS,
November 19th, 1938. Secretary-Superintendent.

ROYAL UNITED HOSPITAL, BATH.

HONORARY ANAESTHETIST.

Applications are invited from registered general practitioners for the post of Honorary Anaesthetist.

Applications, stating age, qualifications and full particulars of experience, together with a copy of three testimonials, to be addressed to the undersigned by December 15th. Other particulars may be obtained on

November 19th

DARLINGTON MEMORIAL HOSPITAL. (200 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN AND CASUALTY OFFICER (vacant on December 31st), male, British nationality, fully qualified. Salary offered, £150 per annum, with board, residence, and laundry.

Applications, giving full particulars, stating age, qualifications, etc., etc., to be addressed to the undersigned.

ARTHUR RIDDLE, A.C.S.I.,
Secretary-Superintendent.

PONTEFRAC T GENERAL INFIRMARY (YORKS).

JUNIOR RESIDENT MEDICAL OFFICER (male, unmarried), duly qualified registered Medical Practitioner. Commencing salary £150 per annum, with residence, board, and laundry.

The appointment to date for six months from January 1st, 1939.

Applications, stating age, with testimonials and nationality to be sent to the undersigned at once.

DAVID J. RICHARDS,
Secretary-Superintendent.

NEW SUSSEX HOSPITAL, Windesham Road, Brighton.

Applications are invited from qualified medical women for the post of HOUSE PHYSICIAN for six months, to commence January 1st, 1939. Salary £100 per annum.

Applications, together with copies of three recent testimonials, to be sent to the undersigned by December 12th.

P. F. SPOONER,
New Sussex Hospital. Secretary.

THE JESSOP HOSPITAL FOR WOMEN. Sheffield

FIRTH AUXILIARY NORTON

Applications are invited for the post of RESIDENT MEDICAL OFFICER from registered medical practitioners. The appointment will be for six months commencing January 1st, 1939, subject to renewal for a further six months, with salary at the rate of £150 per annum, plus board, residence and laundry. Previous Obstetrical experience is desirable.

The Firth Auxiliary Hospital contains 47 beds, of which 23 are set apart for the treatment of Puerperal Sepsis, the remainder being for Ante-natal and Gynaecological cases.

Applications should be lodged with the undersigned, addressed in the Jessop Hospital for Women, Sheffield, immediately.

DAVID OSWALD,
Superintendent and Secretary.

THE JESSOP HOSPITAL FOR WOMEN. Sheffield (151 Beds.)

The Board of Management invite applications for the post of SENIOR RESIDENT MEDICAL OFFICER (male), unmarried. The appointment is for six months, in the first instance, from January 1st, 1939. Salary £150 per annum, plus board, residence and laundry. Previous resident experience essential.

The duties include charge of the Maternity Department, 36 beds, and general supervision of the Gynaecological Department.

Applications, stating age and experience, with copies of recent testimonials, should be forwarded immediately to the undersigned.

DAVID OSWALD,
Superintendent and Secretary.

THE JESSOP HOSPITAL FOR WOMEN. Sheffield (151 Beds.)

The Board of Management invite applications for posts of HOUSE SURGEONS (male), unmarried, for a period of six months commencing January 1st, 1939. Salary £100 per annum, together with board, residence and laundry.

Applications, stating age, together with copies of testimonials, should be addressed to the undersigned immediately.

DAVID OSWALD,
Superintendent and Secretary.

THE PRINCE OF WALES'S HOSPITAL, Greenbank Road, Plymouth (Formerly South Devon and East Cornwall Hospital) (254 Beds.)

Applications are invited for the post of RESIDENT SURGICAL OFFICER (male) Salary £225 per annum, with board, residence and laundry.

Appointment is tenable for six months and is subject to renewal. Duties to commence December 20th.

Candidates must be registered under the Medical Act, and it is desirable they should possess the F.R.C.S. England or Edinburgh.

Applications, stating age and qualifications, together with copies of three recent testimonials, to reach the undersigned by November 30th.

ARTHUR R. CASILL,
General Supdt. and Secretary.

THE ROYAL HOSPITAL, WOLVERHAMPTON (Incorporated under Charter).

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HOUSE PHYSICIANS.

Applications are invited for the above resident posts, which become vacant on January 1st next.

The Hospital contains 300 beds, includes the usual special departments, and is recognized by the various examining bodies for a part of the requisite attendance on Medical and Surgical practice.

Candidates must be registered under the Medical Act and unmarried.

The appointments are for six months. Salary at the rate of £100 per annum. Board, furnished rooms, and laundry provided.

Applications with copies of testimonials, to be forwarded to the undersigned.

Wolverhampton. W. H. HARPER,
November 14th 1938. House Governor.

THE CORBETT HOSPITAL, STOURBRIDGE. (100 Beds and Special Departments.)

Applications are invited for the post of HOUSE SURGEON, which will become vacant as from January 1st next.

The appointment will be for a period of six months, terminable by six weeks' notice, carries a salary at the rate of £100 per annum, with board, laundry, etc.

The Hospital has a Specialist Visiting Staff, a Resident Surgical Officer, and a House Physician.

Applicants, giving full details of qualifications, age, and experience, accompanied by three copies of testimonials, should be addressed to the undersigned forthwith.

W. G. H. WESTON,
Secretary.

WORCESTER COUNTY AND CITY MENTAL HOSPITAL, Powick, near Worcester.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER. Applicants must be male, single, under 35 years of age, and duly qualified in medicine and surgery. Commencing salary £350, rising by annual increments of £25 to a maximum salary of £450 per annum, together with furnished apartments, board, laundry, and attendance. A further £50 per annum will be paid if the selected candidate holds or obtains a Diploma in Psychological Medicine. Experience in anaesthetics will be a recommendation. The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1907.

Applications, stating age and full particulars of qualifications and experience, accompanied by copies of three recent testimonials, to be forwarded to the Medical Superintendent not later than Friday, December 2nd, 1938.

THE KING EDWARD VII. WELSH NATIONAL MEMORIAL ASSOCIATION

Applications are invited from duly registered medical practitioners (male, single) for the post of ASSISTANT RESIDENT MEDICAL OFFICER (five months' appointment) at the North Wales Sanatorium (247 beds for female pulmonary, and male, female and children non-pulmonary cases), Denbigh, North Wales.

Salary £200 per annum, plus maintenance.

Applications, stating age, qualifications, experience, etc., together with copies of three recent testimonials, should reach the undersigned not later than WEDNESDAY, NOVEMBER 30th, 1938.

Memorial Office, D. A. POWELL,
Westgate Street. Principal Medical Officer
Cardiff.

WORTHING HOSPITAL

Applications are invited for the post of SURGEON to the Hospital. Candidates must be Fellows of the Royal College of Surgeons of England, or Masters in Surgery of a British university. They should not be engaged in general practice and must reside within easy access to the Hospital.

Applications, with not more than three testimonials (copies only) together with the names of persons to whom reference can be made, should be sent to the Secretary-Superintendent of the Hospital, from whom further particulars may be obtained. They should be received not later than December 17th, 1938.

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All communications to be addressed to the Branch Manager, **BRITISH MEDICAL BUREAU, 33, CROSS STREET, MANCHESTER, 2.**

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(FOUNDED 1880)

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- 16 HOME COUNTY.—PARTNERSHIP in Practice, about £5,000, in small town. Panel 2,700. Applicants should be aged 28-35, preferably with an Oxford or Cambridge degree. One-fifth share at two years' purchase. Short Assistantship.
- 17 MIDLANDS.—PARTNERSHIP in Practice, over £3,600 p.a., in flourishing town. Panel about 3,000. Pleasantly situated house for sale or rent. Premium one-half share £3,000.

- 18 NORTHERN INDUSTRIAL TOWN.—Middle and working-class PRACTICE, £2,100 p.a. (Appointments worth £450-£500; Panel 2,400.) Modern house for sale. Premium two years' purchase.
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- 20 ESSEX.—Medical Woman's PRACTICE, averaging £659 p.a., in populous suburban area. Panel 250. House to rent. Premium one and a-half years' purchase.
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- 31 S. MIDLANDS.—Country PRACTICE in beautiful part. Receipts last year, £720. Panel 460. Excellent house in grounds of over an acre; also 14 acres of land, etc., to rent. Suitable for resident patients. Scope. Premium two years' purchase.
- 32 NORTHERN IRELAND.—PRACTICE doing about £2,000 in market town. Panel 1,090. House (5 bedrooms and good surgery accommodation), in grounds about an acre, for sale. Sport. Premium £1,750. Purchaser should be R.C.
- 33 PARTNERSHIP in increasing Ear, Nose and Throat Practice in provincial town. Partner must hold F.R.C.S.
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35 MIDLANDS.—PARTNERSHIP in progressive town. Receipts average £3,625 (panel and appointments £1,450 p.a.). Good house with garage and garden to rent. Premium one-half share £3,650, to include drugs, etc.

36 LONDON, N.W.—PARTNERSHIP in increasing Practice about £3,000. Panel over 3,750. Premium one-third share two years' purchase. Age under 30 years.

37 S.W. ENGLAND.—PARTNERSHIP in steadily increasing Town and Country Practice. Fees 5s. to £1 1s. Suitable accommodation to rent. Partner should be aged about 30 and experienced. Share about £1,000 p.a. at first at two years' purchase.

38 LONDON, N.4.—PRACTICE, over £1,140 p.a., in good residential district. Panel 275. Double-fronted house with garage and garden. Price £1,200 freehold. Good hospital. Premium one and a-half years' purchase.

39 S.E. COAST.—PARTNERSHIP in steadily increasing non-dispensing Practice, nearly £2,200 p.a., in popular seaside resort. Panel £69. Partner should be English or Scottish. House to rent or purchase. Premium one-third share two years' purchase.

40 LONDON, S.E.—PRACTICE in nice suburban district. Cash receipts past year, £1,460. Panel 400. Very good, pleasantly situated house to rent. Premium £2,450.

41 MIDLANDS.—Working-class PRACTICE in large town. Receipts, 1937, £460. Panel 400, and appointment worth £80 p.a. Small semi-detached house, price £500. Scope. Premium £600.

42 LONDON.—PARTNERSHIP in general and Electro-Therapeutical Practice, about £4,000 p.a. Consultations, £3 3s.; Treatment, £1 1s. Premium half-share of goodwill £4,000.

43 LONDON, N.4.—PRACTICE, averaging £1,400 p.a., in suburban district. Panel 1,450, increasing. House to rent. Scope. Premium two years' purchase.

44 MIDLANDS.—Well-established PHYSIO-THERAPEUTIC PRACTICE in first-rate town. Receipts 1937, nearly £1,300. Excellent house for sale. Scope for X-Ray work. Premium one and a-half years' purchase.

45 MIDDLESEX.—PRACTICE in growing district, within 11 miles of Marble Arch. Receipts past year, £650. Panel 280. House to rent. Premium two years' purchase.

46 S. COAST HEALTH RESORT.—PARTNERSHIP (after Assistantship) in Practice, £2,526 p.a. Panel about 2,300. House to rent at £150 p.a., or other accommodation obtainable. One-third share at two years' purchase.

47 MIDLANDS.—ASSISTANT required with view to PARTNERSHIP in Practice in flourishing town. Receipts £2,100 (club worth nearly £700 p.a., and panel 2,700). One-third share at two years' purchase.

48 EAST ANGLIA.—PRACTICE, averaging £1,340 p.a., in flourishing town. Clubs, and panel about 1,700. Good house for sale. Scope. Premium £2,700.

49 LONDON, S.W.—PRACTICE averaging over £1,250 p.a. Panel 1,000 and P.M.S. Good house with large garage and exceptionally nice garden for sale. Good scope. Premium £2,500, to include drugs, etc.

50 LONDON, S.E.—PRACTICE doing about £600 p.a. in outlying residential suburb. Panel 1,000. Good house (5 bedrooms), garage and nice garden, for sale. Scope. Premium £1,200.

51 HOME COUNTY.—Medical Woman's PRACTICE, over £1,600 p.a., in country town. Panel 250. Well-situated house for sale. Capable considerable development. Suitable for two medical women or medical man whose wife is also qualified. Premium £3,000, to include drugs.

52 LONDON, N.7.—PRACTICE, about £2,000 p.a., including valuable appointments and panel 1,200. Small house, garage and garden, for sale or rent. Premium two years' purchase, or reasonable offer.

53 LONDON, S.E.20.—PRACTICE, averaging £1,750 p.a., in suburban district (appointments returning about £350 p.a.). Panel 966. Modernized house with garage and garden. Rent £100 p.a. Premium 1½ years' purchase.

54 SOUTH OF ENGLAND.—PARTNERSHIP in non-dispensing Practice, £7,800 p.a., in residential watering place. Panel 2,000. Good house to be purchased. One-seventh share. Premium two years' purchase. Partner should be aged 28-35, and possess M.D. or M.R.C.P.

55 SOUTH COAST.—PARTNERSHIP in steadily increasing Practice of £2,000 a year in growing district. Panel 1,400. One-third share at first at two years' purchase. Preliminary Assistantship.

56 EASTERN COUNTIES.—Middle and working-class town PRACTICE. Cash receipts past 12 months £3,600. Panel 2,500. House 15 bedrooms, etc.), to rent on lease. Premium two years' purchase, or near offer.

57 S.W. OF ENGLAND.—Non-dispensing general and surgical PRACTICE, averaging £1,636 p.a., in favourite watering place. Small panel. House for sale or rent. Good hospital. Premium £2,800.

58 KENT.—PARTNERSHIP in Practice in industrial town. Cash receipts last year, £3,646. Panel about 1,400. House with 6 bedrooms and dressing rooms, to rent. Share of about £1,200 p.a., two years' purchase.

59 HOME COUNTIES.—PRACTICE about £750 p.a. in growing residential district, within 15 miles of London. Panel 540. Nice house, garage and garden, price £1,600. Purchaser should be English or Scottish. Premium £1,400.

60 SUSSEX.—NUCLEUS, near coast. Receipts past year £270. Panel about 200. Charming house and garden for sale. Alternative house to rent if desired. Premium £450.

61 EASTERN COUNTIES.—PARTNERSHIP in old-established middle- and working-class Practice, £3,600, in country town. Panel 2,500. House available to rent. Premium one-third share two years' purchase.

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A. CENTRAL SCOTLAND.—Medical Woman's PRACTICE. Receipts approximately £400. Panel 270. Suitable house to rent. Premium £350.

B. EAST OF SCOTLAND.—PARTNERSHIP Industrial town. Receipts about £2,000. Substantial panel. House with garage to rent. One-half share 1½ years' purchase.

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C. EAST OF SCOTLAND.—Industrial town. PRACTICE averaging £1,080. Attractive house and garden. Premium, practice and house £3,000.

D. E. OF SCOTLAND.—Industrial town. Rapidly growing PRACTICE. Receipts past year, £1,504. Panel 1,223. House with garage to rent. Premium £2,750.

E. E. OF SCOTLAND.—Country town. Receipts last year, £685 (appointments £112, panel 565). Excellent house with garage and garden. Price £1,450. Premium £1,000.

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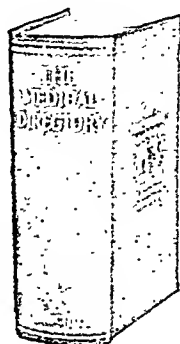
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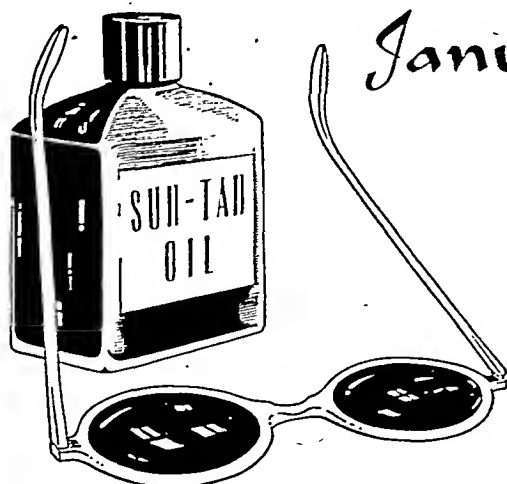
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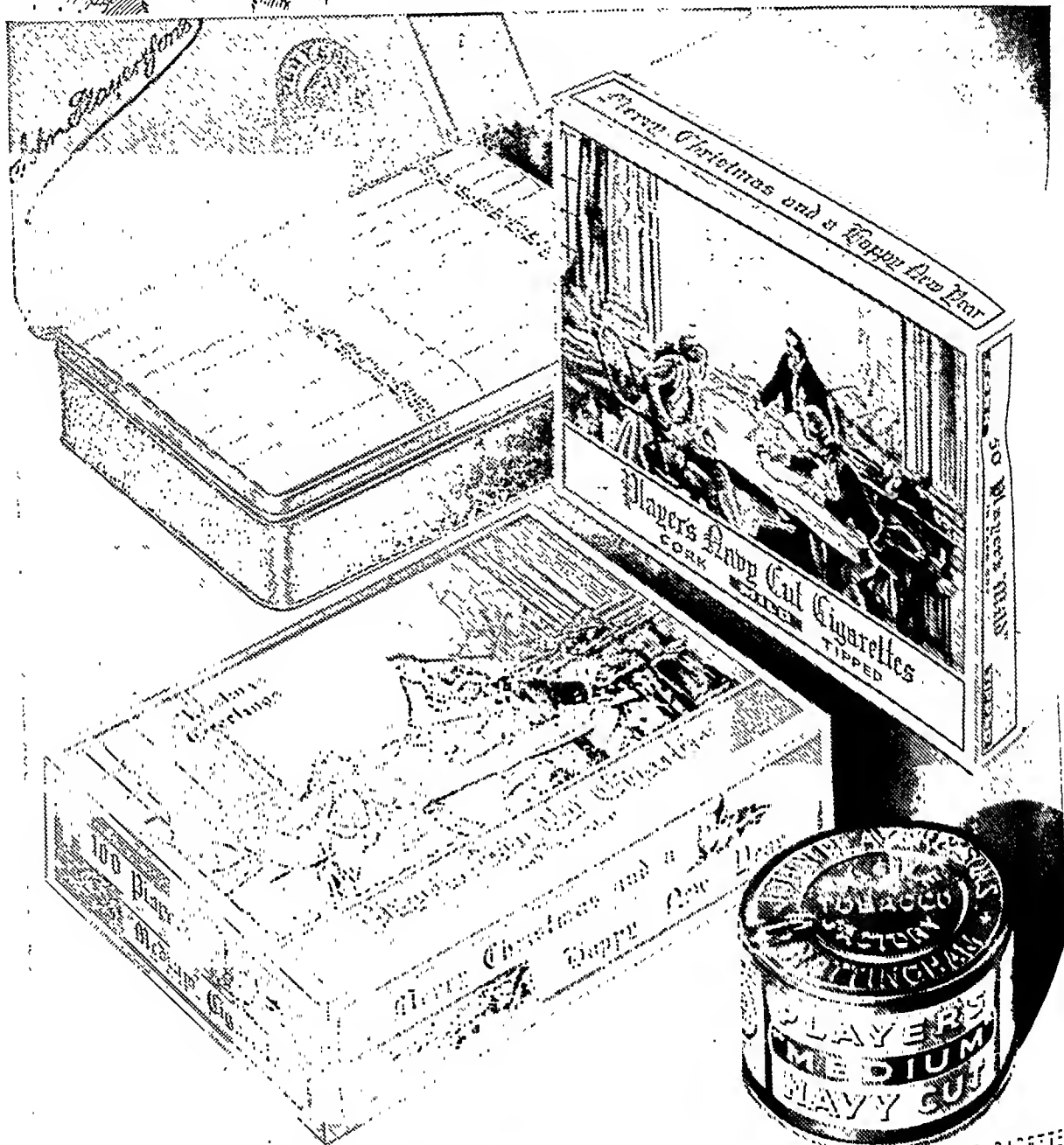
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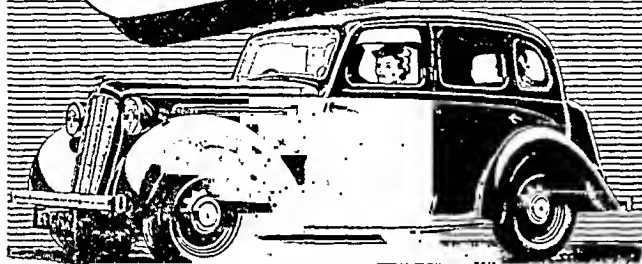
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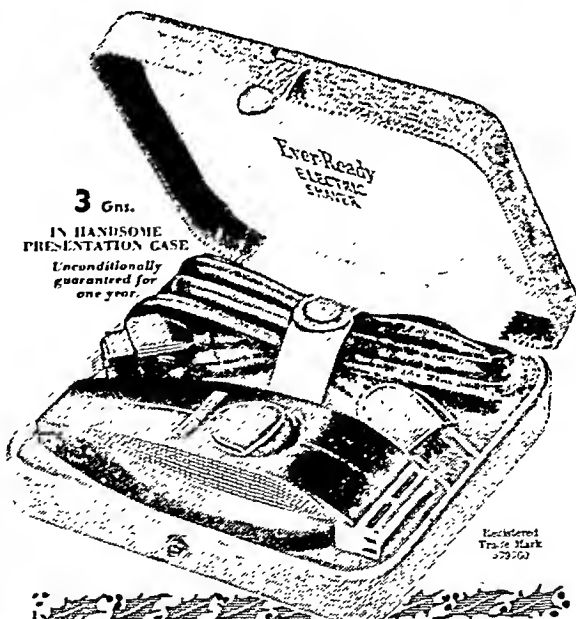
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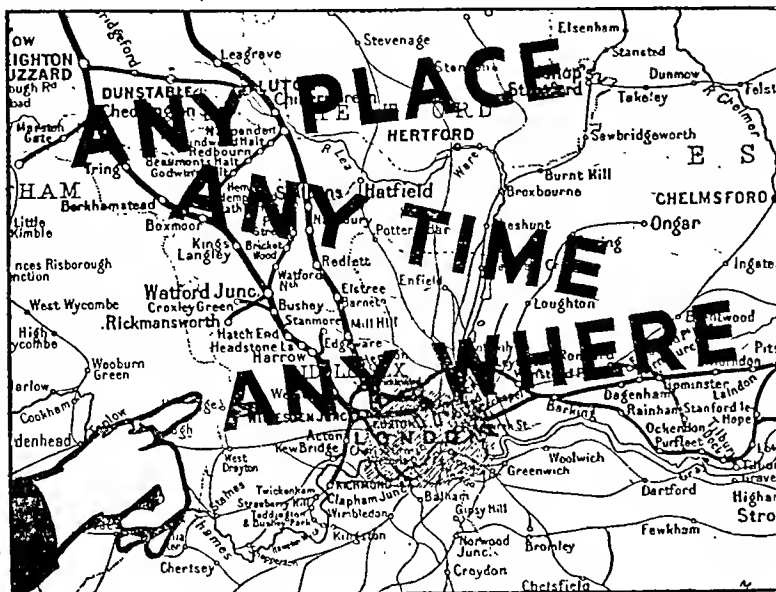
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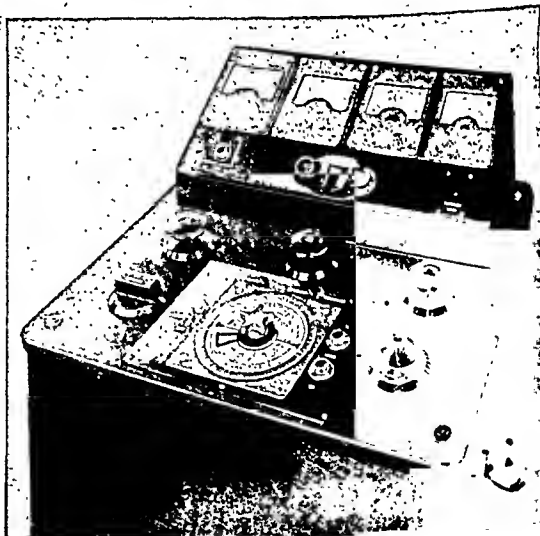
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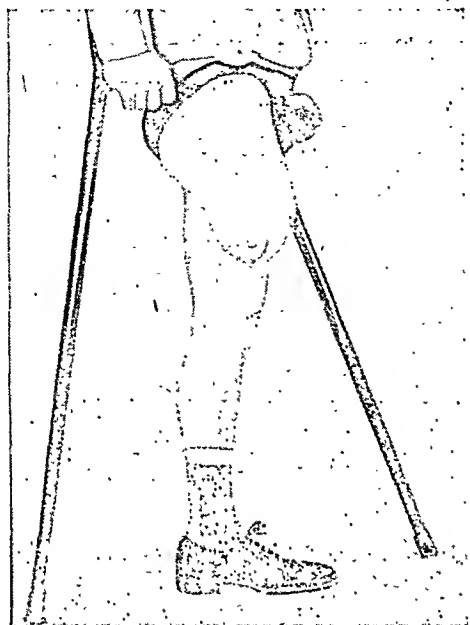
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Chapter 1 from BACK TO ACTIVITY★



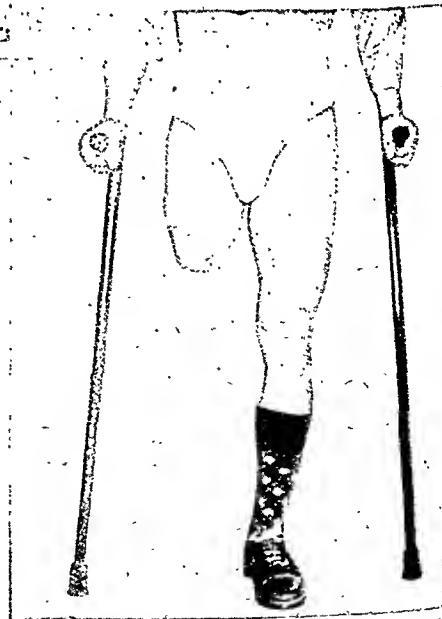
1. Primary above-knee amputation showing typical flabby condition found in early stages. The stump is flexed and extension restricted. Note the terminal bulbous mass of loose flesh.

The preparation of the stump



2. The stump is bound so as to compress the flesh into the desired taper shape and exercised daily by means of the Desoutter Elastic Exerciser.

3. After 6 weeks' use of the exerciser. Note the extensive shrinking of the soft flesh and re-development of the muscles.



★ It is unfortunate that an amputation stump never takes its final shape and size until some six or eight months after first wearing the limb, and to that extent the first fit cannot be the final one. But much can be done to speed up the process of shrinkage. In Chapter 1 of "BACK TO ACTIVITY" Mr. Desoutter explains the methods of bandaging and exercising, and discusses how stump muscles can be developed, superfluous flesh reduced, and the tendencies to flexion and abduction counteracted. A copy of this book will gladly be sent on request.

DESOUTTER

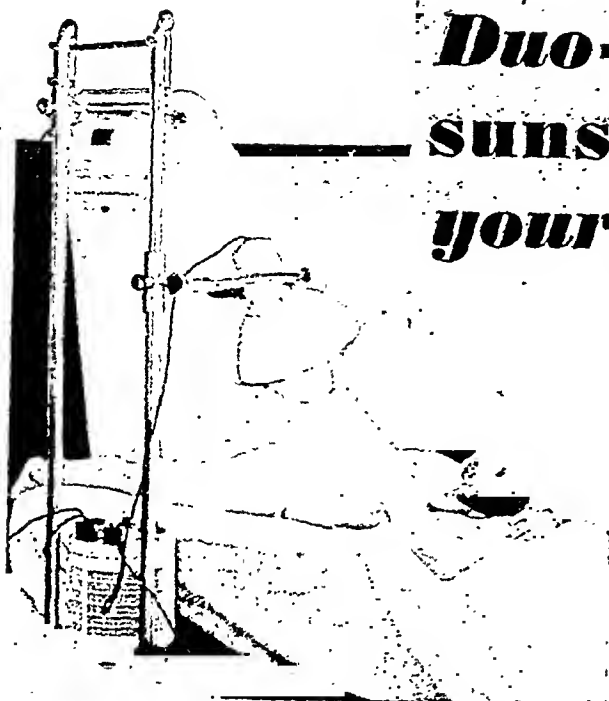
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There is no reason why you should go without the benefits which actino-therapy brings to both practitioner and patient. But your results depend largely on effective apparatus. No skill or study will enable you to overcome self-imposed defects due to inadequate or outworn equipment.

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A comprehensive Guaranty, full operating instructions, technical aid when needed, a complete 185-page Handbook of Technique, and enrolment for special actino-therapy magazine, are furnished free to every professional user of Hanovia equipment, anywhere in the British Empire.



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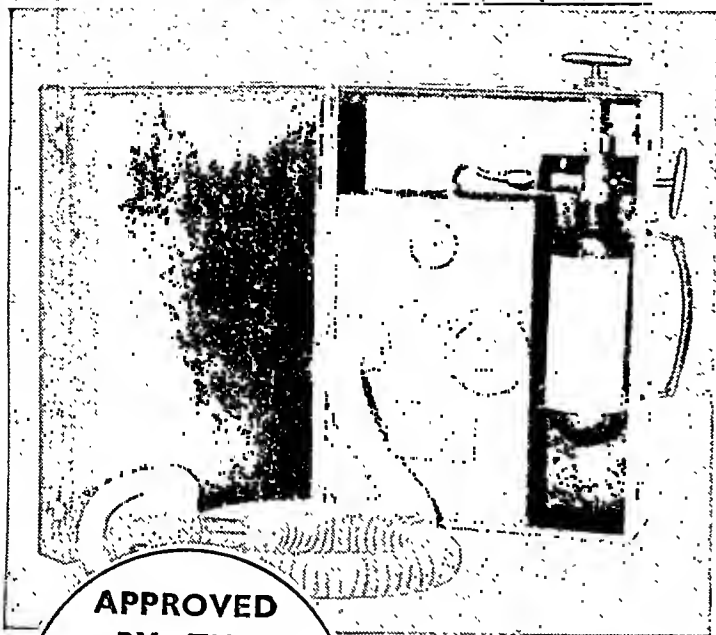
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**DESIGNED FOR
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LOW COST
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BY CENTRAL MIDWIVES
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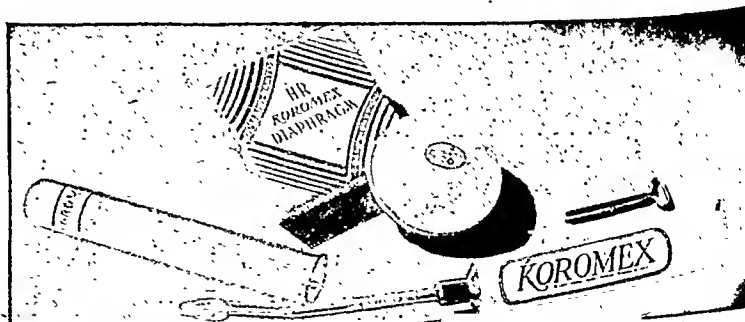
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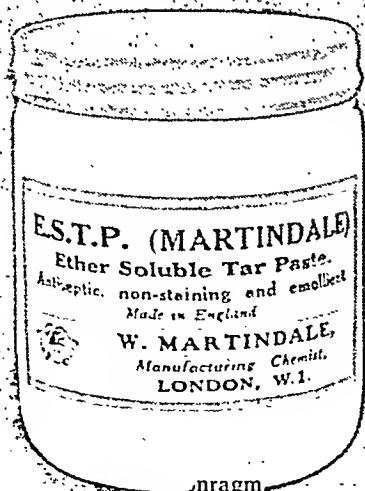
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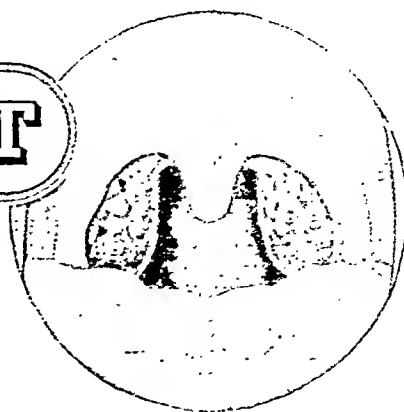
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(Standardised Vitamins A and D)

*The guardian of
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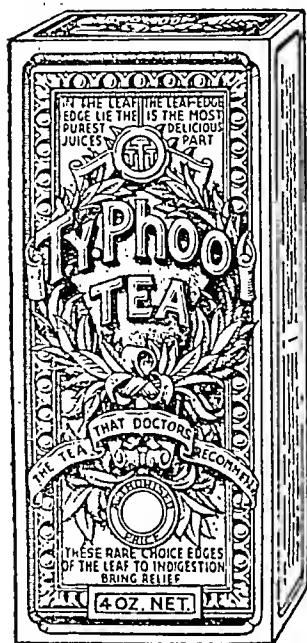
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| Reducing sugars as invert sugar | 12.4 % |
| Carbohydrates other than sugars (by difference) | 0.38 % |

Dole Pineapple Juice comes to you field-fresh from sunny Hawaii—a golden, nutritious drink from Hawaii's King of Fruits



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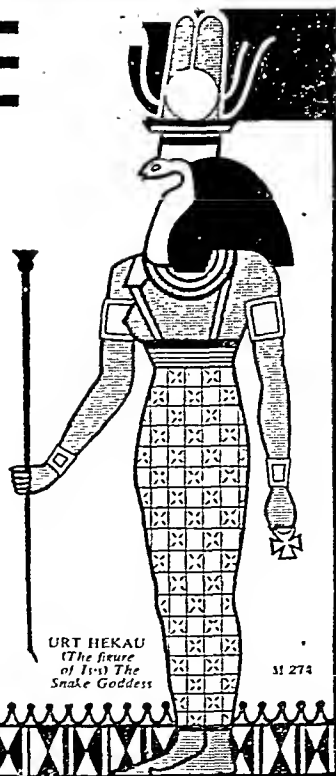
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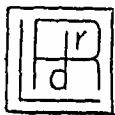
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Ampoules for subcutaneous injections—Biological standardisation—
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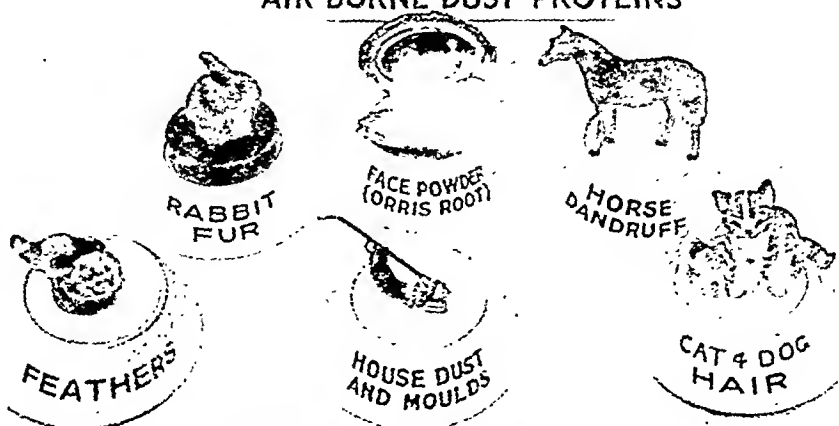
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Now is the time for **IMMUNITY**
AGAINST COLDS AND INFLUENZA

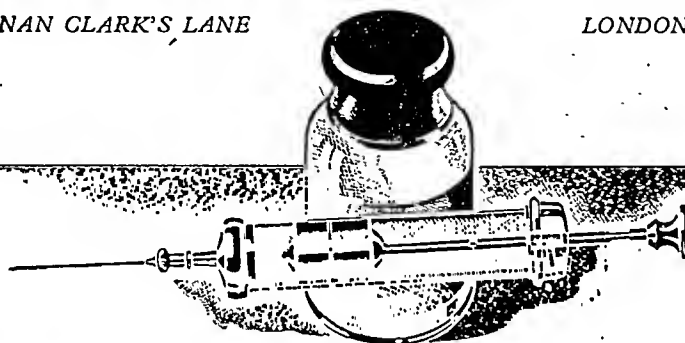
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Research carried out in the B.D.H. laboratories led to the determination of the physiological rôle of Vitamin E in the animal organism.

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SPECIFIC GALACTAGOGUE

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Each Tablet Contains:

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Theobromine 1 gr.
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MENOPAX tablets not only compensate for ovarian hormone deficiency, but owing to the inclusion of symptomatic medicines, they also have a very rapid effect in all cases of Vasomotor Disorders, Hypertonia, Irritability of the Vegetative Nervous System, Insomnia, Pruritus, Congestion, Palpitation, Depressed Conditions and certain Intestinal Disorders. The reasonable cost permits them to be freely prescribed.

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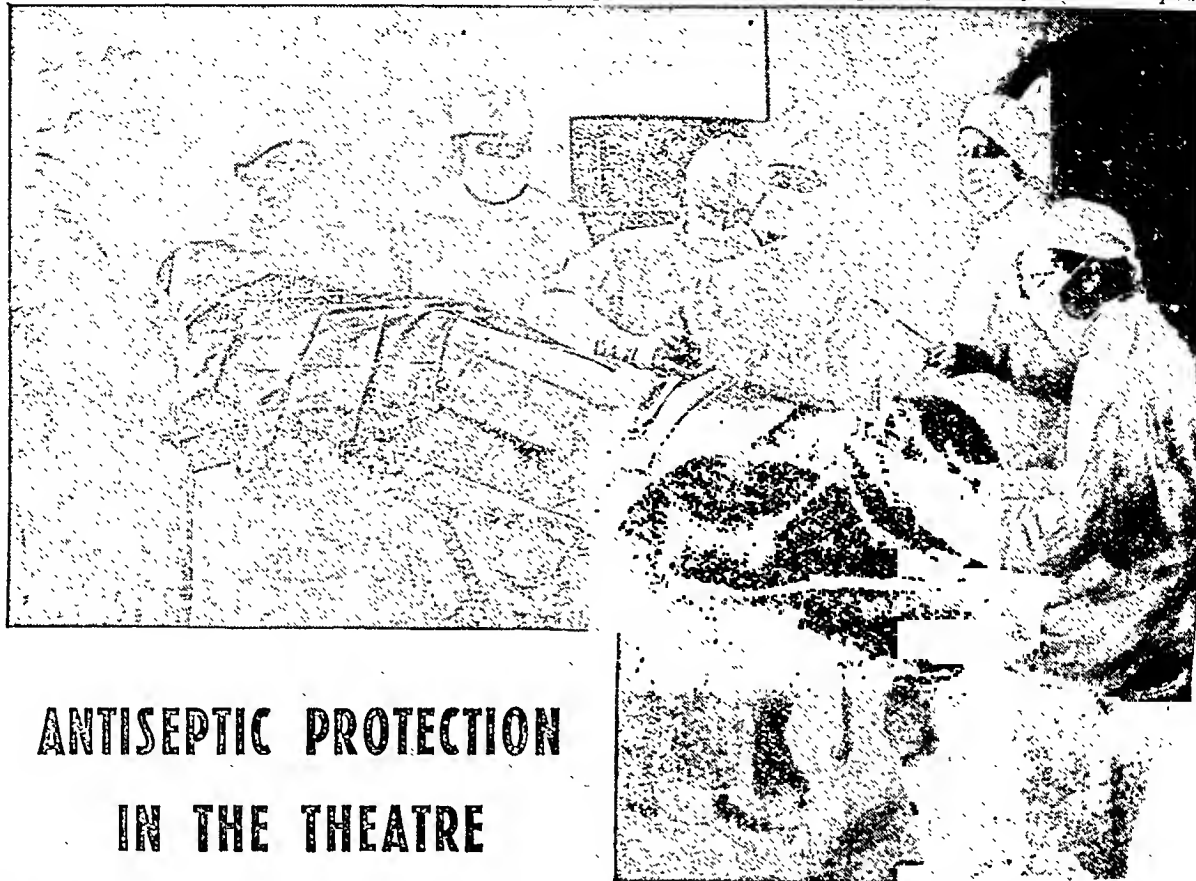
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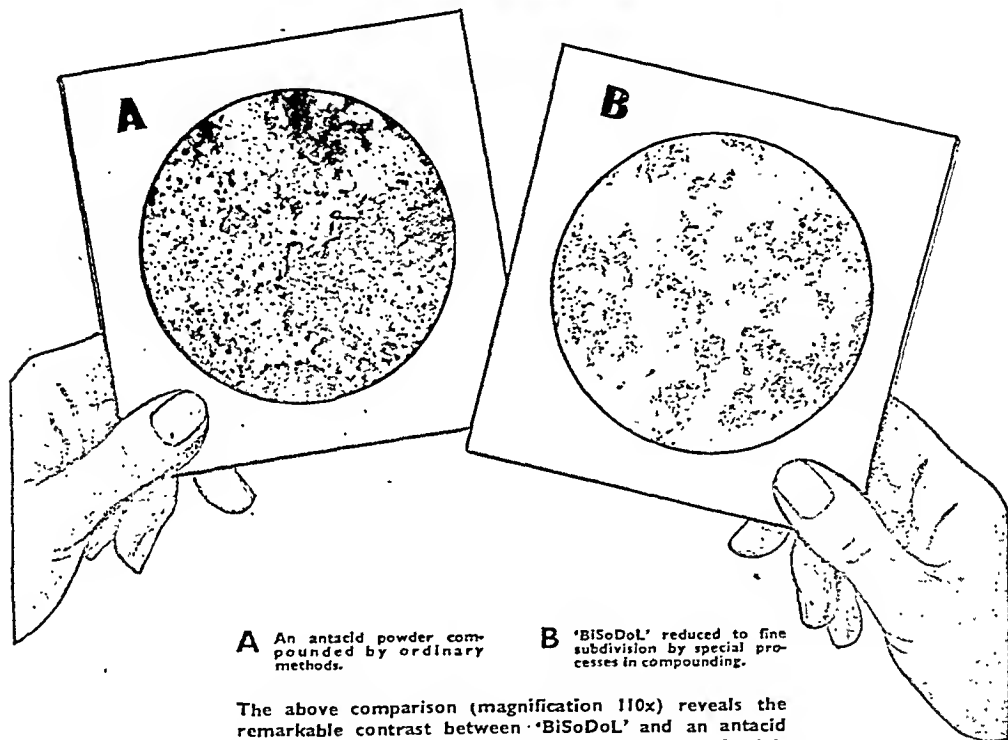
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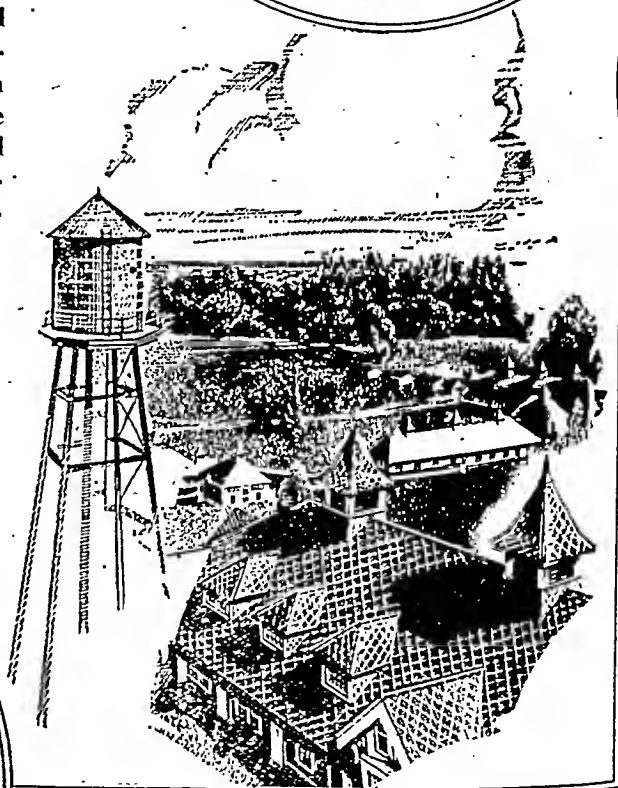
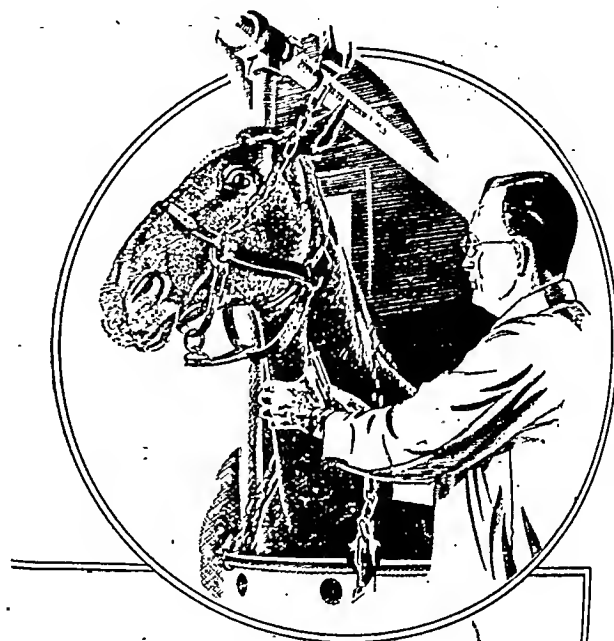
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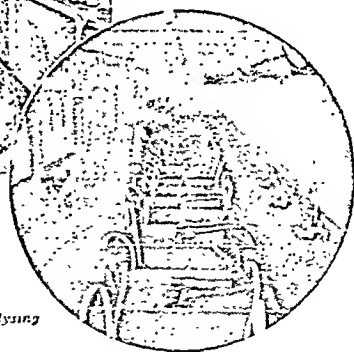
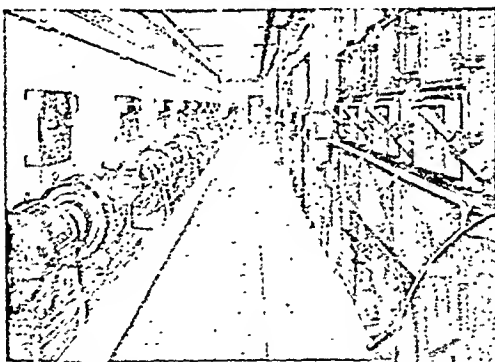
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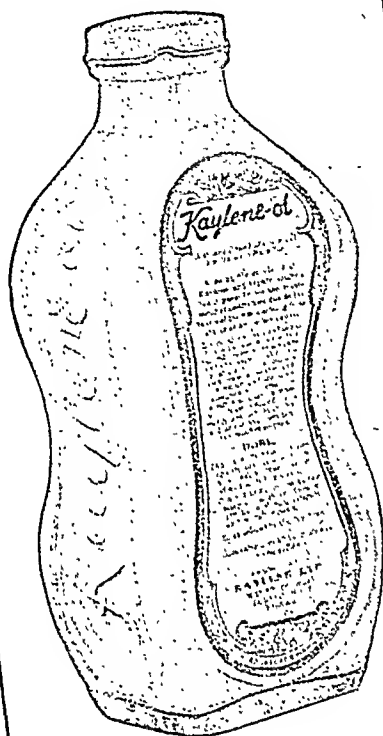
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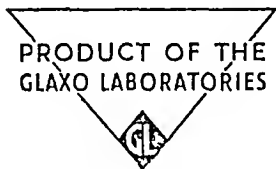
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BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 3 1938

THE SEPTIC HAND*

BY THE LATE

SIR DAVID WILKIE, M.D., Ch.M., F.R.C.S.

Professor of Surgery, University of Edinburgh

A discussion on the septic hand cannot fail to be instructive, because, in the first place, it makes us clarify and bring into focus our views on acute infections and the principles on which they should be treated, and, in the second, it brings into prominence an oft-neglected but all too common problem of everyday practice.

There has been an unfortunate tendency to regard infections of the hand as among the minor surgical maladies. In point of fact such infections are of primary importance, for not only do they not infrequently endanger life but quite commonly they lead to lasting disability in men who have to earn their livelihood by manual work. Rational treatment of such infections will depend (a) on a sound knowledge of the infective process, and (b) on a familiarity with the anatomical structure of the hand and the relation of this to varied types of infection. We owe a great deal to two men for our modern treatment of hand infections—to Bier for his illuminating studies of the infective process, and to Kanavel for his contribution to the pathological anatomy of the infected hand.

The Infective Process

Mild infections of the hand are of hourly occurrence, although but a very small proportion of them ever reach the doctor. There is obviously a considerable local and general immunity against the stray bacteria found on our hands and on the varied objects which may inflict an accidental wound. Every now and then, however, a germ of some virulence gains access, or a wound with devitalized edges presents a soil in which otherwise harmless germs may flourish and we recognize that infection has gained a hold. The signs of such a foothold are local pain and swelling, and the general evidence of poisonous absorption, such as rigor, rise of temperature and pulse, and dryness of the tongue and mouth.

In the mildest degree of infection the local defence mechanism appears to be easily capable of dealing with the invading germs. The transient blush, which means that the local vascular and cellular reactions have quickly overcome the invaders and restored the part to normal, has a lesson for us in the treatment of infections. Local hyperaemia permits a rapid concentration of defences and

confines the fight to a little zone around the point of entrance of the germ. If we could restrict the area of infection to the tissues round about the point of entry, if we could have the fight fought to a finish in the outskirts and preserve intact the inner defences and the citadel, we should have an almost painless victory with the minimum of loss.

Bier's great contribution to the study of infection was his demonstration that, by controlling the return circulation of blood and lymph from an infected part and producing a slight lymph stasis in the area, we may not only limit the central spread of infection until such time as the process of immunity is fully under way, but we may by bathing the infected area in lymph dilute the poisons, reducing pain and favouring recovery with a minimum of tissue damage by suppuration or necrosis. In this country his message was understood imperfectly, and "Bier's congestion" was taken to imply a venous stasis induced by elastic constriction verging on the degree

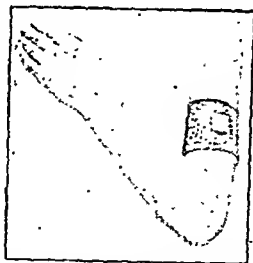


Fig. 1.—Bier's bandage applied to the upper arm. (The bandage is applied direct to the skin and secured by a small bit of adhesive strapping. There is no blueness or swelling of the forearm.)

at which capillary haemorrhage occurs. While Bier freely acknowledged that he got the idea from Thomas's method of treating delayed union of fractured bones and that he applied the short period of intense venous stasis in the treatment of tuberculous joints, he maintained that the method of using long-continued mild blood and lymph stasis in acute infections was a later evolution and a discovery of which he had reason to be proud.

If this discussion does nothing else than induce you to use mild passive hyperaemia in acute infections it will

* Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Plymouth, 1938.

not have been in vain. I consider that a Bier's elastic bandage is the most valuable piece of apparatus a practitioner can possess, with the obvious proviso that he knows how to use it.

Besides this principle of seeking to localize infection whilst immunity is rising, two others immediately suggest themselves. Can we do anything by way of the blood stream (a) to kill off the infecting bacteria; (b) to raise artificially the patient's immunity to their toxin? The era of effective chemotherapy would seem to have been inaugurated, and the discovery of the sulphonamide group of drugs has opened a new and hopeful chapter in the treatment of virulent infections. The use of antitoxic sera, although somewhat overshadowed during the past two years by chemotherapeutic measures, has now an imposing array of successes to its credit, and in severe infections of known character it should, if available, always be tried. Such measures as inducing free excretion by kidneys, skin, and bowels by copious libations of bland fluid, the replenishing of the liver by giving

pulp infection and the need for early opening when the infection gets a hold. We know the anatomy of the spread of pus in an acute paronychia, and the simple but important means of draining it effectively.

Acute Streptococcal Infection with Lymphangitis

When from a punctured wound or from a scratch virulent streptococci gain entrance to the tissues we may see within a few hours the evidence of their multiplication and their spread. The hot throbbing wound, the ache up the arm, the rigor followed by a sharp rise of temperature, indicate a severe infection. On examination there may be local redness and some oedema of a finger, some swelling of the dorsum of the hand, faint red lines up the forearm, and some tenderness in the axilla, all indicating a virulent and rapidly spreading infection. How is such infection best combated? The patient is put to bed and given copious diluent drinks. A warm moist dressing is applied to the hand and forearm and a few turns of a thin elastic bandage are wound *lightly*

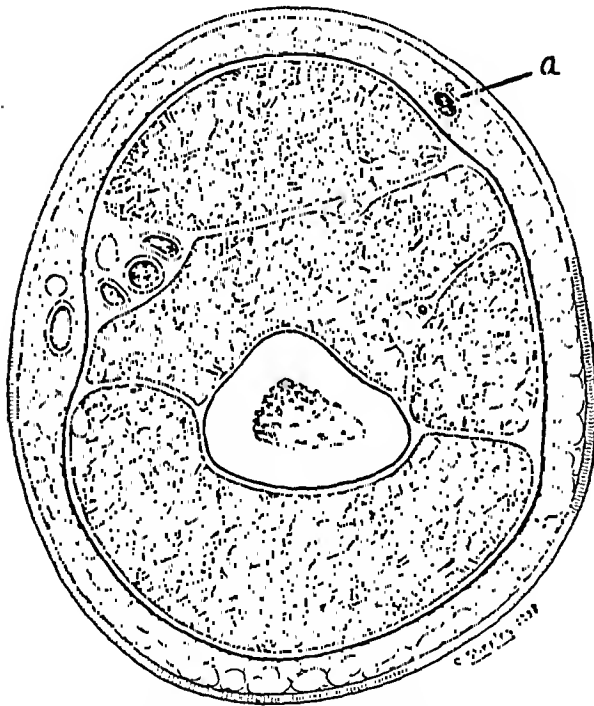


FIG. 2.—Transverse section of upper arm. *a* = subcutaneous vein with accompanying lymphatics.

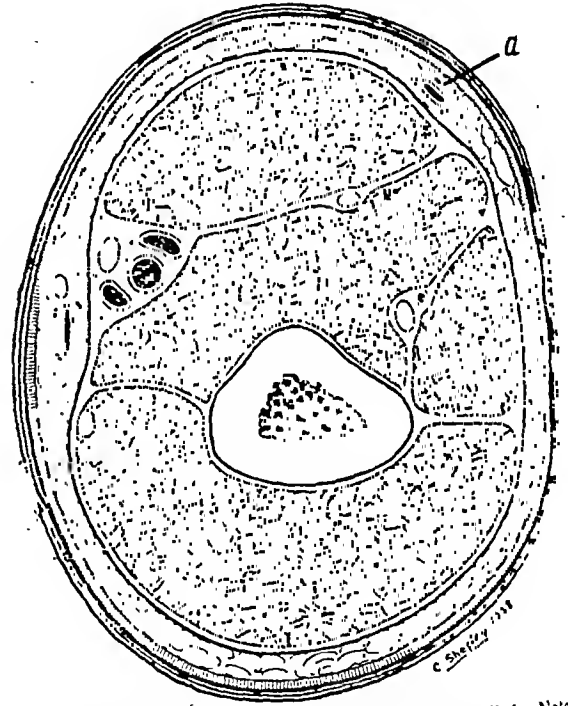


FIG. 3.—Section of arm with Bier's bandage applied. Note compression of superficial vein and lymphatics (*a*); the vessels beneath the deep fascia are compressed little if at all.

glucose in the drinks, favouring metabolism and sleep by sunlight and fresh air, all tend to aid the more specific forms of therapy.

The Pathological Anatomy

Kanavel, by his intensive study and analysis of hand infections and his differentiation of types and the anatomical approach in dealing with each, gave a new impetus and interest to the treatment. As in so many other regions of pathology, it is by the study of early stages that we observe the essential nature and the lines of spread of different infections. In the full-blown massive and oedematous infected hand it is oftentimes difficult to detect the true locus of the underlying infection. We have learned, however, to recognize the signs of tendon-sheath infection, of infections in the various palmar spaces, and of those in the deep forearm space. We now know the anatomical restrictions of the finger-

round the upper arm (Fig. 1). The bandage is applied direct to the skin in such a way that a gentle pressure obstructs the superficial veins and lymphatics and, without producing any blueness or duskiness, causes a mild lymph stasis in the limb (Figs. 2 and 3). The secret of successful application of the bandage is the abolition of pain. If pain is increased the bandage is too tight and must be reapplied. The elastic bandage may be left on continuously for forty-eight hours with advantage.

Recognizing from the physical signs the streptococcal nature of the infection, it is well to give without delay 30 c.c.m. of streptococcal antitoxic serum after desensitization. At the same time treatment with one of the sulphonamide preparations is instituted. A careful watch is kept for the development and localization of pus in the hand and forearm, but no great haste is made to interfere locally unless there be signs of a finger-pulp or tendon-sheath infection.

The effect of lymph stasis in localizing the infection is in my experience remarkable, and skill in the application of Bier's elastic bandage is a great asset to all who have to treat such cases. The decision as to when a studied conservatism should give place to active surgical intervention requires nicety of judgment, but as a general rule it may be said that delayed is wiser than premature incision.

Finger-pulp Infection

Owing to its peculiar anatomical structure the finger pulp demands special attention. The dense fatty layer which forms the pulp is broken up into compartments by fibrous septa, which further bind the skin down to the bone. Any infection, with oedema and effusion, produces great tension within the pulp. The terminations of the digital arteries, including the branch to the distal phalanx, traverse the pulp and are exposed to the tension within it. This may be so great as to compromise the blood supply to the phalanx, and necrosis results.

It is obvious, therefore, that special anatomical conditions here determine early intervention. If within thirty-six hours of the onset of pain there is no sign of amelioration an incision made on one side of the distal phalanx is carried well down into the pulp, opening up its spaces. A counter-opening on the other side of the phalanx is sometimes desirable. Even after opening the finger it is wise to continue with the fomentations and the passive hyperaemia.

Tendon-sheath Infections

Spread of infection to a tendon sheath is heralded by severe pain and interference with the function of the finger. This is held in a position of semiflexion. Any effort to straighten it causes acute pain. Definite localized tenderness is met with on pressing over the proximal end of the tendon sheath in the case of the index, middle, and ring fingers, and over the line of the sheath in the case of the thumb and little finger.

As soon as infection of a sheath is diagnosed a general anaesthetic should be given, a tourniquet applied to the arm, and an incision made along one side of the proximal phalanx of the affected finger. The bulging sheath is incised and, if purulent fluid escapes, further incisions may with advantage be made along the side of the second phalanx and in the palm. In the case of the thumb and little finger incisions must be made along the thenar and hypothenar eminences and at the wrist to drain the radial and ulnar bursae respectively. Hot saline baths and active movement of the fingers should be encouraged, as they favour drainage. Tubes and rubber drains are better avoided.

Palmar Space Infections

The infection of one or other of the palmar spaces, so clearly defined by Kanavel, may arise from an infected wound of the palm, by lymph spread from a finger, or by rupture of an infected tendon sheath. When due to the last-named the clinical features may be confusing, but the treatment is seldom in doubt. The spaces, being deeply situated, may contain pus under tension without obvious fluctuation being detectable. The dense palmar fascia offers an unyielding barrier to forward spread. The metacarpals and the interosseous muscles bar the way behind and pus is forced to travel along the lumbricals to the web between the fingers, where it bulges, points, and,

if not opened, bursts. The drainage of these spaces, either from the web back along the lumbricals or by incising the palm—preferably the former—will, as a rule, lead to rapid improvement if no tendon sheath has suffered.

Forearm Infection

In some cases, and particularly those of neglected tendon-sheath or palmar space infections, swelling and oedema of the lower part of the forearm may suggest a deep-seated cellulitis. Suppuration in Parona's space—that is, beneath the flexor muscles and tendons and in front of the pronator quadratus—is diagnosed. When oedema and redness involve the lower half of the forearm and considerable tenderness is elicited over the front of its lower third and above the carpal bursa, then one may rest assured that pus is collecting in the deep forearm space. Without delay this should be opened under a general anaesthetic with a free incision, laying open the abscess on one side and a counter-opening for a drain on the other.

Amputation of Fingers

With severe tendon-sheath infection, even after reasonably early opening, it is no uncommon thing to find one or both flexor tendons sloughed. Not infrequently along with this the first interphalangeal joint becomes involved, with softened ligaments, shedding of articular cartilage, grating, and lateral mobility. We should realize that a stiff or tender finger may be a crippling handicap to the labouring man. It is always a keen disappointment at the end of many weeks of painful dressings for him to find that his trouble and patience have been in vain and that amputation is necessary. Sloughing of tendons, if accompanied as it so often is by disorganization of a joint, should point to amputation without undue delay. Gangrene of the distal part of the finger, met with in severe infections, is another indication for amputation. Amputation should never be performed when the inflammation is at its height. A little delay is beneficial, and helps to avoid any flare-up or central spread of infection.

Indolent Infections

A not uncommon type of infection, especially among field workers, is one associated with brawny induration, little tendency to pus formation, and slight general reaction. The usual signs of tendon-sheath or palmar space infection are difficult to determine, and indeed may never develop. In such cases short-wave therapy has been found of material value, and, if available, should always be employed. In some cases the infection may slowly resolve without suppuration but with a considerable period of disability; in others pus may eventually form in the palm or in the forearm and require evacuation by incision. Complete recovery from such low-grade infections may take many months, but eventually may be complete.

Rehabilitation in Hand Infections

The acute phase of infection commands our interest and attention: all too often the slow, tedious phase of convalescence receives but scanty care. Almost without exception infections of the hand and forearm are followed by fibrosis with its attendant stiffness. The more protracted the suppuration the greater will be the resultant disability from cicatricial fibrous tissue. When pus has formed and has localized, generous incisions allowing of

the freest drainage will, by hastening resolution, diminish the subsequent fibrous contractures.

It is very desirable that those who are responsible for the treatment during the acute inflammatory phases should also supervise the subsequent treatment by physiotherapeutic means. While few would challenge the value of complete rest to the part during the early acute phase of inflammatory reaction, few would deny the benefits of active movement and of exercise once the florid spreading stage is over and the early dangers are past. Apart from the sloughing of tendons and the involvement of joints which give permanent stiffness, we have the adhesions in tendon sheaths, the fibrosis in the fascial planes between the muscles, the fibrous plaques which form where tissue was destroyed. If the thought of function be kept uppermost in our minds in conducting the treatment in the stages which follow that of the invasive process, we shall never permit the development of the unbreakable barriers to movement which determine crippledness in the neglected case.

The use of active and purposive exercise in restoring useful movement should govern the tedious period which follows that of nursing care. Massage and passive exercise have their place, but active movement, controlled and guided by the patient's will, is the effective element in treatment. If interest and achievement lend their spur to effort, the patient, progressing from one task to another designed to increase the range of certain movements, passes unconsciously from invalidism back to effective work. The workshop now forms an essential part of the equipment of the convalescent institution. Our responsibility for treatment does not end until the maximum of usefulness has been restored.

Summary

1. Acute infections of the hand should be treated in the first instance on conservative lines.
2. In very severe infections three measures may be employed: (a) lymph and venous stasis (Bier); (b) chemotherapy (sulphonamide); (c) passive immunity (antitoxic serum).
3. In certain areas—for example, finger pulp and tendon sheaths—anatomical considerations make early opening desirable.
4. As soon as the early dangers are past, efforts to restore function should begin, and they should end only when the maximum return of function that is possible has been attained.

At the eleventh British Congress of Obstetrics and Gynaecology, which, as already announced in these columns, is to be held at Edinburgh on April 4, 5, and 6, 1939, the chief subject for discussion will be pain in labour and methods of alleviation, to be introduced by Professor Chassar Moir of Oxford and Dr. John Sturrock of Edinburgh. The official guests of the Congress will be Professor Wagner (Berlin) and Dr. Samuel Meaker (Boston). Other communications will deal with genital hypoplasia, dysmenorrhoea, tubal infection, hyperemesis gravidarum, results of pregnancy toxæmia, trichomonas infection, male sterility, habitual abortion, and myometrial activity. A visit will be paid to the Department of Animal Genetics under the direction of Professor F. A. E. Crew. There will be a demonstration of pathological specimens, and those who desire to exhibit pathological material are asked to communicate with the local secretary of the Congress, Dr. Chalmers Fahmy, 7, Chester Street, F.R.C.S., to whom other information concerning the Congress may be obtained, and of those in the know the anatomical restrictions.

THE CORRECT NAME OF THE MALIGNANT TERTIAN MALARIA PARASITE

BY

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AND

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Not only is the malignant tertian malaria parasite referred to under a multiplicity of colloquial names, such as malignant tertian, subtertian, aestivo-autumnal, and "tropica," but even the zoological name of this species is a constant source of difficulty and doubt to those who have occasion to use it. Thus the name now in most general use is *Plasmodium falciparum*, but many authors employ the names *P. praecox* or *P. innocuum*, claiming that one or other of these is the correct specific designation. Uncertainty also exists as to whether this species should or should not be placed in the genus *Laverania*, and *L. malariae* and *L. falcipara* are names not uncommonly seen. Efforts to apply the rules of zoological nomenclature seem only to have added to the confusion.

The Present Position

Hitherto controversy has chiefly revolved around the question which of the specific names—*praecox*, *innocuum*, or *falciparum*—has the strongest claim to validity. Before any detailed discussion is entered into it is desirable first to review very briefly the present position in respect to these names. Grassi and Feletti (1890b) gave the name *Haemamoeba praecox* to a parasite found by them in the blood of birds from a certain malarious region in Italy, and also, later in the same paper, to the then newly discovered asexual stages of the parasite of aestivo-autumnal fever in man, believing the two parasites to be identical. Later Grassi and Feletti (1891, 1892) gave the name *relicta* to the same or a similar parasite in the blood of birds. Sergeant *et al.* (1929) consider that, although these authors gave the same name to the avian and the human parasite in the first place, they have by the subsequent naming of *relicta* automatically designated *praecox* as the human parasite, and that therefore the correct name for the latter species is *praecox*. This would be in accordance with a common procedure in zoological nomenclature—that is, where a name at first given has included two closely related species, one of which is subsequently designated by another name, the original name becomes applicable to the remaining species. Other authors (Schaudinn, 1903; Blanchard, 1905; Stiles, 1929) hold that the context in the original description shows that the name *praecox* was definitely given to the bird parasite, and that it must therefore be invalid for the human one, whatever subsequent procedure on the part of the authors may have been. In this case, if *praecox* be invalid for the human parasite, then some other name is required for it. Here again authors differ. Some hold with Schaudinn (1903) that the first valid name is *innocuum*, used by Grassi and Feletti (1892); others that this name is also invalid and that the proper one for the parasite is *falciparum*, given by Welch (1897). It is pointed out by Blanchard (1905)

* The junior author desires to thank the Royal Society of London and the London School of Hygiene and Tropical Medicine for the financial assistance which has enabled him to continue his work on malaria.

that the name *innoculatum* was used by Grassi (1891), previous to being given to the human parasite, to designate a blood parasite of a bird—the kestrel (*Cherchneis tinunculus*). In this paper Grassi goes on to say, just as was done with *præcox*, that he considers this avian parasite to be the same as the so-called “unpigmented parasite” reported in aestivo-autumnal fever in man, and on these grounds includes it in his list of human parasites. From such a point of view the name *innoculatum* must therefore be rejected for the human parasite for the same reasons as *præcox* was—namely, that the name was preoccupied by a bird parasite.*

The First Naming by Laveran

None of these arguments appears, however, to have sufficiently taken into account the circumstances relating to the first naming of the malaria parasite by Laveran, and the effect of such considerations upon the validity of the subsequent steps in nomenclature taken by Grassi and Feletti and others. In his book Laveran (1881a) gave the name *Oscillaria malariae* to the entirely new form of parasite discovered by him in the blood of malarial subjects. From the standpoint of zoological nomenclature everything depends on what description accompanied, or was referred to at, this first naming. It is immaterial what subsequent procedure in this respect was adopted by Laveran or any other author. Thus that Laveran later discarded the name *Oscillaria* as unsuitable has no relevance in deciding upon the correct nomenclature of this parasite. Also if the description clearly indicates the malignant tertian parasite and no other, then *malariae* is by right of priority the specific name of the malignant tertian parasite, independently of whether Laveran thought of the malaria parasite at the time as one or more species. Also if this description does so apply, then not only could there in this case be no other name having priority, but in no circumstances whatever should any other specific name (for example, *falciparum*) rightly replace it.†

After a careful examination of the original publications we have convinced ourselves that Laveran's description, given at the time of naming, relates with absolute certainty to the sexual forms of the malignant tertian parasites and to these only, whilst even in somewhat later descriptions (1882-4) no forms which can with certainty be assigned to any other species are included. The various descriptions given by Laveran at this period relate to four types of bodies, regarding which it is possible to say that bodies No. 1 were typical crescents, bodies No. 2 were exflagellating spheroid bodies, and bodies No. 3 “cadaveric forms” of Nos. 1 and 2. It is clear that all these forms were malignant tertian sexual forms. Laveran (1887) says: “A côté des éléments cylindriques en croissant on trouve presque toujours des corps ovalaires (E, fig. 4) qui paraissent être des formes intermédiaires aux corps sphériques et aux corps en croissant” (loc. cit., p. 270), and, in his book (Laveran, 1881a, p. 97), that “les éléments parasitaires du sang qui sont décrits dans ce travail sous les noms de corps No 1, No 2, et No 3 ne représentent probablement que trois phases du développement d'un seul et même parasite comparable aux oscillariées, vivant à l'état d'agglomération ou d'enkystement pendant une partie de son existence.” Only in regard to bodies No. 4 can there be any doubt as to these not being forms of malignant tertian. These forms

(No. 4) are, however, not mentioned in the description which accompanied the first giving of the name *Oscillaria malariae*. The reference commonly given in literature to such naming is “Laveran, 1881.”

Two papers published in that year in scientific journals (vide Laveran, 1881c, 1881d) do not include any scientific naming of the parasite. Only in Laveran's book (Laveran, 1881a), which we had some trouble to obtain, is the name *Oscillaria malariae* given, as later referred to by Laveran himself and others (Richard, 1882, 1883). The words used are: “S'il était démontré que les filaments mobiles des corps No 2 sont bien réellement de l'espèce oscillariées, le nom d'*Oscillaria malariae* conviendrait bien au nouvel hématozoaire” (loc. cit., p. 87). From this it is evident that the name *Oscillaria malariae* was applied to the microgamete which Laveran believed to be the mature form of the parasite. All the forms described by him in this connexion—namely, bodies Nos. 1, 2, and 3—have been universally accepted by subsequent workers as sexual forms of the malignant tertian parasite. As regards bodies No. 4 (intracorpuseular forms) it is perhaps now impossible to say what species they represent, but it is by no means impossible that these also are forms of the malignant tertian parasite, for Laveran notes that he originally worked especially with material obtained from the organs of patients dead from pernicious fever (Laveran, 1882), and the larger intracellular forms figured by him are compatible with developing crescents or even older schizogonous stages of malignant tertian. No one can say that they are with certainty any other particular species (vide later remarks in this paper *re* the quartan parasite). Laveran then, when naming the parasite, was certainly mainly concerned with, if his descriptions did not entirely relate to, the malignant tertian parasite. He himself, when referring to some doubts as to the subsequent nomenclature, says: “J'ai décrit le premier les hémamibes comme les corps en croissant” (Laveran, 1891; footnote to p. 93).

Grassi and Feletti's Classification

Even, however, if it be not granted that Laveran's description of *malariae* referred to the malignant tertian parasite, this specific name would still hold good, since, as we shall see, at a later date it was clearly designated as this parasite by Grassi and Feletti; for it is laid down that if two or more species have been included in an author's description under a given name (as has been maintained by some workers in regard to Laveran's name, but we believe without justification), and the same or another author later designates (as we shall show was done by Grassi and Feletti when they recognized the name *Laverania malariae* as pertaining to the forms seen by Laveran) one of these species as that to which such name applies, then this name for the designated species is valid, unless invalid on other grounds.

With such evidence as we have indicated above, we think that in ordinary zoological procedure Laveran's designation of the malignant tertian parasite as *malariae* would have been accepted unreservedly. Why, then, should subsequent authors maintain that Laveran described only the malaria parasite “in general” or the quartan in particular (vide the usual textbook statements)? It seems clear that this was done *not* on the merits of Laveran's description but in order to clear up difficulties in nomenclature subsequently created.

The clue to the confusion is to be sought in the names given to the parasites in the years 1890-2, when Marchiafava, Celli, Bignami, Grassi, Feletti, and other famous workers in the field of early malaria research made their pioneer observations. It is because it is difficult, looking back, to realize what the facts appeared like to these observers that we must be careful not to make unwarranted deductions based upon our present knowledge of these parasites.

* Workers using the name *innoculatum* for the human parasite usually refer to it as *Plasmodium innoculatum* (Gr. & Fel., 1892), whereas it should be *P. innoculatum* (Grassi, 1891), if this name is to be used at all.

† Vide Article No. 25 of the Rules of Zoological Nomenclature, which reads as follows: “The valid name of a genus or species can only be that name under which it was first designated, on the condition: (a) that this name was published and accompanied by an indication, or a definition, or a description; and (b) that the author has applied the principles of binary nomenclature.” For case of reference to these rules the reader should consult Wenyon (1926) (p. 1336).

In 1890 Feletti and Grassi, from observations on the parasites of birds from healthy and malarious localities, and as a result of what was then known about the human malaria parasites, came to the conclusion that there were two kinds of these parasites—namely: (1) those resembling amoebae, which they called *Haemamoeba malariae* and which in man gave rise to the regular fevers (quartan and tertian); and (2) others of a peculiar morphology and character, as described by Laveran, which they called *Laverania malariae* and which they considered to be the cause of the irregular fevers. In the same year Grassi and Feletti (1890b), in a remarkable appendix added to the French transcript of an original paper in Italian (Grassi and Feletti, 1890a), (i) gave names to the two species of parasite (included in *Haemamoeba malariae* Feletti and Grassi, 1890) as shortly before differentiated but not named specifically by Golgi (1889)—that is, *H. malariae* (of quartan fever) and *H. vivax* (of tertian fever)—and (ii) added a third species, *H. praecox* (of quotidian fevers).^{*} In the following year Grassi (1891) named yet another species, *H. immaculata*, also a parasite of the quotidian fevers. These last two species (*praecox* and *immaculata*), in so far as they can be held to apply to the human parasites, related to the asexual forms of the malignant tertian parasite of which Laveran had already described and named the sexual stages, though at that time this relationship was unknown to Grassi and Feletti. We have, then, in 1892 five names assigned to the malaria parasites of man, as set out by Grassi and Feletti (1892):

Laverania malariae. (The sexual forms of the parasite of malignant tertian malaria.)†

Haemamoeba malariae Grassi & Feletti. (The parasite of quartan malaria.)†

Haemamoeba vivax Grassi & Feletti. (The parasite of benign tertian malaria.)†

Haemamoeba praecox Grassi & Feletti. (Name applied to a parasite of birds and also to the asexual forms of the malignant tertian parasite.)†

Haemamoeba immaculata Grassi & Feletti. (Name applied to a parasite of birds and also to the asexual forms of a supposedly special type of the malignant tertian parasite.)†

Of these specific names the first stands, for we have shown that it was clearly given by Laveran to the sexual forms of the malignant tertian parasite and that there could be no question of any previous name. *H. vivax* remains valid for the so-called benign tertian parasite. *H. malariae* Gr. & Fel. (nec *H. malariae* Laveran) would also be valid to this day as applied to the quartan parasite, provided *Laverania* and *Haemamoeba* (= *Plasmodium*) are retained as two separate genera.

Classification in One Genus

At the present time probably very few authorities would support *Laverania* as a genus desirable on morphological grounds. Both Schaudinn (1903) and Blanchard (1905) thought that Grassi and Feletti were not justified in separating the genus *Laverania* from the genus *Haemamoeba* (= *Plasmodium*), and considered that all the human malaria parasites should be included in one genus—*Plasmodium*. This is the common usage at present. Schaudinn (1903) and Blanchard (1905) state that when *L. malariae* is absorbed in the genus *Plasmodium* the specific name *malariae* lapses for the malignant tertian parasite, because there is already a *malariae* (the quartan parasite) in the latter genus. This is an incorrect procedure, for it is the more recent specific name (that is, *malariae* for the quartan parasite) which should lapse in conformity with Article No. 35 of the Rules of Zoological Nomenclature, which reads as follows:

^{*} Later in the same year a similar classification was republished by these authors (Grassi and Feletti, 1890c).

† The remarks in parentheses are ours.

"When, in consequence of the union of two genera, two different animals having the same specific or subspecific name are brought into one genus, the more recent specific or subspecific name is rejected as a homonym."

It is clear, therefore, that when one genus only is recognized for the human malaria parasites, the two names—*P. malariae* (Laveran) for the malignant tertian parasite and *P. malariae* (Gr. & Fel.) for the quartan one—cannot both be retained. In such a case, then, *P. malariae* (Gr. & Fel.), as applied to the quartan parasite, must sink as a synonym.

It is very interesting to note that Grassi and Feletti (1890b, 1890c, 1892) were perfectly correct in their procedure in giving their own name, *malariae*, to a parasite in what they considered to be another genus than that which contained Laveran's *malariae*, and that any error in this matter was one on the part of subsequent authors, who thought the name *malariae* Gr. & Fel. should obviously be *malariae* Laveran. It is a curious error, and one which has given rise to the erroneous solution of the puzzle in nomenclature by which the facts are squared only through maintaining that Laveran gave the name *malariae* to the malaria parasite "in general." Such a solution ignores the fact that *Haemamoeba malariae* Gr. & Fel. is a perfectly correct name so long as *Laverania* is maintained as a genus distinct from *Haemamoeba* (= *Plasmodium*). This error also logically demands the assigning to Laveran of the name of a species (the quartan parasite) which it is problematical to have seen at the time he gave the name *Oscillaria malariae*, and which he certainly did not then describe in such a way that it can be asserted that it was included in his original description of the malaria parasite.*

When, therefore, Grassi and Feletti recognized *Laverania malariae* as Laveran's species and erected two other species—*Haemamoeba malariae* Gr. & Fel. and *Haemamoeba vivax* Gr. & Fel.—they clearly designated (even if it be considered that Laveran had not already done so) the malignant tertian parasite as Laveran's species—that is, as the *malariae* which carries priority in any genus in which it may be placed.

We have endeavoured to ascertain at what period the specific name of the quartan parasite was changed from *malariae* (Gr. & Fel.) to *malariae* (Laveran), the former being perfectly correct so long as two genera are recognized, the latter totally erroneous whatever generic divisions be adopted. This error appears to have arisen about 1900, when Lühe (1900) speaks of the quartan parasite as "*Plasmodium malariae* (Laveran) s.str." In his classification of the malaria parasites a similar nomenclature is used by Schaudinn (1902), who designated under the name *Plasmodium malariae* (Laveran) the quartan parasite as the type species of the genus *Plasmodium*. Before this date we have been unable to find the name

* Some workers appear to believe that the parasite first observed and named by Laveran was the quartan one. There is no doubt that this author (Laveran, 1891) figured and referred to certain parasitic forms ("bodies No. 4") from a case of quartan fever, which strongly suggest segmenting forms of this plasmodium. He goes on to say, however, that such bodies were seldom seen by him, and assigns to them a very secondary place. He also states that these forms were seen in the blood of a case studied by him in September, 1881, and the protocols of his cases suggest that the exact date was September 17 (vide Case No. XXXIV, loc. cit.). We can find no mention of such forms in the book that contains his original definition of *Oscillaria malariae* (Laveran, 1881a), which book he presented to the Académie de Médecine on May 3, 1881, apparently before he encountered the quartan-like forms depicted by him. It seems very improbable, therefore, that this author had noted such forms when he gave the name *O. malariae* to the parasites discovered by him. Such a conclusion is strengthened by the fact that in his paper of October 24, 1881 (Laveran, 1881b), he speaks of bodies No. 4 for the first time. From a very careful study of his early works we have been unable to find any description of parasites which are clearly recognizable as quartan, either before or at the time when he first used the name *O. malariae*. We can therefore discover no foundation for the belief that the parasite first observed and described by Laveran was the quartan one.

malariae, as used for the quartan parasite, attributed to any other authors than Grassi and Feletti, whilst after this date the name *malariae* (Laveran) appears to have been generally adopted by workers in most countries (vide Stiles and Hassall, 1925; Wenyon, 1926; Doflein, 1929; Muhlen, 1931; Brumpt, 1936). Although Opinion No. 104 of the International Commission on Zoological Nomenclature (1928) gives *malariae* (the quartan parasite) as the type species of the genus *Plasmodium*, no author is quoted.

It follows, if *P. malariae* (Gr. & Fel.) cannot be used correctly for the quartan parasite, when only one genus is recognized, that the correct name of this parasite must be the next valid name given to it. Unfortunately Golgi (1889), who actually differentiated the quartan and the benign tertian parasites on their morphological characters, did not give these any other names than "parassiti malarici nella febbre quartana" and "parassiti malarici nella febbre terzana," which designations are not in Linnaean form and therefore are not valid in scientific nomenclature. The first authors to employ a correct Linnaean nomenclature for the quartan parasite seem to have been Celli and Sanfelice (1891), who used the name *Plasmodium malariae* var. *quartanae* for this species. We believe no objection can possibly be raised against the name *quartanae* as given in Linnaean form by these authors.* The correct specific name (*de jure*) for the quartan parasite appears, therefore, to be *quartanae* Celli and Sanfelice, 1891.

-The Genus *Oscillaria*

It is still necessary to consider the validity of Laveran's genus *Oscillaria*. It is generally accepted that this name is invalid because preoccupied by *Oscillaria* Schrank, 1823, given to a genus of algae. If this were the only ground of objection there could be no question that Laveran's name, being given to an animal, could not strictly be counted as preoccupied by a genus of the vegetable kingdom, though it is held undesirable to have the same name for two genera among the Protista. Actually it is certain from the context that Laveran in this case did not propose a new genus, but placed his parasite in that class of lowly organisms which at the time seemed to him most appropriate, this being Schrank's genus *Oscillaria*, which was erected for certain algae characterized by their peculiar animal-like movements. Even then, however, if one follows Article No. 1 of the Rules of Zoological Nomenclature, which reads thus:

"Zoological nomenclature is independent of botanical nomenclature in the sense that the name of an animal is not to be rejected simply because it is identical with the name of a plant. If, however, an organism is transferred from the vegetable to the animal kingdom its botanical names are to be accepted in zoological nomenclature with their original botanical status, and if an organism is transferred from the animal to the vegetable kingdom its names retain their zoological status."

It is difficult to see that Laveran's genus *Oscillaria* could rightly be considered invalid—in which case it would take precedence over *Plasmodium* Marchiafava and Celli, 1885. It is sometimes argued that the name *Oscillaria* is invalid because it was afterwards rejected by Laveran on account of inappropriateness; but, once given, even the author himself cannot reject a name for this reason (vide Article No. 32 of the Rules of Zoological Nomenclature).

It is not the intention of this paper to suggest that the names of the malaria parasites should be changed in accordance with the above findings. Such changes would now cause almost intolerable confusion. Fortunately they would not even be correct, for zoologists have agreed that

* Article No. 12 of the Rules of Zoological Nomenclature reads: "A specific name becomes a subspecific name when the species so named becomes a subspecies, and vice versa."

where a formal decision upon a name has been given by the International Commission on Zoological Nomenclature the name so fixed is the correct one for usage independent of all other considerations. Such a decision is given in Opinion No. 104 of this Commission (1928), which reads as follows:

"*Laverania* Grassi and Feletti, 1890a, 60, mt. *malariae* (homonym) so. *falcipara* Welch, 1897, 36, 47, type host *Homo*. (For authors who consider the parasite of aestivo-autumnal malaria generically distinct from that of quartan fever.)" Not *Laverania* Labbé, 1899a, 82, type *mnarum*, type host *Rana esculenta*."

"*Plasmodium* Marchiafava and Celli, 1885d, 791, mt., tsd. *malariae* (as restricted to quartan fever), type host *Homo*."

This decision does not prevent the sinking of *Laverania* Gr. & Fel., 1890* in *Plasmodium* March. & Celli, 1885, on zoological grounds unconnected with terminology. It does, however, clearly rule out *Oscillaria* Laveran, 1881, and also, arbitrarily and possibly wrongly but none the less authoritatively, all such questions of *de jure* nomenclature as have been discussed above. Nevertheless it ought to be pointed out that (1) apart from the malignant tertian parasite, there is in our opinion no description corresponding to *malariae* Laveran, 1881, and (2) the type species of the genus *Plasmodium* as recorded by Schaudinn (1903), by Blanchard (1905), by Stiles and Hassall (1925), and other authorities, is the quartan parasite, which has been given by them under the above *nomen nudum*.

Conclusion

Our object, then, in writing this note is to show how impossible at present would be the use of the correct names *de jure*, and the desirability of conforming to the agreed-upon convention of accepting names formally decided upon by the International Commission. The only loophole here would appear to be the possibility that, in the Opinion quoted, it is the generic names which are being fixed and that the validity of the decision does not extend to the specific designations given for the genotypes. This, however, would appear to be an objection overruled by the obvious need for uniformity and the opportunity of arriving at such uniformity on a reasonable basis given by the existing ruling. The only alternative would be a renewed application to the Commission (which perhaps is scarcely necessary, since usage in the main is now in accordance with what it would be desirable to recommend), that the names now most commonly used—that is, *P. falciparum* (Welch, 1897), *P. malariae* (Gr. & Fel., 1890), and *P. vivax* (Gr. & Fel., 1890)—be fixed by still more definite authority, the changes involved in a return to the strict *de jure* naming being too great a price to pay for theoretical correctness.

For the sake of clarity we append what we consider to be the nomenclature *de jure* and *de facto* of the three classical species, as this would be (a) if only one genus of malaria parasites be recognized, and (b) if a separate genus be used to include the malignant tertian parasite only.

* The usual authority given for the genus *Laverania* is Grassi and Feletti (1890). The first paper published by these workers in that year appears to be dated March 23 (Grassi and Feletti, 1890a), and in it they refer to the genus "*Laverania nobis*." The term *Laverania* is used, however, previously to this by Feletti and Grassi (1890), whose paper is reprinted from *La Riforma Medica* of January 15. The latter designation of the genus *Laverania* would therefore have precedence over that of Grassi and Feletti (1890a) so that according to this the genus should be *Laverania* Feletti and Grassi, 1890. On the other hand, Blanchard (1905) (p. 443 and footnote on p. 449) gives the first reference to the genus *Laverania* as follows: "R. Feletti et B. Grassi. *Sui parassiti della malaria*: 8° de 11 p., 22 déc. 1889.—La brochure est datée du 22 décembre, mais n'a été remise à la poste que le 30 décembre" ("distribuée le 30 décembre"). We have not been able to consult this pamphlet, but it would seem from this that the earliest authority for the genus *Laverania* is not Grassi and Feletti, 1890, but Feletti and Grassi, 1889.

the patient must be firmly discouraged, to diminish the risk of exhaustion, premature rupture of the membranes, cervical oedema, and consequent prolongation of labour. The temperature should be taken early in labour and hourly after rupture of the membranes. The maternal and foetal heart rates should be recorded hourly during early labour, half-hourly during the later first stage of labour, and quarter-hourly after the membranes have ruptured.

After reviewing the general condition of the patient the abdomen is examined at intervals during labour in a manner similar to that described for the ante-natal period, special attention being directed towards the descent of the foetal head and the force of the uterine contractions. Vaginal examination is necessary only immediately after the membranes have ruptured or when descent of the foetal head seems to have been arrested in spite of good contractions after several hours in strong labour. It is advisable to pour a quantity of 1 in 1,000 acriflavine in glycerin into the vagina before introducing the fingers, and only the accoucheur in charge of the case should be allowed to examine. In addition to the particulars observed at the ante-natal examination several further points must receive attention. The presence or absence of oedema of the hypogastrium and vulva, and the state of the vaginal wall—whether normal and moist, or hot, dry, and oedematous—are noticed. The degree of thinning and dilatation of the cervix, the presence or absence of cervical oedema, and the relation of the cervix to the presenting part—whether closely applied or drooping in a skirt-like manner into the vagina—are determined. Special attention is directed to the foetal membranes to decide whether they are intact or ruptured; if they are intact, whether they bulge to a normal or abnormal degree during pains; and if they are ruptured, whether or not a loop of umbilical cord has prolapsed into the vagina. The position and degree of engagement of the presenting part, the amount of moulding, and the size of the caput succedaneum are also defined. These seemingly elementary points can prove of considerable importance in approaching a decision as to future treatment in a difficult case. All findings at each examination should be carefully recorded in order that the progress of labour may be accurately followed.

Termination of Labour

Favourable signs observed during the course of labour are good behaviour on the part of the patient, the occurrence of regular normal uterine contractions, good head flexion, a normally dilating cervix closely applied to the presenting part, absence of cervical oedema, and persistence of the intact bag of waters until the cervix is almost fully dilated.

When the foetal head has entered the pelvic cavity labour may be allowed to proceed, and a normal delivery may be anticipated in the majority of cases. In a certain proportion of cases maternal or foetal distress may become evident, and it may be considered advisable to terminate labour forthwith by a low forceps operation. Evidences of maternal distress upon which reliance is usually placed are deterioration in physical appearance in spite of proper care during labour, with a rising pulse rate and temperature. Foetal distress is usually shown by disordered action of the foetal heart. This may be excessively rapid or abnormally slow, irregular in rhythm or variable in rate. A foetal heart rate, previously normal, rising to over 160 beats or falling below 120 beats per minute, an irregular rhythm, or a heart rate rising steadily and then

falling in a comparatively short time, even though still within normal limits, is suggestive of foetal hazard. The timing of the delivery necessitates careful judgment, as extraction may be more difficult if performed too soon and may therefore endanger the life of the child and increase the risk of damage to the mother, while delay may result in intra-uterine death of the foetus. If in doubt timely application of the forceps, in the absence of contraindications, and slow extraction are the best principles to follow. The child must be treated with great gentleness both during and after delivery (Hunter, 1937a). Rapid delivery may precipitate death in a distressed foetus. Episiotomy is performed, when necessary, by an L-shaped incision of the perineum, which must be carefully sutured in layers after delivery. Adequate time should be allowed for placental separation during the third stage.

In a minority of cases it is necessary to terminate labour by Caesarean section, the trial being considered to have demonstrated delivery per vaginam to be impracticable. Lack of advance of the foetal head in spite of satisfactory contractions an hour or more after rupture of the membranes, excessive moulding and caput formation without progress, and early evidences of obstructed labour are usual indications; and signs of maternal or foetal distress becoming evident while the greatest diameter of the foetal head remains above the pelvic brim sometimes hasten the decision to deliver by way of the abdomen. Relative indications also include increasing oedema of the cervix and lack of intelligent co-operation on the part of the patient. Lower segment Caesarean section is the procedure of choice, but in rare cases, if this is rendered more than usually difficult by oedema of the bladder wall, hypogastric oedema, or excessive vascularity of the lower uterine segment, it may be necessary to substitute the classical operation (Hunter, 1937b). Operations involving destruction of the foetus have no place in the management of properly conducted cases of trial labour.

While the above instructions have been expressed in a dogmatic manner for the sake of clarity, it must be appreciated that a certain amount of elasticity must be allowed in dealing with cases of this class, a great deal depending upon the personal judgment of the obstetrician concerned.

Management of Subsequent Confinements

Certain conclusions may be drawn from a completed trial labour. It may be considered that normal delivery may be anticipated in future if the labour has terminated satisfactorily, but it must be borne in mind that in multiparous patients the foetus tends to get bigger with subsequent pregnancies, and the patient should therefore be examined afresh on each occasion. If difficulty of a moderate degree has been encountered it may be decided that induction of premature labour will be necessary in any subsequent pregnancy. When greater difficulty has arisen, especially if Caesarean section has proved to be necessary, it will probably be decided that this operation should be performed before the onset of labour on future occasions.

Summary

Trial labour is a conservative procedure, the employment of which is justified by the element of doubt existing primarily as to the efficiency of the uterus before labour has begun.

The procedure is applicable to cases in which, although a moderate degree of disproportion is present, delivery per vaginam without undue damage to mother or child

is thought to be possible, provided that complications do not arise during labour.

The selection of cases for trial and the management of labour are of first importance. A suggested routine is described.

The decision as to the management of future confinements may be based upon the experience gained from a trial labour.

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ACUTE ANTERIOR POLIOMYELITIS FOUR SIMULTANEOUS CASES IN A SCHOOL

BY

G. O. BARBER, M.A., M.B., B.Ch.

The occurrence of four simultaneous cases of anterior poliomyelitis in a boys' boarding school has afforded an interesting opportunity for inquiry into the possible method of infection, and the evidence suggests a route which might be worthy of further experimental investigation.

History of the Outbreak

On July 15 four boys were admitted to the sanatorium from the same house for different groups of symptoms, which are given below in detail in each case history. No boy seemed really ill, and all were put to bed for observation. By the next morning it seemed evident that they bore a major resemblance to one another, each suggesting a more or less severe disturbance of the central nervous system in its earliest stage. A fifth case was admitted as suspicious, but it was soon seen that no physical signs were present. There was sufficient justification to call in expert advice, and the four boys were seen that afternoon by Sir Charles Wilson and Drs. Camps and Maclean, who confirmed a provisional diagnosis of acute anterior poliomyelitis. Lumbar puncture was done on three of the cases. On July 17 three of the boys showed definite signs of paralysis of more than one group of muscles; the fourth showed definite weakness in one muscle of the arm only, and continued alteration of the abdominal reflexes. The fifth was definitely settled as negative.

On July 22 Dr. Brinton saw the four cases after paralysis had set in, and assessed the amount of paralysis in each case. Further details of the cases are supplied in the table.

Shortly after the notification of these cases information was received that six others had occurred during the previous fortnight in villages about ten miles away, on the opposite side of Braintree. During the subsequent eight weeks cases were notified scattered throughout the district of Essex surrounding Braintree, which is the largest town in the neighbourhood. But there were many villages and small towns within the area which were without a case. The accompanying chart shows all cases on the days of their first development, and their distances from Braintree, where the largest number of cases eventually occurred.

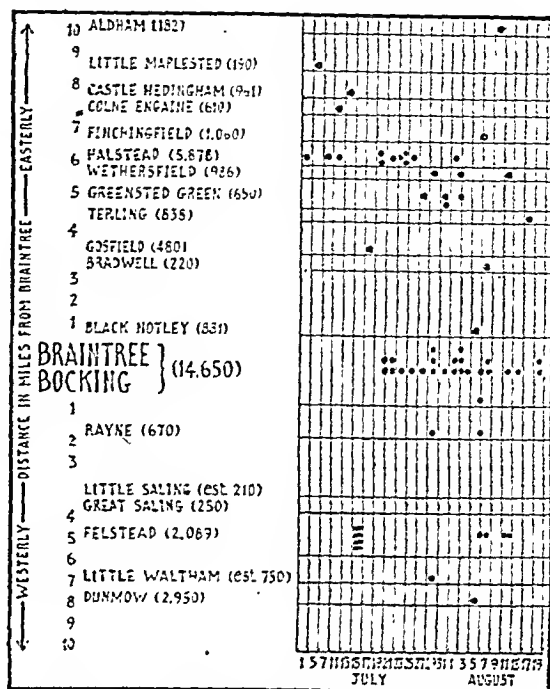


CHART 1.—Date of onset of cases occurring in Braintree and the surrounding district. (The figures in parentheses refer to the population.)

Possible Sources of Infection to the Four Schoolboys

As the four cases in the school all occurred on the same day, and none are recognized as having occurred there before or afterwards, a close analysis was made of the daily habits and lives of these four boys in order to discover any factors common to all four which would point to the source of infection. It certainly appears unlikely that the presence of a carrier in the house was the explanation, as one would then expect a series of cases at intervals rather than such an isolated batch. But it is important to note that cases did appear later in the village, and that two of them occurred in the family of one of the maids employed by and living in the house. These cases were attributed to the maid having carried the infection home. As she was in the house for the rest of the term and no further cases occurred there, and as one attempt to infect a monkey from her proved negative, there is no actual evidence in our present state of knowledge that she was in fact a carrier. Analysis shows:

1. All the four cases occurred in the same house of fifty boys. This house has separate feeding arrangements and a separate domestic staff from the rest of the school.

2. Inside the house only two of the boys slept in the same dormitory: these two were quite friendly and sat near each other in the dining-room. The other two were in different dormitories, and each was unconnected with the others in any activity.

3. In the house-room all four were in different corners, and one of them was only present occasionally as a house prefect.

4. In the school all four were well scattered, being in different classes and other categories.

Table showing Particulars of Cases

| | School Details | Previous Symptoms | Symptoms on Admission | Physical Signs on 16/7/38 | Later Physical Signs | Lumbar Puncture | Muscles | |
|---------|---|---|---|---|--|---|--|---|
| | | | | | | | Paralysed | Weak |
| Case 1 | Aged 17. Form VI. Dormitory 3 | Two weeks before dull diffuse headache. One week before felt run down, due to pressure of exams. | Headache. Anorexia. Dizziness. Constriction around chest. Hazy vision | Temp. 103° F. Tongue furred. Nasopharynx injected. Optic fundus congested. Stiff neck; weakness in trunk muscles and dorsiflexors of feet. Reflexes : Pupils react R. > L. Absent abdominals. K.J. very diminished. Plantar flexor weak | Diminished reflexes of upper limbs. Temperature fell to 98.4° in six days; remained normal | Specimen grossly contaminated with blood | | All upper limb muscles including pectorals; Trunk muscles; spinal; rect. abdom. R. & L. Dorsiflexors of glutei and ankles |
| Case 2 | Aged 16. Form IVb. Dormitory 1 | Epistaxis. Vomited one night before | Headache. Anorexia. Dizziness. Stiffness and feeling of weakness in lower limbs and back. Epistaxis | Temperature 101° F. Tongue very furred. Throat dry. Optic fundus congested. Stiff neck, rigid, weakness in sitting up; pain in lumbar muscles; pain on leg movement Reflexes : Pupils react equal. Abdominals : R. lower absent. K.J. : R. only reinforced; L. weak. Plantar flexor weak | Abdominal reflexes disappeared. K.J. absent Temperature rose to 99° at night for three weeks | Clear. No raised pressure. Sugar nil. Lymphocytes increased. Some blood cells | Extensors of knees. Dorsiflexors of ankles | Adduction of shoulders? Diaphragmatic muscles. Other muscles of lower limbs |
| Case 3 | Aged 15. Form IVc. Dormitory 2. In dining-room next Case 4 | One week before fell on head; headache for three days. Three days before sleepless, restless, and shivering | Headache. Anorexia and nausea. Dizziness. Stiffness of neck and feeling of extreme weakness and lassitude | Temperature 102° F. Tongue furred. Stiff neck; pain in back on movement; weakness in sitting up; cramps in legs. Reflexes : Pupils react equal. Abdominals absent. K.J. : R. only when reinforced; L. present. Plantar flexor weak. Kernig's, mild plus | Weakness in arms. Flaccid paralysis of legs. Temperature normal after eight days but rose to 90° F. each night for three weeks | Clear. Pressure plus. Sugar normal. Cells 10 per c.mm. Chlorides 750 mg. per 100 c.cm. Protein 20 mg. per 100 c.cm. | Dorsiflexors of L. wrist. Lower limbs complete (18/7/38) | All upper limb muscles, especially adductors of shoulders and extension of elbows. Diaphragm. Erector spinae. Glutei |
| Case 4 | Aged 15. Form IVa. Dormitory 2. In dining-room sits next Case 3 | Two days before headache after being hit on the head with a cricket ball | Headache. Nausea. Dizziness. Pain in chest on coughing | Temperature 102° F. Tongue furred. Abdominal reflexes absent, except weak lower R. | Absence of deep reflexes of left arms. Absent right biceps jerk (left-handed boy). Left grip and extensors weaker than right. Abdominals back to normal. Temperature normal after five days, but rose intermittently for a fortnight | Lumbar puncture not done | | Left dorsiflexors of wrist and left extensors of elbow |
| Suspect | Aged 15. Form Lower VIa. Dormitory 6 | Headache three days before, with lassitude. Five days before, stiff in arms and legs, after lying on damp grass | No headache or any other symptoms. Pain in chest | Temperature 99° F. Tongue furred. Central nervous system all normal | None. Temperature normal after six days | | | |

Investigation into the Food Supply

The only common factors appeared, therefore, to be as stated above in paragraph 1—namely, the same feeding arrangements and contact with the same domestic staff. So far as can be ascertained there was no occasion when any outside person was in the house in a temporary capacity, save for one "old boy" visitor; and contact with the domestic staff did not vary significantly from day to day so as to cause infection to all four boys on one day only. Speech Day had been held on July 1, when there was a large influx of parents and relations; but here again there was no occasion when this one house only was in contact with one particular outsider or group. The tendency on that day is for the whole school to mix more thoroughly than usual.

The supply of food was investigated as a matter of routine only, as the present ideas of the transmission of the virus point to a nasal route through the cribriform plate and the olfactory bulbs. There are, however, eminent upholders of the gastro-intestinal route (Toomey, 1934; Kling, 1937). And Walshe (1927), in his description of the clinical course of the disease, stresses the fact that in the pre-paralytic stage there are signs of a general

infection with changes in the gastro-intestinal tract and its associated mesenteric glands before the central nervous system shows signs of being affected.

The following are details of the food supply: Milk is supplied to the whole school by the same dairy. Water is from a well in the house; this has been in continuous use for many years. Analysis on August 2, 1938, for what it is worth, showed satisfactory chemical and bacterial purity. Bread is supplied from the same source as the rest of the school. Butter comes from a large store in a neighbouring unaffected town. Fresh fruit and vegetables are obtained from a fruiterer in Braintree who supplies this house only. I happened to remember that the house has an annual treat of strawberries, and on inquiry I found that this occurred on June 27 and 29, and that the strawberries came from two farms, one of them at Halstead.

Here was a definite connexion with the other area which had been affected from July 1 onwards, and an event that had occurred sixteen and eighteen days before the four cases developed simultaneously in the only house where the strawberries were eaten. But as all the boys in the house had no doubt eaten them, could one reasonably speculate on anything about strawberries which would

pick out four boys only? Strawberries grow very near the earth, and are usually contaminated with it, as well as the common garden pests and their excreta. If it were conceivable for the virus to be present in such contamination, then accident would no doubt account for its being

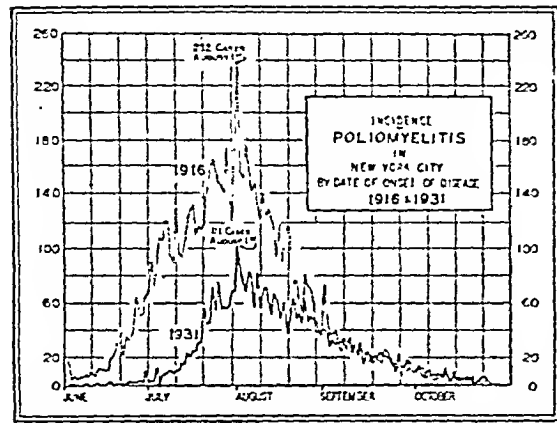


CHART II.—Curves showing the course of the epidemics of 1916 and 1931 in New York. The similarity of the two is remarkable; note that the highest count in each year occurred on the same day, August 1. (Reproduced by courtesy of the New York City Department of Health.)

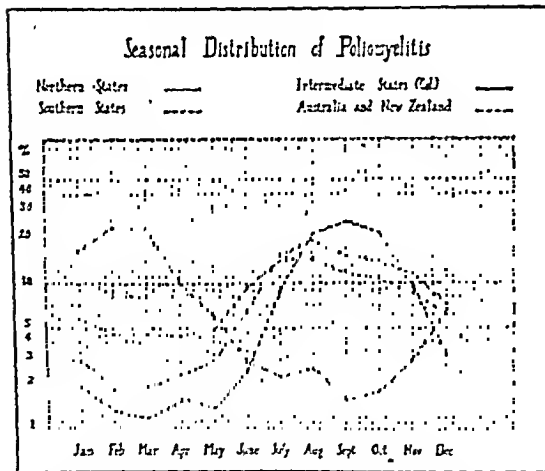


CHART III.—Seasonal distribution of infantile paralysis in different climates. Northern and Southern States, 1912-27; intermediate States, 1913-27; Australia and New Zealand, June, 1924, to August, 1927. (From Aycock, *Journal of Preventive Medicine*, 1929, 3, 245.)

ingested by a small number only of those eating the fruit. The simultaneous onset certainly resembles a food-poisoning outbreak rather than an epidemic spread by droplet infection.

Resemblance to Food Poisoning

This line of thought, though apparently far-fetched, could not be lightly dismissed when one considers how easily it would explain the majority of the well-known puzzling features in the epidemiology of the disease—namely:

1. The marked seasonal and climatic incidence (see accompanying graphs from the New York Health Bureau) agrees closely with the seasonal increase in the consumption of fresh garden produce and its climatic maximum production.

2. The epidemiological distribution of the disease does not resemble that of respiratory infections; it resembles that of food-poisoning and typhoid.

3. It is definitely *not* highly infectious. Until recently, cases were nursed from the start in general wards of general hospitals, and there have been no well-authenticated cases of infection to contacts. Certain of the cases in this recent outbreak occurred in crowded families, and were not reported until the illness had been in the paralytic stage for several days. During this time other children had been sleeping every night in the same bed as the paralysed child, and in no case was one of these contacts affected later.

4. The virus is said to be recoverable from the faeces of patients, proving that it is present in the alimentary canal.

5. In the classical case recorded by Draper a carrier was definitely postulated from the evidence as being a Greek fruiterer. All the cases were in contact with him as business associates, relations, or customers, and there is nothing in the evidence to point to the infection being carried by the man himself other than by the fruit he supplied.

This possible route of infection has already been discussed by Kling in Sweden on rather different evidence. The present account is given with the object of suggesting to virus workers a line of investigation that might be worth pursuing. It might then be thought worth while to experiment, for example, on passing the virus through some of the many possible contaminants of fresh garden produce—namely, earthworms, slugs, snails, insects, frogs, birds, and domestic animals and their excreta—or at least to determine the period of survival of the virus in fruit and vegetables.

Should anything of value result it would of course point the way to the prevention of the disease, as well as cause a radical alteration in the present attitude towards isolation and quarantine.

Summary

The history of an outbreak of anterior poliomyelitis in a boys' boarding school is recorded, with details of cases.

An account is given of an investigation into the cause of the epidemic.

The simultaneous onset resembled a food-poisoning outbreak, and is discussed from this aspect.

A line of investigation is suggested to virus workers.

Charts II and III are reproduced from Dr. George Draper's *Infantile Paralysis*, published by the D. Appleton-Century Co.

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RAPID PRODUCTION OF AUTOGENOUS VACCINE FOR TREATMENT OF PNEUMONIA WITH NOTES ON ITS USE

BY

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As the result of an investigation into the type constitution of pneumonia in Kenya during the years 1930 to 1935 a striking preponderance of infections due to the "Group IV" pneumococci over the standard American Types I, II, and III was observed; and this appeared to be the rule in lobar pneumonia among European and Indian residents as well as among African natives. The following table shows the results of typing a series of 776 cases of lobar pneumonia, mainly among natives, the figures including a small proportion of cases of pneumococcal meningitis, in which the commonest causative organism was Type I:

| | | | | |
|----------------------|-------|------|------|----------|
| Pneumococcus type .. | I | II | III | Group IV |
| Type incidence .. | 22.0% | 5.6% | 8.3% | 64.1% |

Serological analysis of the Kenya Group IV, begun in 1931, produced twenty-one distinct types up to October, 1935, when I was obliged to retire from work. While the majority of the very severe and fatal cases of the series were due to Type I, many were attributable to the Group IV pneumococci, of which the Kenya types designated as Kw.D, Kw.J, Kw.L, Kw.M, Kw.O, and Kw.V were found to be especially important. It is of interest that some of these were identified with types of the American series. But this picture suggested that the most rational means of specific biological treatment of pneumonia, where the causative pneumococci were so largely diverse, should be found in vaccine made from the actual infecting type cultivated from the patient to be treated.

The Case for Vaccine Treatment of Pneumonia

It cannot reasonably be doubted that lobar pneumonia is essentially a localized infection for which vaccine treatment is well suited, provided that, whatever the vaccine chosen, it is used in a sufficiently early stage of the attack—preferably within the first forty-eight hours. In this connexion W. H. Wynn (1934) says: "When the patient is seen within the first three days a vaccine or serum should be given. A vaccine has the great advantage that it is immediately available." The point here in regard to the immediate availability of the vaccine is, of course, that no preliminary typing of the patient's pneumonia is needed as for serum treatment. The vaccine Wynn uses "contains equal numbers of pneumococci, streptococci, and *B. influenzae* (P.S.I. vaccine)." The dose for an adult is "200 millions of each organism—that is, 600 millions in all"—and the object of the vaccine is "to stimulate the production of non-specific antibodies in adequate amount; the specific effect is not seen for some days." The only criticism I offer is the obvious one that the patient's infecting type of organism might not be represented in the vaccine bottle, so that no specific effect might follow at all. Reliance is therefore evidently placed mainly on the non-specific stimulus of the vaccine employed. If the vaccine used is an autogenous one, the specific effect can be looked for with certainty, and may play an extremely valuable part.

It has been urged against the principle of vaccine treatment of pneumonia that, since antibodies are already present, injection of vaccine is likely to induce a dangerous "negative phase." Here it is presumed, apparently, that antibodies are already present in adequate amount, though such could hardly be the case in a severe illness. And when the clinical signs indicate that the antibody concentration is below that needed for victory over the infecting antigen, the question to be answered is if it is legitimate to risk by vaccine injection this postulated "negative phase" with a mind to its being followed speedily by an abnormal rise in the antibody concentration and a consequent improvement in the condition of a patient who otherwise is likely to die—or, at least, to undergo a very distressing illness which might be cut short by the vaccine. As a result of my experience in vaccine therapy I regard the "negative phase" as a boggy from the pedantry of which a modern pathological outlook seems largely to have freed itself: in every case treated by means of specific or autogenous vaccine I look for an immediate "non-specific" effect in stimulation of antibodies, and doubtless my experience in this matter is shared by others.

With regard to the use of chemical substances in treatment of pneumonia, the following quotations from a letter by Alexander Fleming (1938) are apposite. In reference to the results of his experiments with "T 693" he writes, "I have come to the conclusion that chemotherapy and immunotherapy in pneumococcal infections are not competitive but complementary." He says, also, that "the more immune the patient is the better will be the killing of the pneumococci, and the ultimate result will depend on whether the patient has sufficient resistance to deal with the pneumococci even after they have been in contact with the drug." Further, he continues, "Pneumonia is a serious disease, and should be treated by all methods which have the effect of increasing the immunity of the patient or which are detrimental to the pneumococcus." And to quote from this valuable communication again, the writer says: "We must not forget that it is possible to immunize patients actively by means of vaccines. It has been shown that in animals which have received pneumococcal vaccine protective antibodies can be demonstrated within three days, and the same thing has been demonstrated in patients suffering from pneumonia." The foregoing is a useful corrective to that sceptical attitude which is met with too often in regard to vaccine treatment of pneumonia—an arbitrary scepticism not founded on any special knowledge and experience. There is no doubt that in Kenya many people die of pneumonia whose lives might have been saved by vaccine, and doubtless this is true elsewhere.

Preparation of "M.P.W." Autogenous Pneumococcal Vaccine

The obvious disadvantage of an autogenous vaccine for pneumonia, where vaccine injections must be begun in the earliest possible stage of the illness, is the length of time taken to prepare it by even the most rapid and certain ordinary methods. The procedure below described for the preparation of autogenous pneumococcus vaccine, designated as "M.P.W." vaccine, which consists of the rather obvious expedient of washing out the peritoneal cavity of a sputum-inoculated mouse and using the heavy pure suspension of pneumococci thus obtained as vaccine, enables injections of it to be made on the morning following the day or evening on which the first specimen of the patient's sputum is collected, thus securing a very impor-

tant saving of time. It only rarely happens that a satisfactory specimen of sputum cannot be obtained in the first two days of a pneumonia attack. It may be objected that a mouse inoculated intraperitoneally with an emulsion of genuine pneumonia sputum may produce cultures of casual pneumococci that have come to adhere to the sputum during its rapid transit of the upper respiratory passages and throat. This objection is scarcely valid or warrantable by experience: the infecting type of pneumococcus being extremely abundant in the sputum and of maximum virulence for mice, the chance that a mouse would, so to speak, ignore these in favour of a few adventitious pneumococci must be negligible.

TECHNIQUE OF PREPARATION

The procedure adopted for making M.P.W. vaccine is as follows:

1. Inoculate a large mouse, or preferably two mice in case of accident, intraperitoneally with 0.5 c.cm. of a rather thick saline emulsion of a satisfactory specimen of pneumonia sputum. The specimen should have been collected direct into a sterile tube from the patient's mouth. There is no need for preliminary washing of the specimen.

2. The mouse should be chloroformed when moribund rather than be allowed to die. It is then pinned out on a board that immediately before has been dipped in a strong solution of disinfectant, and the whole of its anterior surface painted liberally with iodine. The skin is deflected, and the exposed surface of the abdominal wall painted with iodine again before opening the peritoneal cavity. Before each stage of the dissection the scissors and forceps are dipped in spirit, which is flamed off.

3. A smear is made of the peritoneal exudate and Gram-stained to verify pneumococcus culture of normal abundance. With a sterile wool-plugged pipette and test the peritoneal cavity is then first washed into about 1 c.cm. of plain saline, giving a dense suspension which may be used if desired for bile-solubility tests or agglutination tests with standard type sera. But this preliminary wash may be dispensed with.

4. The main peritoneal wash for the vaccine is then made into about 4 c.cm. of 0.5 per cent. phenol saline in a sterile wool-plugged centrifuge tube. This is suitably closed or covered (I use a cut-off segment of a rubber stopper, sterilized by flaming) and spun at about 6,000 revolutions for thirty seconds to throw down cells and flocculi.

5. The supernatant pneumococcus suspension is pipetted off into a wool-plugged tube, which is then covered with a rubber cap and immersed up to the cap in a water bath at 60° C. for thirty minutes.

6. The killed suspension is then introduced into a small vaccine bottle, labelled with the dose to be given. This is 1,000 millions of cocci, generally contained in an injection volume of 0.5 c.cm. The vaccine is administered to the patient immediately after bottling; the usual tests of its sterility may be safely dispensed with.

A full-grown mouse generally yields 4 to 5 c.cm. of suspension of a density of 1,000 to 3,000 millions per c.cm., corresponding to opacity representing from 0.3 to 0.6 mg. Burroughs Wellcome's opacity tube scale was used for estimating the strength of these vaccine suspensions; to obtain the value in millions the mean was taken of the two correlations with Wright's and the haemometer methods of estimation. The dose in cubic centimetres of the vaccine is, of course, adjusted according to the strength of the suspension obtained from the mouse peritoneal wash. A too heavy suspension should be diluted with carbol saline so that between 1,000 millions and 1,500 millions of cocci may be contained in a convenient volume for injection of about 0.3 to 0.5 c.cm. It is preferable that the vaccine should be considerably over the strength of 1,000 millions; the extremely low toxicity of killed pneumococcus suspension should be borne in mind.

Dosage of M.P.W. Vaccine, and Therapeutic Trials

This type of vaccine was first produced and experimented with by me seven years ago, with the clinical collaboration of Dr. P. C. C. Garnham (1931) of the East African Medical Service, in a series of cases of pneumonia exclusively among natives. Two factors here militated against success: one was that natives with pneumonia seldom come to hospital until their illness is in an unfavourably late stage for vaccine treatment; the other was that the dosage then employed—only 100 millions of pneumococci—was far too low to be likely to be effective with patients in such circumstances. The only apparent effect of the vaccine in these first trials was a slight reduction of the average duration of the febrile period from about eleven days to about nine days (pneumonia in Kenya is apt to be remarkable for the long period between onset and crisis).

It became evident that the best opportunities for testing the vaccine method would be afforded by European patients, who were more commonly under medical care in the earlier phases of their pneumonia. Accordingly in 1933 further trials were made with this vaccine in heavier dosage, in the first instance with a European severely ill with lobar pneumonia, the sputum yielding the Kenya Group IV type Kw.D (Type VIII of the American series), from which M.P.W. vaccine was produced containing 400 millions per c.cm. Encouraged by the obvious success of the vaccine in inducing an early crisis in this case and by the absence of toxic reaction to the injections, trials were made with higher dosage on native cases of pneumonia, more with a view to acquiring further experience of tolerance than in the hope of good therapeutic results with patients who, as has been said, come for admission to hospital in unfavourably late stages of the attack. Doses up to 3,000 millions were thus tested. No definite evidence of toxic reactions to such dosage appeared. Therapeutically the results were variable: sometimes the desired effect of a pronounced fall of temperature or early crisis on the day following injection was secured, but more often results were indefinite—this generally with patients whose treatment had to be begun too late. To test the vaccine with early cases among Europeans it was necessary to win by slow degrees the confidence and interest of the local practitioners in this method of treating pneumonia. Consequently, the number of European cases treated early in the disease with properly high dosage of M.P.W. vaccine had only reached the very inadequate total of eight before I was obliged to discontinue work finally in 1935. Brief details of these cases and one native case are given below, partly for their interest, but largely in the hope that some of the many pathologists whose laboratories are attached to a general hospital may be induced to give the method a searching test in the medical wards.

Illustrative Cases

Case 1.—A middle-aged male European, two days ill with lobar pneumonia. Cardiac and respiratory embarrassment was very marked. M.P.W. vaccine was given at midday. Six hours later there was a very slight rise in the temperature, and the patient said he felt as though a cold in the head were coming on. The next day he was more comfortable, and had greatly improved in the evening. The following morning the temperature had fallen by crisis, and the patient said he felt well. A second injection was given three days after the first, and a third injection after another three days. Convalescence was rapid and uneventful from the day of the crisis. The nursing sister in charge said she had never seen a severe case of pneumonia get well so quickly. The infecting organism

was the Kenya Group IV type Kw.D. (Type VIII of the American series).

Case 2.—An elderly male European with lobar pneumonia; severe Type II infection. M.P.W. vaccine was given on the third day of illness. The temperature was 101.5° the same evening but dropped to 97.5° at 6 o'clock the next morning, the patient feeling better and being less cyanosed; the temperature rose to 99.6° the same evening. Vaccine was given again the following day, when the temperature was subnormal. Convalescence was regular from that date. The doctor in charge of the patient wrote, "One of the most successful cases of lobar pneumonia I ever had."

Case 3.—A female European with lobar pneumonia; severe Type III infection. M.P.W. vaccine was given late in the illness. The only notes available are the doctor's report that it was a good case and the patient made a quick recovery, the crisis occurring forty hours after the vaccine injection.

Case 4.—A female European with lobar pneumonia; extremely severe Type I infection. M.P.W. vaccine was given—2,000 millions. The patient was said by the doctor in charge to be moribund when the first injection of vaccine was made, and he regarded this as the last hope. The next morning her condition was reported satisfactory. A second injection was given forty-eight hours after the first, and the crisis occurred within the next twenty-four hours. The doctor said that the vaccine "worked a miracle for the patient."

Case 5.—A male African with lobar pneumonia; severe infecting pneumococcus type "Kw.S." The mouse peritoneal exudate from which the vaccine was made included also a strain of Friedländer's bacillus, in numbers exceeded by the pneumococci, so that the vaccine necessarily contained both types of organism. M.P.W. vaccine was given; there was no toxic reaction. Crisis occurred the following day and convalescence was easy. This native case is included here because it was the only one in which a mixed vaccine was used, and it is typical of the few satisfactory native cases that were collected.

Case 6.—An elderly male European who had lobar pneumonia, Type I infection, which proved fatal. He was given 0.08 mg. of M.P.W. vaccine. The only report received on this case was that the vaccine had "no effects."

Case 7.—An elderly male European suffering from a second attack of pneumonia, Type I infection, which ended fatally. M.P.W. vaccine was injected on the fourth day of the illness, the doctor first seeing him on the third day. His temperature dropped to normal about thirty-six hours after injection and the pulse to 106, and he appeared much less toxic. The temperature rose again, however, after a few hours, and he died four days later. Only one dose of the vaccine was given; if it had been repeated the illness might perhaps have run a different course. The vaccine was reported to have had no apparent effect in increasing the toxæmia, but to have been followed by a temporary improvement in the patient's general condition.

Case 8.—A European woman with very severe lobar pneumonia, Type I infection, ending in death. M.P.W. vaccine, 3,000 millions, was given. The temperature fell to 99° the day following injection, but rose again, and the patient died about eighty-four hours later. Only one dose of the vaccine was given by the doctor, but it seemed that this effected a temporary improvement, and should have been repeated.

Case 9.—A male European aged 46, with lobar pneumonia which was extremely severe and involved both lungs. The infecting pneumococcus was a type of Group IV, unclassified. M.P.W. vaccine, 1,000 millions, was first injected about forty-eight hours after onset. During the next two days the patient appeared to be moribund; the Arneil count showed a marked shift to the left, the second lung became involved, and the doctor in charge was nervous of giving another injection of the vaccine. He was encouraged, however, to try a second dose of 1,000 millions, seventy-two hours after the first. The next day there was general improvement in the patient's condition, speedily followed by the crisis, and he made a good recovery.

Scheme of Dosage

It is recommended that the injection be repeated on the following day if the first dose of vaccine has not lowered the temperature by that time; in cases where a good effect had resulted within about thirty hours after the first injection the vaccine might be repeated after forty-eight hours, and subsequently, if thought advisable, at intervals increasing from forty-eight hours to seventy-two, ninety-six, and one hundred and twenty hours. The vaccine should be repeated even when the patient's condition is worse on the day following the first dose: there need be no fear of increasing the toxæmia. It is noteworthy that in the handbook of the South African Institute for Medical Research the dose of 8,000 millions of Lister's prophylactic group pneumococcal vaccine is advised for treatment of pneumonia; and experiments in treatment with the same dose of a similar prophylactic vaccine issued in 1934 showed that the 8,000 millions were well tolerated by pneumonia patients.

Summary

An account is given of the types of pneumococcus found in lobar pneumonia cases in Kenya.

A case is stated for vaccine treatment of pneumonia.

A method for the rapid production of autogenous pneumococcus vaccine ("M.P.W.") is presented.

Details of nine cases of pneumonia treated with M.P.W. vaccine are appended.

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2-SULPHANILYL-AMINOPYRIDINE (M & B 693) IN TREATMENT OF GONORRHOEA

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Of the 102 cases of gonococcal infection included in this preliminary report, seventy-nine were in men, nineteen in women, and four in young girls. No adjuvant treatment—for example, irrigations—that might be of material assistance was given during the use of the drug under consideration—M & B 693. The results indicate a high proportion of apparent cures (over 91 per cent.).

Toxic effects were encountered in 29 per cent., and their nature and incidence are given later in tabular form. The commonest manifestations of intolerance were nausea and headache, and in most cases these symptoms were slight and the patients were able to continue with the drug in reduced dosage. The discontinuance of the drug was quickly followed by the subsidence of all the undesirable symptoms, and no prolonged ill effects were observed.

In the successful male cases clinical cure was attained in under a week. In the successful female cases signs which might be interpreted as denoting infection persisted for two weeks, but gonococci disappeared from the smears almost as quickly as in the male cases (under three days). Thus in the early cases the gonococcal infection was cured before the time when the disabling complications—for example, epididymitis or salpingitis—are to be expected. Also, cure was effected without the time-consuming and often badly applied local irrigation treatment which was such a prominent feature of the old therapeutic regime. In the future the nightmare of stricture of the urethra, with its ever-present threat of retention or extravasation of urine, should cease to disturb the slumbers of these males whose weakness is sexual indiscretion, and the depressing picture of the chronic pelvic invalid should be less often encountered among the habitués of spas and health resorts.

Above all, the possibility of spread of the disease should be greatly reduced through the shortening of the period of infectivity. There is, therefore every likelihood of a progressive diminution in the incidence of gonorrhoea, and designers of venereal disease clinics will plan on less spacious lines, especially in the accommodation required for irrigation treatment.

Standard of Cure

The standard of cure aimed at, but at the time of assessment not achieved in all the cases quoted, was as follows:

All cases are observed for a minimum of three and a half months to exclude the possibility of superadded syphilis.

Male cases are under observation for at least a month after the cessation of all treatment, and during this time, in addition to the absence of discharge and the maintenance of clear urine, repeated smears of the urethral, prostatic, and seminal vesicular secretions must be free from pathogenic organisms and relatively free from pus cells. These smears must also remain pus-free and organism-free forty-eight hours after a provocative intramuscular injection of 300 to 500 million organisms in a polyvalent gonococcal vaccine. The gonococcal complement-fixation test of the blood must be observed to remain negative or become negative during the period of observation. Instrumental investigation, including urethroscopy, must show a return of the urethral lining to normal.

Female cases are observed for three months after cessation of treatment, and during this time, in addition to the absence of discharge, repeated smears of the urethral, Bartholinian, and cervical canal secretions must be free from pathogenic organisms, especially immediately after the menstrual periods, and also forty-eight hours after the injection of 300 millions of the provocative polyvalent gonococcal vaccine. The gonococcal complement-fixation test of the blood must remain negative or must become negative, and careful bimanual examination must exclude any residua in the uterus or tubes.

Cases claimed as "apparent cures" include some who have not been observed for the minimum periods stated above. In all cases smears were examined very frequently, often daily at first, and the presence of any discharge or other sign of inflammation and the condition of the urine were noted.

Male Adult Cases

ACUTE ANTERIOR URETHRITIS (49 CASES)

The average daily dose was 3 grammes maintained for an average of about five days, and this was followed in

some cases by a reduced dose for a maximum of seven to nine days.

There was apparent cure in forty-three cases, and apparent or possible failure in six cases. In the apparent cures, clinical signs disappeared in under four days (average), and gonococci were absent in smears after two days (average). In the apparent failures, in three cases gonococci were present in smears after the course of drug treatment; of these one received 16 grammes in four days; in the second case treatment was very irregular. 12 grammes being taken in eight days as follows—3, 0, 0, 3, 3, 0, 0, 3. The third case relapsed, and gonococci reappeared in the smears one week after the first course of 15 grammes, but the discharge and the gonococci disappeared quickly on beginning a second course. Two other cases had a return of discharge after 16 grammes in five days, but no gonococci were found in smears; in another case a slight mucoid discharge showing no gonococci in smears persisted after six days of drug treatment.

SUBACUTE GONORRHOEA (ANTERIOR URETHRITIS): 5 CASES

In all these five cases clinical cure was attained in an average of just over four days. A peri-urethral abscess and a sinus discharging gonococcal pus cleared up within a week.

ACUTE, SUBACUTE, AND CHRONIC ANTERIOR AND POSTERIOR URETHRITIS (25 CASES)

In twenty-one of the cases there were complications such as prostatitis, seminal vesiculitis, epididymitis, arthritis, and iritis. In all these cases the urethral discharge cleared up in just over five days and all the complications improved rapidly, including the cases of prostatitis (one with sciatica), arthritis, and even the iritis.

PREVIOUS TREATMENT WITH DRUGS OF THE SULPHANILAMIDE CLASS

Three of the male cases had relapsed after treatment with uleron, one having received two courses each of 20 grammes; the other two had received 16 grammes and 13½ grammes respectively. In the last of these three cases irrigation had also failed, and was stopped when M & B 693 was started. Two of the three cases which had previously received uleron showed toxic symptoms with M & B 693.

Fifteen cases had been treated with sulphanilamide: of these cases thirteen which showed gonococci in smears were clinically cured in five days; one case relapsed after M & B 693, and gonococci reappeared in smears. Two cases developed jaundice after sulphanilamide therapy followed by M & B 693—one twenty-five days, the other twenty-seven days, after receiving the "693."

Two cases had no toxic manifestations with M & B 693 after having had such symptoms as headache, dizziness, and skin eruption while on sulphanilamide, but the dosage of the latter drug was twice that of the "693."

Female Adult Cases

NORMAL DOSAGE (19 CASES)

In seventeen cases the average dose was 2 grammes daily for just over six days, and the other two each received 3 grammes daily for five days. No local treatment was applied other than sitz baths and powdering of the vulva.

Therapeutic Effect.—In sixteen cases gonococci were absent from smears in under three days. Clinical signs such as discharges persisted on the average up to fourteen days. There was only one case of relapse with reappearance of gonococci in the smears, and two cases defaulted.

INTENSIVE DOSAGE

After the initial dose of $\frac{1}{2}$ gramme four-hourly, four cases received four-hourly doses of 2 grammes, 2 grammes, 1 gramme continued, and finally tapering off to $\frac{1}{2}$ gramme in a manner similar to the procedure recommended for cases of pneumonia, the total duration of treatment averaging eight and a half days. In these cases the gonococcus was not found in smears after an average of two days. No relapses were noted during the period of observation. All the cases on intensive dosage developed severe nausea, violent vomiting, and prostration on the first day, although they had tolerated the initial dose of half a gramme.

Toxic Effects on Normal Dosage

Toxic effects were observed in twenty of the seventy-nine male adult cases and in seven of the nineteen adult females. The symptoms, although slight in the majority, were severe enough to necessitate withdrawal of M & B 693 in eight cases (three men and five women), but not before the drug had been given for an average of six days, a sufficient period for it to exert the usual favourable influence on the gonorrhoea. The skin rashes were blotchy, erythematous or papular, and morbilliform in type, affecting the hands, arms (forearms especially), legs (thighs especially), abdomen, and back. The face was not in-

TABLE I.—Showing the Nature and Incidence of Toxic Symptoms in Patients on Normal Dosage

| Nature of the Toxic Effect | Incidence in | |
|------------------------------|--------------|-------|
| | Men | Women |
| Headache | 8 | 2 |
| Nausea | 6 | 2 |
| Dizziness | 3 | — |
| Skin eruption | 2 | 4 |
| Lassitude | 2 | 2 |
| Cyanosis | 2 | — |
| Vomiting | 1 | 1 |
| Breathlessness | 1 | — |
| Diarrhoea | 1 | — |
| Emptiness and hunger | 1 | — |

volved in the most severe eruption seen. There were no cases of photosensitivity in which the eruption is confined to the exposed parts—face, neck, hands, and forearms—although this type of rash has been found in cases treated with sulphanilamide.

The nature and incidence of the toxic symptoms in patients on normal dosage are shown in Table I, some patients exhibiting more than one symptom. All the toxic effects subsided quickly on withdrawal of the drug. One woman felt sick with six tablets (3 grammes) daily, but tolerated four tablets a day. One woman had sickness and lassitude with more than three tablets daily for four days, but nevertheless showed a very good clinical response.

Children with Gonococcal Vulvovaginitis (4 Cases)

These cases received no adjuvant treatment other than sitz baths and powdering of the vulva, with one exception in which menformon was given by injection and orally for two days before the drug treatment was started. As they are of special interest a synopsis of their clinical history is given in Table II.

Management of a Case

There is no necessity to wait for immunity to develop; M and B 693 should be used as soon as the diagnosis is made. The technique suggested by our experience is as follows:

Men should receive six $\frac{1}{2}$ -gramme tablets a day for five days—two tablets thrice daily after food, or, alternatively, two after breakfast, one after lunch, one after tea, and two after dinner or supper. After five days the dose should be reduced to three tablets, or at most four tablets, a day, continued for another five to nine days. The majority are cured by the first five days' treatment.

Women should receive four $\frac{1}{2}$ -gramme tablets daily for five days—one tablet after each of the principal meals, or as follows: one tablet after breakfast, half a tablet at noon, half a tablet at 3 p.m., half a tablet at 6 p.m., and one and a half tablets at bedtime. After the first five days the dose should be reduced to three tablets a day, and be maintained at this level for another five days.

Girls with vulvovaginitis should receive, for the first five days, half a tablet from four to six times daily, according to age, and thereafter, for the next five days, half a tablet thrice daily.

TABLE II.—Clinical History of 4 Cases of Gonococcal Vulvovaginitis in Children

| Case No and Age | Nature of Infection | Number of Days' Treatment till Disappearance of Clinical Signs | Dosage | Relapses | Toxic Effects | Remarks |
|------------------|--|--|--|---|---|--|
| 2747 Aged 5 | Recent acute vulvovaginitis—gonococci present in smears from urethra and vagina | 2 | 0.25 gm. thrice daily for 5 days | None. Observed for 78 days after first negative smears | None | One injection menformon (25,000 units) and menformon tablets for 2 days before M & B 693 started. But smears still contained gonococci |
| 2779 Aged 5 | Recent acute vulvovaginitis; gonococci present in smears from urethra and vagina | 3 | 1 gm. daily for 5 days ($\frac{1}{2}$ tablet every 6 hours) | None. Observed for 30 days after first negative smears | Neutrophil polymorphs reduced from 64% to 41% | At start of treatment white blood corpuscles 15,000 (neutrophil polymorphs 64%). After 5 days' treatment white blood corpuscles 11,000 (neutrophil polymorphs 41%) |
| 2780 Aged 4 | Recent acute vulvovaginitis; gonococci present in smears from vagina and urethra | 4 | 1st Course: $1\frac{1}{2}$ gm. daily for 5 days ($\frac{1}{2}$ tablet every 4 hours) 2nd Course: $1\frac{1}{2}$ gm. daily for 5 days | On 10th day after starting treatment gonococci in smears, but no clinical signs. No relapse in 15 days after second course | Nausea, vomiting. Dose reduced to $1\frac{1}{2}$ gm. daily | After 5 days white blood corpuscles 6,800 (neutrophil polymorphs 55%) |
| A4602 Aged 10 | Recent acute and severe vulvovaginitis; gonococci present in smear | 5 | 1st Course: 4 gm. daily for 2 days; 2 gm. daily for 2 days; 1 gm. daily for 4 days—given in divided doses 4-hourly. Total 16 gm. 2nd Course: $2\frac{1}{2}$ gm. for 2 days; $1\frac{1}{2}$ gm. for 4 days. Total 10 gm. | On 15th day after starting treatment gonococci reappeared in smears. No relapse 6 weeks after completion of the second course | Nausea on the 2nd day, but was able to continue on the reduced dose | Gonococci absent after 4th day of first course and after 1st day of second course |

The tablets are best taken powdered and in half a tumblerful or more of water. During the drug treatment patients should be warned not to take sulphur-containing foods such as eggs and onions, and, if laxatives are necessary, to use only liquid paraffin or extract of cascara, avoiding especially Epsom salts or liquorice powder.

Conclusions

1. M & B 693 can effect clinical cure within a week in a large majority of cases of gonococcal infection, whether of short or long duration and whether occurring in men or in women.

2. Complications originally present, such as epididymitis, arthritis, or iritis, improved rapidly.

3. In the cases quoted there was complete absence of complications or spread of the disease after the start of the drug therapy.

4. No irrigation or other adjuvant treatments are necessary.

5. Toxic effects may occur in less than one-third of the cases, but where normal dosage is employed these are usually mild, requiring only a reduction of the dose.

6. Toxic symptoms are quickly recovered from, and no lasting ill effects have been encountered.

7. Vulvovaginitis also responds well to M & B 693.

8. Our experience has led us to conclude that M & B 693 is the most potent anti-gonococcal agent available at present.

Summary

A report is given of 102 cases of gonococcal infection treated with M & B 693.

The standard of cure aimed at is discussed, along with the general results of treatment.

The clinical history of four cases of vulvovaginitis in children is detailed.

Points on the management of a case are given.

We are indebted to Messrs. May and Baker for supplies of the drug and to Dr. Robert Forgan for advice and literature.

INTERNATIONAL HOSPITAL ASSOCIATION

Toronto, September, 1939

At a recent meeting of the United Kingdom Council of the International Hospital Association, presided over by Mr. W. McAdam Eccles, M.S., F.R.C.S., chairman, there was received a preliminary but very detailed programme of the sixth Biennial Congress of the I.H.A. to be held at Toronto in September, 1939.

The task of the production of this programme has been in the capable hands of Dr. Malcolm T. MacEachern, President of the I.H.A., and Associate Director of the American College of Surgeons, with the assistance of Dr. Harvey Agnew, Secretary of the Canadian Hospital Council and President-elect of the American Hospital Association. Associated with them have been Dr. William S. Coldwell, chairman of the Congress Committee and assistant medical director of the Canadian Red Cross, and the secretary, Mr. Carl T. Flath. By all concerned with the I.H.A. in Great Britain, in the British Empire, and on the Continent, and above all in Canada and the United States, it is believed that this coming congress will be unique in the annals of international hospital affairs, and will stand to show the co-operation of the whole civilized world in the prevention of and the dealing with disease in the modern manner. Forty study committees will be reporting upon their individual work during the preceding two years, and papers of great interest will be read by many experts during the week of the Congress, September 19 to 23.

All particulars concerning the subjects to be discussed and of the travel arrangements to Toronto and back can be obtained from the joint hon. secretaries of the I.H.A., 17, Bloomsbury Square, London, W.C.1.

Clinical Memoranda

Primary Intussusception of the Appendix

Primary intussusception or inversion of the appendix, without complication, is probably a sufficiently rare curiosity to merit report of a case which came under my care while acting surgeon at Offaly (King's) County Hospital, Tullamore.

CASE REPORT

The patient, a young man aged 20, was admitted to hospital after a severe attack of colicky abdominal pains accompanied by vomiting; the symptoms had been present in lesser degree at intervals over the two preceding days. On admission his temperature was 99° F. and the pulse rate 80. Slight tenderness was elicited on deep palpation of the right iliac fossa. Rigidity was not in evidence, nor was any mass felt.

On the following morning the abdomen was opened through a McBurney incision, but the caecum was not delivered with the ease anticipated, nor was the appendix felt. On enlarging the incision and delivering the caecum the three taenia coli were seen to converge on a tiny dimple into which ran a taut band—the meso-appendix. The appendix was felt as a

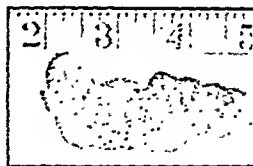


FIG. 1.

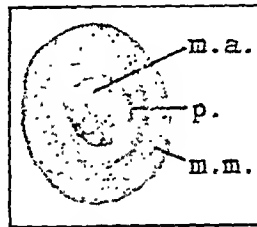


FIG. 2.

FIG. 1.—The specimen (scale, inches).

FIG. 2.—Cross-section of the specimen (actual size). m.a. = meso-appendix; p. = peritoneum; m.m. = mucous membrane.

sausage-shaped mass fixed at the caput caeci, lying within the caecal cavity. Its size indicated engorgement, and an effort to evert it was quite futile. The meso-appendix was ligated and severed and an intestinal clamp lightly placed across the caput caeci, within which lay the appendix. After packing off, the caecal wall was opened by an incision which ended at the site of inversion, the appendix was delivered, and the incision carried round its base. With the usual toilet, closure of the caecum in two layers, and adequate drainage, the operation was concluded in the ordinary way.

Convalescence was uneventful, and the patient was discharged from hospital after eighteen days by the surgeon, Dr. T. Meagher, who had then resumed duties.

I am indebted to Dr. W. R. O'Farrell, pathologist to the Mater Misericordiae Hospital, for the following report on the specimen: "The specimen is a complete inversion of the vermiform appendix. Section shows a central mass of fatty tissue containing large vessels—the meso-appendix; external to this is the muscular coat and the mucous membrane, which shows in places the subepithelial collections of lymphocytes. The whole mass is congested and inflamed. The inversion is complete, and includes the tip of the appendix."

The usual explanation of the condition—an attempt to extrude a concretion or an enlarged lymphatic follicle—probably holds in this case.

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Reviews

RETROSPECT AND PROSPECT

Thus We are Men. By Sir Walter Langdon-Brown, M.A., M.D., Hon. LL.D., Hon. D.Sc., F.R.C.P. (Pp. 344; 10s. 6d. net.) London: Kegan Paul, Trench, Trubner and Co. 1938.

Since his retirement from the professorship of physic in his old University Sir Walter Langdon-Brown has spent part of his leisure in revising and collating the addresses he gave to learned societies on subjects covering the borderline of medicine, psychology, and religion. Deeply impressed in his student days by the facts of organic evolution, he is led to apply the same rule to the social development of the individual and of the community. He points out that that cycle of time with his own birth as centre includes such remarkable scientific developments as the statement of evolution and Mendelian heredity, the discovery of the bacterial causes of infections, a new aspect of psychology with ability to understand and determine the influence of early training and environment on the reactions to the trials and work of later life, and the control exercised by the ductless glands through the effects of their products and secretions on the somatic and psychological development.

Through these collected essays runs the thread of the course of social evolution of man as apart from the rest of the animal kingdom—that is, the mental or psychological evolution—though psychology is approached from the physiological side. But the author's point of view is not that of the anthropologist but of the physician; for his interest is not so much in the laboratory as in the essential bedside approach to medicine. Thus after a short discussion of primitive social psychology and the modern conception of how the mind works, he brings forward instances of the lack of adjustment to society, to occupation, and to sex; without this the individual cannot become psychologically adult. Only if he can make suitable adaptations to these three social factors can a man be happy and fit. He may succeed in overcoming his difficulties; if not, neurosis, disease, or degeneracy ensues. A second group of essays, more literary in subject-matter and dealing with instances of maladjustment, illustrates escape from the realities of life and unpleasant duties through fantasy or fugue, and failure to adapt to the problems of sexual maturity; instances are given of double personality among the great, and lesser, authors and playwrights. In an interesting and acute piece of criticism Sir Walter Langdon-Brown shows how authors reveal in their characters or the situations that arise in their novels and plays their own inherent psychological imbalance. It is an easy step to contrast and admire the members of the medical profession who have made their mark in literary circles: Sir Thomas Browne, Harvey with his profoundly significant demonstration of the circulation of the blood, the little-known heroes of plague-stricken villages in mediaeval England, and those outstanding examples of humanistic doctors of modern times, Sir William Osler and Robert Bridges. The author's literary inheritance and wide reading have helped him to dip his own pen in the golden ink.

In his third group of essays Sir Walter Langdon-Brown approaches the borderline of philosophy and religion. Man as he emerged as a thinking animal has been beset by fears. His desire for assurance of his own survival, of his continued sustenance, and of his freedom from

disease has been met in the past by the idea of a god whose special care has been the giving of this assurance; sometimes the apotheosis of a fellow man whose tenure of the office was terminable by the selection or personal prowess of a successor. The first biological stage of a community is held together by taboo and fertility rites. In the second individualities develop, and the religious trend is towards longing for assurance of individual salvation and personal immortality. In the stage of evolution that the human race has now reached there is need for conscious co-operation. Again the god is the expression of the soul's sincere desire, and the worship of the State has emerged. As the individual must attain his manhood balance by fusing his ancestors, the community exists by a working compromise of often antagonistic elements. But there is no static position; evolution demands a flow, though always offering a higher or a lower course. The solution can be found by a method which gives adequate freedom to the individual life within a larger co-ordinated unit. Can we achieve it? Sir Walter Langdon-Brown has more optimism than Sir Thomas Browne, who three centuries ago wrote, "Thus we are men and we know not how."

HEART DISEASE IN PREGNANCY

Heart Disease and Pregnancy. By Crighton Bramwell, M.A., M.D., F.R.C.P., and Edith A. Longson, M.B., Ch.B., D.P.H. With a Foreword by Sir Ewen Maclean, M.D., LL.D., D.Sc., F.R.C.P. (Pp. 194; 57 figures, 39 tables. 8s. 6d. net.) London: Humphrey Milford, Oxford University Press. 1938.

The Heart in Pregnancy. By Julius Jensen, Ph.D., M.R.C.S., L.R.C.P. (Pp. 371; 5 figures, 117 tables. 25s. net.) London: Henry Kimpton. 1938.

The fact that our knowledge of heart disease in pregnancy (which for practical purposes can be considered as rheumatic) has not kept pace with other aspects of cardiology must be attributed to the relatively poor opportunity available for expert and prolonged observation of the condition. A large number of data have now been collected, as shown in the two volumes reviewed herewith, but the manner of presentation suggests that final conclusions cannot yet be drawn from them. The book by Drs. Bramwell and Longson is an admirable and concise statement of their experience based on 350 cases. The first step is to decide on the presence or absence of heart disease in the pregnant woman who has certain symptoms, and this may not be easy, since the effects of pregnancy in the normal woman may produce both symptoms and signs which simulate very closely those of heart disease—for example, shortness of breath, palpitation, fullness of the veins of the neck, rales at the lung bases, and a change in the radiographic silhouette of the heart similar to that of mitral stenosis. Such problems are clearly discussed, and the common physical signs fully described. Auricular fibrillation, which is a serious complication not only because it may itself be a severe handicap but also because it occurs in the advanced stages of rheumatic heart disease, is discussed at length; the mortality in the cases with this arrhythmia was found to be four times that of the whole series. In the final chapters on treatment and prognosis the point is stressed that in pregnancy of more than three months' duration artificial termination is nearly always inadvisable, and that when there is heart failure any interference must always be preceded by adequate medical treatment, while the rules given for prognosis should help to lessen maternal mortality. For information on any of the problems connected with heart disease and pregnancy no better source than this well produced and illustrated book is available.

The Heart in Pregnancy, by Professor Jensen, is a more discursive but less practical work. It is largely a painstaking review of the literature, much of which is contradictory, and suffers from the fact that it is only to a small extent a record of personal observations. As a result the reader is apt to be confused, and has to look carefully for definite guiding principles. For those seeking an account of the literature on the subject the book provides a comprehensive summary, but it will be of less value to the practitioner requiring quick access to principles of treatment.

PRACTICAL MEDICINE

Minor Medical Operations for Senior Medical Students and Recently Qualified Practitioners. By Kenneth Harris, M.A., M.D., F.R.C.P., and Edith Harris, M.B., B.S., D.P.H. (Pp. 198; 41 figures. 7s. 6d. net.) London: H. K. Lewis and Co. 1938.

Drs. Kenneth and Edith Harris have written a short and easily readable book on minor medical operations principally designed for senior medical students and recently qualified practitioners. It is probably more difficult to describe practical procedures than to write a straightforward short textbook of medicine, and the joint authors of the present book have not altogether brought it off. For example, the sections on blood transfusion do not contain all those details which show that the authors are frequently carrying out the procedure and appreciate all the difficulties. (Incidentally the "drip" method of giving blood is not described.) Exploration of the chest is better managed (probably because of the connexion of Dr. Kenneth Harris with the Royal Chest Hospital), but it is unfortunate that in the section on artificial respiration Schafer's method is not put first, as most experts are agreed on its superiority. Again, in view of a recent accident it would have been wiser to recommend removing the lid of the tin of cataplasma kaolin before heating it in boiling water, and the authors do not appear to be aware of the "tip" of spreading vaseline over the area to be poulticed, especially when it is hairy (much more effective than the gauze recommended). These criticisms suggest that the authors have not given quite enough thought to the relative ignorance of the audience whom they are addressing.

A careful revision, and in many places considerable extension, would turn this handy volume into a really valuable guide-book to medical and nursing procedures. Incidentally the title suggests the obvious query as to what the authors consider a *major* medical operation.

DISEASES MASQUERADING AS TUBERCULOSIS

Pseudo-Tuberculosis in Man. By Professor I. Snapper. Lectures given in November, 1937, at the University of London. (Pp. 90; illustrated; 12 plates. Fl. 7.50.) Haarlem: De Erven F. Bohn N.V. 1938.

Most diseases whose aetiology is unknown have been fated to have a tuberculous origin attributed to them, even when this has necessitated crediting the tubercle virus with phases of development or effects as yet unproved. For many years several affections showing nodules with a histological structure somewhat similar to that found in genuine "tubercles" have been regarded as tuberculous, though no tubercle bacilli could be demonstrated in them. Such lesions, especially when localized in the skin, have generally been termed tuberculides. This applies to lupus pernio, first described by Besnier in 1889, and to the multiple benign sarcoids reported by Boeck in 1899. Later it was shown that both these conditions were often accompanied by visceral localizations, Schaumann in 1914 being the first to bring

forward the conception that Boeck's sarcoids (or benign military lupoid) must be considered as the cutaneous localization of a general constitutional disease, really identical with lupus pernio. In the first part of his book Professor Snapper gives an admirable account of this condition (recently called Besnier-Boeck-Schaumann's disease), based on thirteen cases he and Dr. Pompen had the opportunity of studying. In these patients no fewer than thirteen different localizations of the typical nodules were observed, swelling of the hilar gland in the chest being the most constant finding. Lesions of the skin, on the other hand, were not always present. The radiological picture may closely resemble "chronic military tuberculosis." Since the outlook for the patient with Besnier-Boeck's disease is good, its presence may account for some of the cases of so-called "healed" military tuberculosis. Jüngling's syndrome, or osteitis "tuberculosa" cystica multiplex, is merely the localization of the same disease in the fingers and toes. Professor Snapper maintains that there is no evidence that Besnier-Boeck's disease is tuberculous in origin.

The second part of the book gives an equally excellent account of "regional ileitis." Professor Snapper asserts that tuberculosis of the intestine is found only in patients with active tuberculosis of the lungs. In non-tuberculous patients a special ulcerative inflammation of the ileum may be observed (described by Crohn, Ginzburg, and Oppenheimer in 1932). Macroscopically and microscopically many characteristics of tuberculosis are seen, but, again, tubercle bacilli are never discovered in them even when animal inoculation is carried out. Professor Snapper gives a detailed account of six personal cases of this disease.

The production of this volume cannot be too highly praised. The format, the binding, the paper, the printing, and the lay-out all show a lavishness that will be the envy of many authors. The ample illustrations on glazed board are superb. It is a pity, therefore, that the English, though quite good, has not been more thoroughly revised.

HYGIENE AND DISORDERS OF INFANCY

Clinical Paediatrics (The Baby). Edited by W. R. F. Collis, M.A., M.D., F.R.C.P., F.R.C.P.I., D.P.H. With a Foreword by Andrew H. Davidson, M.D., F.R.C.P.I., F.C.O.G. (Pp. 460; 89 figures, 17 plates, 7 tables. 21s. net.) London: W. Heinemann (Medical Books). 1938.

Care of Infants and Children. By Harry Lowenberg, sen., A.M., M.D. (Pp. 300. 10s. 6d.) London: McGraw-Hill Publishing Company. 1938.

Dr. W. R. F. Collis has succeeded in editing a useful and practical volume on *Clinical Paediatrics* in which seventeen of his colleagues in Dublin assist him in presenting the main facts about the hygiene and disorders of infants, especially during the earliest part of infancy. Clearly the book has grown out of the work at the valuable infants' department of the Rotunda Hospital (commended in a foreword by the present Master, Professor A. H. Davidson); and the chapters on the newborn baby, in which Dr. Collis has written most of the sections, show a skilful application of modern knowledge to the special conditions of the neo-natal period. The rest of the book is less original, but contains most that practitioners and students need know about feeding and the common medical and surgical disorders of infants, with chapters on diseases of the eye, ear, nose, and throat. Dr. Collis acknowledges the help of his teachers, but unfortunately manages to get the initials and spelling of their names wrong in several instances. Indeed, as a whole the book shows signs of hasty editing, but this does not detract

from its essential value as a common-sense and practical handbook for those concerned with the care of infants.

Dr. Harry Lowenberg, sen., has written a popular volume on *Care of Infants and Children* which intelligent mothers should find most useful. Nurses and even young medical graduates could also learn a great deal about normal infant and child hygiene from its pages.

SURGERY FOR ESSENTIAL HYPERTENSION

The Surgical Treatment of Hypertension. By George Crile. Edited by Amy Rowland. (Pp. 239; 52 figures, 15 tables. 18s. net.) Philadelphia and London: W. B. Saunders Company. 1938.

Although the surgical treatment of essential hypertension is but a recent development the results which have been published to date do not suggest that a treatment which will give uniformly good results has been found. Dr. Crile in this volume presents the thesis that when the coeliac ganglia are removed there is an increased fall in blood pressure which, too, is more lasting. It is early to say whether or not Dr. Crile's new treatment will be the method of choice in the future, as his first operation was performed on May 6, 1936, and his records only cover a period of about twelve months from the time of operation. It must be admitted that in his hands coeliac ganglionectomy produces a greater fall in blood pressure than does any of the other operative procedures at present in use. One must criticize, only on general principles, an operation which is carried out almost entirely by touch. There does not seem to be any valid reason for this "touch dissection," especially since so many surgeons are acquainted with the methods of coeliac anaesthesia by the transperitoneal route. Some modification of this method to enable it to be used for extirpation of the ganglia seems to present no serious anatomical difficulties, with the added advantages that (a) preliminary anaesthesia of the ganglia might give some idea of the probable result of extirpation on the blood pressure, and (b) all of the structures to be removed could be identified *seriatim* in full view. Dr. Crile develops his argument for the removal of the coeliac plexuses in an interesting way and has added a most complete bibliography and discussion of the literature of the treatment of essential hypertension by surgical methods.

Notes on Books

The thirteenth edition of Osler's *Principles and Practice of Medicine* has been revised by Dr. Henry A. Christian (Appleton, 35s.). Originally brought out in 1892, two years after the first edition of Taylor's *Medicine*, it has run a very similar course, the ninth, tenth, eleventh, and twelfth editions having been produced by Thomas McCrae. From his position as professor of medicine at Harvard and as a pupil of Osler and a friend and colleague of McCrae, the new editor, who is anxious to continue its traditions, will be heartily welcomed by all those who have been educated on this outstanding work. While closely following the inherited characteristics, much—about two hundred pages—new material has been added, and this edition is a worthy successor of its twelve predecessors.

The third volume of the first series of *New International Clinics* (J. B. Lippincott Company; 4 vols., 50s.) contains twenty original articles; a symposium on some of the uses of sulphanilamide, including its employment in the pneumonias, urinary infections, pelvic infections, and diseases of children; clinical lectures on Bright's disease, heart

disease, retroperitoneal meningococcus infection, obesity, and acute hypocyctic lymphatic leukaemia; and a review of recent work on pyelitis in pregnancy. Among the original articles special attention may be drawn to those on clinical and experimental observations on adrenal insufficiency, diabetic acidosis, favourable and unfavourable results from the practice of modern obstetric trends and procedures, present status of the surgical management of peptic ulcer, dermatitis from wearing apparel, urology for the general practitioner, caudal anaesthesia in proctology, and pulmonary tuberculosis and heart disease in anthracosis.

Die natürliche Heilweise im Rahmen der Gesamtmedizin (the place of natural therapy in medicine) contains a series of some thirty lectures by different persons, and is edited by Dr. C. ADAM. The editor explains the general purpose of the volume as follows: "The new German therapy is distinguished by the striving after synthesis. The desire of the Reichsärztesführer is to build into scientific medicine the valuable portions of empirical and folk medicine. This is in accordance with the desires of all well-wishers to the health of the German people." The volume includes articles on many aspects of modern therapy and also articles on homoeopathy, folk medicine, etc. It is published by Gustav Fischer of Jena at RM. 14.

Preparations and Appliances

HEPATEX-T FOR THE TROPICS

Hepatex-T (Tropical), which is manufactured by Evans Sons Lescher and Webb Ltd., is a combination of liver principles intended for the treatment of the nutritional macrocytic anaemias which arise in tropical countries. These anaemias were first recognized as occurring in pregnancy, but have been produced in experimental animals by nutritional deficiencies. The disease was found to be relieved by liver feeding or by crude extracts of liver, but this effect is now known to be due to factors other than anahaemin. An unknown factor, vitamin B₁, and the vitamin B₂ complex all appear to be concerned. The same is more or less true in the case of sprue.

Hepatex-T (Tropical) is a preparation for intramuscular injection (dose 2 c.cm.), which is believed to contain all these factors, which are beneficial in the tropical anaemias mentioned.

CRYSTALLIZED TESTOSTERONE

Sterandryl (Roussel Laboratories, Ltd.), a preparation of crystallized testosterone propionate, is an oily solution intended for intramuscular administration and is supplied in three concentrations: 5, 10, and 25 mg./c.cm.

Investigation of the clinical action of the male sex hormone has been hampered until recently by the difficulty of obtaining adequate quantities, but the synthesis of testosterone has now been achieved. The practical significance of this advance is indicated by the fact that extraction of a quarter of a ton of bulls' testicles would be needed to provide 25 mg. of pure hormone. The makers provide a booklet explaining the mode of employment and possible clinical applications of the preparation. Promising results have been recorded with the use of testosterone for the relief of symptoms due to enlargement of the prostate. The dosage recommended is a series of injections on alternate days of doses of 5 to 25 mg.

IODO-CAFFEINE ELIXIR

Elixir iodo-caffeine compound (Evans Sons Lescher and Webb Ltd.) contains caffeine sodium iodide, together with hyoscyamus, valerian, and sal volatile. It is recommended for various purposes, including that of producing a sedative action in chronic asthmatics.

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THE STATUS OF PATHOLOGY

The decision to endow a lectureship as a memorial to the late Professor E. H. Kettle has been generally applauded. The first of these lectures, an abstract of which appears on page 1162, was delivered by Professor W. W. C. Topley, who is peculiarly qualified to undertake this task by his long and intimate association with the man whom it commemorates, and by community of ideas with him on the subject of the lecture itself. "The Place of Pathology among the Medical Sciences" was a matter upon which Kettle had very decided views; they were, in fact, principles which guided his life. That a deeply considered pronouncement on this subject in its widest bearings should be interwoven, as in this lecture, with repeated tributes to his influence and achievements would be in his own estimation the most gratifying honour which could be paid to his memory. Kettle was one of those men to whom the science of pathology owes the respect in which it is held, and the breadth of his outlook, the patience and determination of his experimental work, and his insistence on securing adequate evidence before drawing conclusions, are held up as a model to which future effort should conform.

Professor Topley traces the development of the sciences on which medicine is based, and in particular of those which the term "pathology" embraces, and makes a number of proposals for the advancement of their study and for the advantage of those who follow it. The keynote of almost all of these is a greater breadth of individual outlook. No one deserves to be called a pathologist who, although his chief occupation may ultimately be morbid anatomy, bacteriology, or pathological chemistry, does not know his way about in the other two of these spheres; and this means that in the early stages of his career he must be permitted and indeed encouraged to employ himself in more than one of them, and perhaps to explore the "profitable borderlands" between them. The medical bacteriologist should not be simply a botanist, either merely pursuing a systematic study of a primitive form of plant life or employing a number of laboratory tricks which happen to be useful in the diagnosis of disease: the host is his

concern as well as the micro-organism, and the whole of the changes produced by infection in the body are within his province and should be an object of his study. The dependence of one branch of pathology on another, and the advantages of familiarity with both, have never been better illustrated than in Kettle's work on the tissue changes produced by infection, and notably his study of the infective element in silicosis. If there is one of these branches of which a far wider diffusion of knowledge is necessary, it is certainly morbid histology: not only is a mental picture of the bodily changes in disease helpful in the intelligent pursuit of any type of pathological work, but, as Professor Topley points out, there is a serious dearth of really proficient morbid histologists. This may not be due only to the counter-attraction of the experimental field, as he suggests, nor even to the limited income entailed, but also to the lack of opportunities for systematic advanced study. There is, in fact, no course in this subject corresponding to that for the diploma in bacteriology, and neither experimental research, owing to its necessarily limited scope, nor the haphazard experience of a year or two in the diagnostic laboratory and the post-mortem room, can altogether take its place.

The same underlying idea permeates the proposals made for the betterment of undergraduate education. The student's career is at present a series of stern and disconnected exercises, and when at last he finds himself among patients he is apt to think that everything without a bearing obvious to himself on how to handle them is thenceforth irrelevant and safely to be forgotten. To break down the barriers which must exist in his mind between the pre-clinical sciences and clinical medicine would indeed be a step forward, and neither the ruthless pruning nor the collaboration between widely separated departments which it would involve is impossible. The teaching of pathology itself, how, and more particularly when, it should be done, has been much debated recently, and there can be few who are satisfied with the present position. In most schools it is an "ancillary" subject in the clinical years, not over-kindly treated in the matter of available time, and competing for the student's attention with the new human interest and obvious practicality of clinical work. It is too apt to be regarded as a matter of merely learning to identify things, whether under microscopes or in bottles, or to perform tests which are useful in diagnosis. Let there be no mistake about the claims of the pathologist for his subject. It is not ancillary to medicine but the foundation of it. The learning of pathology is not a mere academic exercise and an extension of facilities for diagnosis;

it is a fundamental necessity for comprehending the processes of disease, and hence for intelligent and progressive treatment or prevention. For this claim to be sustained the teaching of pathology must be of corresponding nature; it must be related to medicine in the way meant by Boyd when he writes: "A world of disordered function lies revealed in any lesion if we only have the eye to see it." It must, in fact, make the student think, and future progress depends on there being more with inquiring minds—men who are not content to know that a thing is so but want the reason why.

Another problem with which Professor Topley deals is the rival claims of teaching, routine diagnostic work, and research. The majority of pathologists in medical schools—including bacteriologists, for whom the difficulty is perhaps greatest—have to apportion their time between all these three things, if indeed the last of them is not crowded out altogether by the other two and perhaps by administrative work as well. Each of the three can benefit from the others, but only on condition that none claims too large a share of his time. For the individual pathologist this is the most pressing problem of all, and any future development which lightens his burden will bear fruit in more than one direction.

PLAY THERAPY AND CHILD GUIDANCE

Since the establishment of the kindergarten system in the latter part of the last century it has been increasingly recognized that the play of children serves a special function, not only in their education but in the maintenance of their mental health. Given otherwise similar conditions, those children who have opportunity to play freely—whether in the streets or in the nursery—tend to develop a more active and stable disposition than those bounded in this respect. Conversely, observation of a child at play provides material for accurate diagnosis of the mental and emotional condition. The well-balanced child is one who can happily express in play the fantasies which are the essence of his emotional life: the play of the maladjusted or neurotic child is commonly inhibited, compulsive, or ambivalent in character. With the development of psychopathology, especially during the last ten years, further investigations into the play-life of

childhood have revealed its importance as a presentation of the unconscious as well as the conscious mind, a form of expression comparable to the verbal free association of adults and therefore of inestimable value in the fields of child guidance and child psychiatry. And so of recent years there has arisen in child guidance clinics and elsewhere

a service known as play therapy. From the recognition of these two factors—the place of play in the mental hygiene of childhood, and its value in the treatment of children's psychological disorders—play therapy has developed both as a means of prophylaxis and as a method of treatment. It includes the organization in schools of activities that may encourage a high standard of mental health, and the treatment in child guidance clinics, hospitals, and elsewhere of the psychogenic disorders of childhood—with extremely encouraging results.

In 1924 Karl Abraham declared that "the future of psycho-analysis is in play analysis." In 1928 Mrs. Klein published a paper describing the use of toys and miniature figures in play analysis. Work has also been done at the Institute of Child Psychology, and in various child guidance clinics, especially the Tavistock Clinic, methods of play therapy have been studied and developed. The method employed is founded on the one hand upon extensive study of child development—physical, mental, and emotional—and on the other hand upon an intimate personal knowledge of unconscious processes, normal and abnormal. This latter, comparable to the knowledge of physical anatomy gained by dissection, is regarded as an essential preparation for the play therapist. In the treatment of psychological cases play therapy, though it owes much to the research work of the psychoanalysts of childhood, is developing its own technique, adapted especially to the necessary limitations of work under out-patient conditions. Equipment, which is by no means costly, is designed to provide objects corresponding to those of importance in the child patient's experience and fantasy, a miniature cosmos which he himself can direct. Among these objects are elemental materials such as sand and water; small figures representing the family constellation; houses and fences that enclose or protect; objects that take in and eject, such as pumps or mincing machines; cars, aeroplanes, and their instruments of power; plastic material and the means of graphic and dramatic expression; constructional toys; also objects which by their shape, size, or colour may be charged with special symbolic significance. No suggestion is given as to the child's choice or use of material. He is completely free to do what he likes with it, so long as he injures neither himself nor the observer. It has been found advisable to keep the apparatus as simple as possible.

The free use of such material by a child or group of children in the presence of a benevolent but neutral adult who is sufficiently trained to encourage expression while avoiding stimulation or suggestion is in itself beneficial and may even prove enough for the resolution of minor psycho-

logical disorders, especially those of social maladjustment. For more severe cases a different method is employed, and the child is always treated individually. Two major factors have to be considered: the reactions of the child to the therapist, and the situations presented in the play itself. The validity of these, as representing the child's emotional life with its underlying emotional conflicts, depends upon the skill of the play therapist, who has to provide in the treatment room an atmosphere in which the child may feel so secure, so free from blame or praise, that he may dare to be himself and to express himself happily without self-consciousness. Obviously such conditions can be created only by an observer who is emotionally secure and competent to assess his own reactions, since the dramatic play of small children tends to arouse the emotions of childhood dormant in the adult, as illustrated by the classic example of the father who monopolizes the toy trains of his small son. The therapist must acquire a technique for controlling voice and movement (established so firmly as to be automatic) comparable to that of the surgeon in avoiding the introduction of any fresh infection during operation. An inappropriate phrase or gesture may be as dangerous as an unsterilized swab. In psychological cases, obviously, *ars est celare artem*, so that the child perceives only a friendly individual who seems ready and competent to help him. Under such conditions of security the child can express in his play and tolerate those feelings which were once repressed because intolerable to a weak developing ego—and which, because their natural outlet was blocked, have become a source of emotional hypertension. As the play situations develop and unconscious conflicts are revealed these are re-presented to the patient in his own terms—that is, in the objective terms of his play, but in relation to the reality situation. In this way bogies of the unconscious mind come from their dark corners into the daylight, and, seen in their true perspective, lose the terror of the undefined. At the same time the child's natural forces making for mental health are enabled to reassert themselves; there is a gradual reorientation of the whole personality, and the re-establishment of confidence, happiness, and mental vigour.

Although statistics are not so far available, results of this method appear very satisfactory over an age range of 2½ years to 17 years, the amount of play relative to verbal expression normally decreasing with the age increase. Suitable types of cases include: (a) nervous disorders—depression, anxiety, phobias, obsessions, night terrors, sleeplessness; (b) habit disorders—enuresis, nail-biting, etc.; (c) educational difficulties—backwardness in intelli-

gent children, unmanageable behaviour, bullyings or timidity; (d) delinquency—pilfering, truancy, lying, etc. Among adolescents treatment has been successful with cases of a schizoid type, as well as with conversion hysteria, and in severe stammering when a verbal approach is difficult. It does not appear suitable for the majority of delinquents over 10 years old, although in some of these cases it has proved useful. It must, however, be remembered that the emotional balance of the child may, like his metabolism, be easily upset and quickly readjusted. Much caution must therefore be exercised in putting forward claims for cure when all that has happened is that therapy has coincided with the natural resolution of a transient disturbance. This must especially be borne in mind in any attempt to assess the results of treatment statistically.

THE TESTING OF DISINFECTANTS

We have referred before to the proceedings of those committees of the British Standards Institution which have been engaged during the past few years in defining standard methods for the testing of disinfectants. The need for authoritative definition of such methods can only be fully appreciated by those who have had experience with them; a variation of technique in any of a dozen directions may considerably affect the coefficient obtained, whereas rigid adherence to a method prescribed in every detail will give results which are constant within narrow limits. The original request for standardization of the Rideal-Walker method came from the disinfectant industry, which has for many years accepted this test as an index of the quality of its products. Disinfectants are sold with a guaranteed Rideal-Walker coefficient, and discrepancies between the results of tests by seller and buyer, due often to varying technique, have been the cause of frequent disputes. The object of this effort was attained by the publication of a British Standard Technique for the Rideal-Walker test in 1934 (British Standard Specification No. 541; 1934). Whatever the commercial convenience of this achievement it did not meet the need for a recognized method of testing disinfectants under more severe conditions, designed to imitate those in which most disinfectants are expected to act. It is fairly generally known that a major obstacle to disinfectant action is what is usually called organic matter, represented, for example, when the object is the disinfection of excreta, by all the material of which faeces are composed. In the presence of such material some types of disinfectant which yield high Rideal-Walker coefficients become completely ineffective, and even disinfectants of coal-tar origin lose much of their activity as judged by the minimum dilution required for complete sterilization. Moreover, this proportion varies with their composition, being least with phenol and solutions of cresols, and greatest with emulsions of tar acids of higher boiling-point, of which many proprietary disinfectants of this kind are composed. The Chick-Martin test, which actually employs faeces as added organic matter, has

been used to a limited extent for many years as an index of practical disinfectant power, and it forms the basis of a second method, which has now been made the subject of a British Standard Specification.¹ The principal modification which this method has undergone is the substitution for dried faeces of a suspension of yeast; this change was originally proposed by L. P. Garrod,^{2,3} and has several advantages. Dried human faeces, besides being unpleasant to prepare and work with, are of necessity inconstant in composition, whereas a suspension of commercial yeast is readily prepared, can be adequately standardized in composition, and represents organic matter in both dissolved and particulate form similar in nature to material of excremental or vegetable origin which a disinfectant may encounter in practice. It remains to be seen how far this test will be adopted by public health authorities and other users of disinfectants. The sphere of its applicability is not defined in the specification, but it will doubtless be recognized that the test is appropriate only for disinfectants to be used outside the body. The definition of suitable methods for assessing the capacity of surgical disinfectants is a task which has not yet been begun, nor is it, so far as we are aware, even in contemplation.

IMMEDIATE DIAGNOSIS OF DIPHTHERIA

Apart from microscopical examination of the swab, which is often unsatisfactory, the bacteriologist can rarely be certain of the presence of diphtheria bacilli in less than eighteen hours, with the result that in practice the clinician must decide for himself whether or not to give serum treatment. Working under the direction of Professor A. Sordelli at Buenos Aires, Dr. A. Manzullo⁴ not only has succeeded in considerably shortening the time required for a bacteriological diagnosis but has evolved a method by which an immediate diagnosis may be made at the bedside. He observed that if the swab was inoculated into a tube of blood-tellurite medium, prepared according to Horgan and Marshall's formula with the omission of the agar, and incubated at 37° C., black spots developed on the swab within about three hours. Microscopical examination of these spots showed that they contained diphtheria bacilli; confirmation was afforded by plating and by guinea-pig inoculation tests. It was further observed that these spots appeared on actual pieces of pseudomembrane that had been torn off while taking the swab, and that only pseudomembrane containing diphtheria bacilli reacted in this way. Manzullo conceived the idea of applying a tellurite solution to the pharyngeal pseudomembrane *in situ*. In practice he makes up a 2 per cent. solution of potassium tellurite in distilled water, dissolving it at a temperature below 40° C. After soaking the swab in the solution he applies it to the pharyngeal exudate, taking care not to touch the tongue during the process. If the patient suffering from active diphtheria blackening of the exudate is visible in five to ten minutes; otherwise no change in colour occurs. In seventy-two out of

seventy-five cases complete agreement was reached between the results of this bedside method and the bacteriological diagnosis in the laboratory. One or two precautions are necessary. The tellurite solution must not be kept for more than a month. False results may be obtained if methylene-blue has been applied locally or if the patient has used a mouth-wash containing tannic acid or hydrogen peroxide. It must be understood that the method is essentially one for the diagnosis of active diphtheria, whether of faucial or of nasal type; it is useless for the detection of healthy carriers. How early in the disease the reaction becomes positive is not stated, but even if it does no more than afford confirmation or otherwise of the clinician's diagnosis in cases presenting definite changes in the pharyngeal mucosa it should prove of considerable value.

WHAT IS VITAMIN P?

Szent-Györgyi and his co-workers^{1,2,3,4,5} claimed that the "natural" vitamin C of plant tissues, particularly of fruit juices, was superior to the synthetic ascorbic acid in the treatment of various pathological conditions characterized by increased permeability of the capillaries, and that this superiority was due to the presence in the fruit juices of a substance which they named vitamin P and identified as a flavone, "citrin." Its effect on vascular permeability was then demonstrated in guinea-pigs, which when fed on a scorbutic diet plus 1 mg. "citrin" daily lived longer than guinea-pigs fed on the diet alone. Later it was shown that "citrin" was not a pure substance but a mixture of crystals of hesperidin and an eriodictyol glucoside, the former in much the larger proportion. When hesperidin was obtained in pure form it was found to have vitamin-P influence on guinea-pigs. Thus it was concluded that the syndrome of experimental scurvy in guinea-pigs was due to a deficiency of both vitamins C and P. Zilva,⁶ however, in repeating this work on guinea-pigs found that daily doses of 1 mg. of "citrin," of a mixture of $\frac{2}{3}$ mg. hesperidin and $\frac{1}{3}$ mg. eriodictyol, or of 1 mg. of purified hesperidin did not delay the onset of scurvy or the fatal termination of the disease in guinea-pigs on a scorbutic diet. Moreover, a daily dose of 0.1 mg. or 0.2 mg. of ascorbic acid (doses much lower than the minimum prophylactic dose) produced a condition resembling that obtained by Szent-Györgyi by a dose of 1 mg. of "citrin." Zilva's guinea-pigs had received a pre-experimental diet at least as good as that declared by Bentsath⁷ to be necessary for the demonstration of the vitamin-P effect, and yet he failed to obtain it. Lotze⁸ has recently made a full investigation of two commercial preparations of "vitamin P" and of nearly pure hesperidin prepared from them. His examination was made by spectroscopic and chemical means, by animal experiments, and by clinical trials on human subjects. Chemical and spectroscopic tests showed that

¹ *Disch. med. Wschr.*, 1936, 62, 1325.

² *Nature*, 1936, 138, 798.

³ *Ibid.*, 1937, 139, 326.

⁴ *Ibid.*, 1936, 138, 1057.

⁵ *Ibid.*, 1936, 138, 27.

⁶ *Biochem. J.*, 1937, 31, 915.

⁷ *Ibid.*, 1937, 31, 1488.

⁸ *Hoppe-Seyl. Z.*, 1937, 247, 258.

⁹ *Disch. med. Wschr.*, 1938, 64, 477.

¹ British Standard Specification for the Modified Technique of the Chick-Martin Test for Disinfectants, No. 808, 1938.

² *J. Hyg., Camb.*, 1934, 34, 322.

³ *Ibid.*, 1935, 35, 219.

⁴ *Folia biol.*, 1938, Nos. 86 and 87, pp. 365-371.

his preparations did not fully accord with those used by Szent-Györgyi and his co-workers. However, he found that, including the nearly pure hesperidin, they had a certain amount of biological action; it was very much less than that of vitamin C itself, but it enhanced the action of vitamin C when used in combination with it. In his clinical trials he observed that the commercial preparations exerted an influence similar to that reported by the Hungarian workers. Lotze therefore suggests that the active preparations, and perhaps "nearly pure" hesperidin itself, contain some substance belonging to the flavone group which is not without biological activity, and that the preparations found by other workers to be inactive, though apparently very like the active ones, did not in fact contain the active substance. At present, therefore, it seems to be less a question of whether vitamin P really exists than of what vitamin P really is.

DID COLUMBUS DISCOVER SYPHILIS?

The origin of syphilis has been hotly disputed by medical historians for many years, but the consensus of opinion has gradually hardened so that now it is generally accepted that it was introduced into Europe from the Western Hemisphere. Dr. Victor Robinson has summarized in an interesting article¹ much of the evidence in favour of the American origin of the disease which remains valid, although foreign scholarship and American patriotism have combined in the attempt to remove the origin of syphilis from the New World. One single case of syphilis in pre-Columbian Europe would throw the entire American theory to the ground, but that single case has not been produced. On the other hand, within a year of the return of Columbus from the island of Haiti it had spread from Spain to Italy and France. The evidence of contemporary Spaniards is extremely significant. Dr. Robinson quotes the words of Capitan Gonzalo Fernandes Oviedo y Valdes, a man who was appointed supervisor of the foundries of gold in America and who lived in Haiti. He says: "Many times in Italy did I laugh, hearing the Italians say the French disease, and the French calling it the disease of Naples; and in truth both would have hit on the right name if they had called it the disease from the Indies. . . . Great was the wonder produced in all that saw it, not only because the disease was contagious and horrible but because many died of this disease." Then there is the testimony of the celebrated Las Casas, the one humanitarian among the Spanish explorers. He devoted most of his long life to the welfare of the Indians and was known as the Apostle of the Indies. He agrees with Oviedo in stating that the natives of Haiti gave syphilis to the white race. Both Oviedo and Las Casas state that the Indians treated it successfully with guaiacum. Another authority is the Spanish surgeon Ruiz Diaz de Isla, who published a book in 1539 called the *Treatise Concerning the Serpentine Disease*, which was the name he gave to syphilis. By the time he wrote this book he had had forty years' experience of syphilis—that is, from 1492 onwards—and believed he had observed over 20,000 cases. He,

too, maintains that syphilis was unknown in Europe until Columbus and his crew returned from Haiti (which he discovered during his first transatlantic journey) and infected the inhabitants of Barcelona. He says the "serpentine disease" appeared and was seen in Spain in 1493, in the city of Barcelona, "which city was infected, and subsequently all Europe and the Universe in all known and communicable parts." Unfortunately Ruiz Diaz de Isla is by no means an absolutely satisfactory witness, for after the above statement, which would seem to be unimpeachable evidence for the American origin, he immediately contradicts himself by asserting that his "serpentine disease" is identical with the lichen of the Greeks and the kiss-spread mentagra of Pliny. Moreover, while he shows signs of being an acute clinical observer, inasmuch as "three species" of his "serpentine disease" approximate the three stages of syphilis famous to us all, he almost simultaneously destroys our confidence in him by stating that he has seen cabbages suffering from the disease! A further interesting suggestion we do not remember to have seen made before is that Columbus himself may have suffered from syphilis, for his good health prior to his discovery of America contrasts vividly with his subsequent invalidism. He suffered from arthritic and ophthalmic complaints, prolonged fever, swollen legs, and cardiac dropsy. Although none of these is conclusive evidence, there are modern clinicians who believe that Columbus in discovering America also discovered syphilis, and was one of its early victims.

THE GORDON TEST FOR LYMPHADENOMA

The intracerebral inoculation of rabbits with autolysed suspensions of lymph glands from cases of lymphadenoma was originally performed by M. H. Gordon in an attempt to transmit a hypothetical infective agent to the animal, which responds in no characteristic or significant way to any other method of inoculation. The result was a fatal encephalitis with highly characteristic clinical features, and it was only caused by glands from cases of lymphadenoma; on the other hand, it was not transmissible in series, and could therefore not be accepted as indicating the presence of a micro-organism. Thus what originally held out some promise of throwing light on the aetiology of the disease became a diagnostic procedure, and has been extensively used, for this purpose. An important step towards an understanding of the mechanism by which this effect is produced in the rabbit was the demonstration by Friedemann that it can also be produced with extracts of normal bone marrow. Since this observation a large variety of tissue extracts has been tested, and it is now generally believed that a positive result depends on the presence in the tissue used of certain types of cell, the autolysis of which liberates the encephalitogenic agent. A recent paper by McNaught¹ gives reasons for concluding that the encephalitogenic property depends solely on the presence of eosinophils. According to this author there is perfect correlation between the degree of infiltration with eosinophils seen in section and the result of the rabbit test, and the proportion of cases of lymph-

¹ Brit. J. Derm. Syph., November, 1938.

¹ J. Amer. med. Ass., 1938, 111, 1280.

adenoma in which the test is positive and of those in which eosinophilic infiltration is present is the same—namely, 70 per cent. He also obtained positive results in the rabbit with extracts of tissues containing many eosinophils but quite unrelated to lymphadenoma. If this conclusion be accepted, it would appear that the test gives no information not obtainable by the simple inspection of a section; but experience suggests that the matter is not quite so simple, and there is experimental evidence that the active agent is not confined to the eosinophil. Edward,² although his results with eosinophilic material anticipate those of McNaught, also obtained positive results with suspensions of neutrophil leucocytes in the form of sterilized pus and of lymphocytes from the blood in lymphatic leukaemia. Until the nature of the agent has been more clearly defined it will perhaps be wise to withhold final judgment on its source.

REFORM OF THE PENAL LAWS

The Criminal Justice Bill which was recently introduced in the House of Commons by the Home Secretary shows the great influence which medical, and especially psychological, science is exerting in the treatment of criminals. The importance of the probation system is recognized by provisions for its reorganization and extension. The sentencing of young offenders to imprisonment is to be greatly restricted and later, when other methods have become available, practically abolished. Remand centres and remand homes are to be established to receive young persons who are considered to need special medical observation and who would otherwise be remanded in prison. Two interesting new experiments are proposed. As an alternative to fines or short terms of imprisonment, young people convicted of minor offences will be required to attend at a "compulsory attendance centre" during half-holidays or in the evening after work, when they would otherwise be enjoying themselves at the pictures or watching a football match. It is to be hoped that they will be put to some intelligent occupation at these centres; if they are merely made "to hang about" the experiment will do more harm than good. The relevant sections mention appropriate occupation and instruction, but do not appear to make these obligatory. The second innovation is the Howard Homes for young persons who do not require Borstal training but ought to be taken away from bad associations. They will go out to their ordinary employment during the day but be under discipline at other times. Corporal punishment will be abolished as a judicial penalty and only survive as part of prison discipline under strict limitation. Persistent offenders will be liable to receive sentences of corrective training and preventive detention. The medical examination of offenders when they are before the court will be much facilitated by the provision which enables the court to remand an offender on bail with a condition that he submits himself to medical examination, the cost being paid by the State. Courts have hitherto had the power to certify an offender as a mental defective but not as a person of unsound mind; magistrates are

by this Bill given power to certify a person of unsound mind on the certificates of at least two doctors. There is no provision that one of these shall be on the panel of practitioners approved for this purpose by the Board of Control, and an amendment should be made to bring the section into line with the Mental Treatment Act, 1930. Courts placing on probation an offender who suffers from some form of mental illness or abnormality which is susceptible to treatment will be able to make a condition of the probation order that he shall submit to mental treatment, either as an in-patient or as an out-patient. This will regularize such action as was taken a year ago by the Wakefield magistrates in placing an offender on probation with a condition of residence in a mental hospital. "Criminal lunatics" become "State mental patients," and their asylums "State mental hospitals": Broadmoor will be transferred to the Board of Control. The Bill has been severely criticized in some quarters for making a conviction necessary before a probation order is made. The present absence of this necessity has been regarded as one of the best features of the probation system. The Bill contains a clause which nullifies any disqualification which would attach to sentence, but this would not cancel the stigma which conviction carries in the eyes of most of the community. Apprehension has also been expressed at the power to be given to magistrates of courts to sentence young offenders to Borstal. Doubtless these and other points will be hotly debated in committee. On the whole the Bill reflects a great increase in humanity and appreciation of psychological fact. It is for the medical profession to provide sufficient persons with the skill which would qualify them to assist the courts in the disposal of offenders who would profit from treatment under medical direction, and to advise the courts on the measures most likely to prevent the offender from returning.

To-day, Friday, December 2, at 5 p.m., Professor R. E. Kelly delivers the Bradshaw Lecture on "Recurrent Peptic Ulceration" before the Royal College of Surgeons of England. On Thursday, December 8, Mr. H. A. T. Fairbank will give the Robert Jones Memorial Lecture on "Increased and Decreased Density of Bone, with Special Reference to Fibrosis of the Marrow"; and on Thursday, December 15, Sir Humphry Rolleston will give the Thomas Vicary Lecture on "The Early History of Morbid Anatomy in England."

The ninth annual reports of the National Radium Trust and Radium Commission for the year 1937-8, including a statistical report, are published this week as a pamphlet of sixty-six pages by H.M. Stationery Office (Cmd. 5883, 1s.). Reference to their contents will be made in a later issue.

We regret to announce the death of Dr. William McDougall, F.R.S., professor of psychology in Duke University, North Carolina, formerly Wilde Reader in Psychology at Oxford and professor at Harvard; and of Dr. Harold Pritchard, emeritus physician to the West London Hospital.

² *Lancet*, 1938, 1, 936

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

FRACTURES AND DISLOCATIONS OF THE SPINE

BY

HARRY PLATT, M.D., M.S., F.R.C.S.

Mechanism of Spinal Injuries

The majority of fractures and dislocations of the spine occur at the three levels of greatest mobility: (a) in the upper cervical region (atlas, axis); (b) in the lower cervical region (fifth, sixth, and seventh cervical vertebrae); and (c) in the dorso-lumbar region (eleventh and twelfth dorsal and first and second lumbar vertebrae). A brief consideration of the effects on the spine of certain forces is essential to a clear understanding of the principles of treatment.

Vertical Compression.—This mechanism is chiefly responsible for the crush fracture of a vertebral body produced by a fall from a height on to the buttocks or heels. The force is transmitted through the anterior column of the spine, and is expended on a single vertebral body, usually the twelfth dorsal or first lumbar, which collapses and becomes wedge-shaped (Fig. 1, A). If the

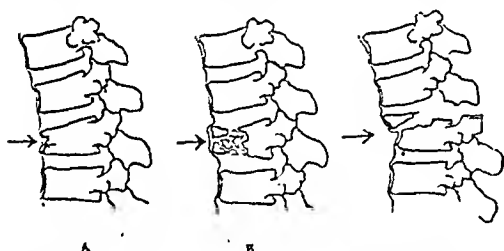


FIG. 1.—A: Compression fracture—wedge deformity. B: Hyperflexion fracture—comminution. C: Hyperflexion fracture-dislocation.

force is more widely diffused slighter degrees of wedging may be seen in the vertebrae immediately above and below the site of the main crush. Another well-known but uncommon clinical type of compression injury is the fracture of the posterior arch of the atlas produced by a blow on the top of the head.

Hyperflexion.—In this mechanism the spine is suddenly bent forwards by violence applied either to the upper part of the back and shoulders or to the head. The crush fracture of the coal-miner produced by a fallen roof is the most familiar example of this type of injury. Hyperflexion fractures take one of the following forms: (a) collapse of a single vertebral body, often with comminution and rupture of the underlying intervertebral disk (Fig. 1, B); (b) the classical fracture-dislocation of the lower cervical or dorso-lumbar region in which the pedicles are broken or, less frequently, a dislocation takes place at the intervertebral joints. This is followed at once by forward displacement of the vertebral body and a narrowing of the spinal canal immediately below (Fig. 1, C). In a certain proportion of cases the displacement

undergoes spontaneous recoil. In fracture-dislocations accompanied by cord injury the violence is often unusually severe, and well-marked bony displacement is the rule. The neural lesion is coincident with the bony injury and may be a simple contusion or a complete transection of the cord. Where bony displacement persists the cord becomes attenuated at the site of the protrusion.

Rotation.—Rotation, combined with flexion, is the force producing sUBLUXATIONS or dislocations of the cervical spine unaccompanied by fracture. These uncommon injuries, of which several types are described, may result from comparatively trivial violence. The best-known type is the unilateral forward sUBLUXATION at the level of the fifth or sixth cervical. Involvement of the cord or nerve roots is rare, except in the bilateral dislocations, which may be immediately fatal.

Hyperextension.—Hyperextension fractures of the spine are exceedingly rare. In this type of injury the compression force falls on the posterior part of the anterior column. If the broken vertebral body is comminuted the risk of protrusion of a fragment into the spinal canal is considerable.

Hyperextension of the head combined with vertical compression is the mechanism concerned in fractures of the odontoid process of the axis.

First-aid Treatment of Spinal Fractures

Although the treatment of fractures and dislocations of the spine demands all the resources of the modern fracture clinic the fate of the injured individual may be influenced for good or ill by methods used in administering first aid or during the transport of the patient to hospital. A study of the mechanics of spinal fractures suggests that a movement or posture which tends to perpetuate the crushing force in a compression fracture, or to increase the displacement in a fracture-dislocation, will be harmful or even disastrous. In the great majority of spinal fractures the dangerous movement is forward flexion of the trunk or neck. It is important, therefore, to lay down certain rules of conduct for the guidance of those who may find themselves responsible for the emergency treatment and transport of an individual with a suspected or proved fracture of the spine.

1. The public should be taught that an injured person who has lost the use of his arms and/or legs should not be lifted or carried before the arrival of a doctor or trained ambulance worker.

2. In a fracture of the dorso-lumbar region the patient should be carefully rolled over on to his face and a pillow placed under the upper part of the chest. This manoeuvre alone may be sufficient to reduce a fracture-dislocation. In lifting him on to the stretcher the position of extension of the spine should be maintained. If no stretcher is available at the site of the accident—as at the seam-face in a coal-mine—the victim should be carried to the first-aid post in the prone position.

3. When a spinal fracture is accompanied by a severe chest injury, a head injury, or by fractures of the lower limbs, the prone position may be impracticable or dangerous. In such circumstances the spine should be extended by placing

a firm support under the back at the level of the injury. During transfer to the stretcher care must again be taken to avoid any movement of flexion.

4. In a fracture of the cervical spine the prone position is also contraindicated. Extension should be temporarily obtained by placing a small pad underneath the neck. It should be remembered that lifting the head to enable the patient to drink from a cup is a dangerous action. When a patient with a high spinal fracture is moved, firm traction should be applied to both the head and the lower limbs.

5. On arrival at hospital, if the patient is not severely shocked, radiographs should be obtained without delay. All films should be taken without altering the position of extension for a single moment.

Recent Crush Fractures

The exact anatomy of a spinal fracture should be clearly defined in both antero-posterior and lateral radiographs

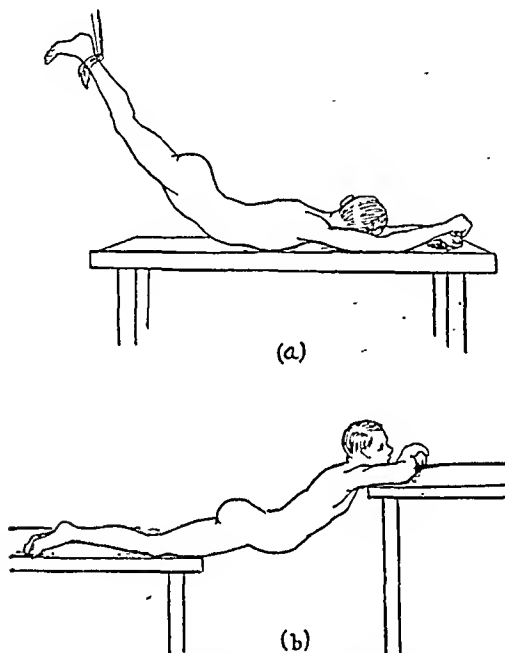


FIG. 2.—Davis (a) and Watson-Jones (b) methods of reduction of crush fractures by postural hyperextension.

before deliberate reduction is attempted. The deformity of a crush fracture should be corrected in all patients who are young or in the prime of life, and who may reasonably be expected to return to arduous occupations. Reduction aims at restoring the full vertical height of the wedged or comminuted body.

In the case of compression and hyperflexion fractures in the dorso-lumbar and lower dorsal regions reduction is achieved by hyperextending the spine to its limit, utilizing the tension of the intact anterior common ligament as an aid to reduction and as an internal splint to maintain reduction. The simplest and most effective methods of reduction are those devised by Davis and Watson-Jones. In the Davis method the patient, lying prone, is slung by the heels (Fig. 2, a). In the Watson-Jones technique the patient is suspended between two tables with the trunk unsupported, a position which allows the lumbar spine to sag into the maximum degree of hyperextension (Fig. 2, b). For the reduction of recent fractures no anaesthesia is required. When the maximum hyperextension has been obtained a closely fitting plaster jacket is applied over a layer of stockinet. The jacket extends in front from the pubis and groins to the clavicles and is cut out behind over the upper part of the dorsal spine (Fig. 3). In this way the

hyperextended position is continuously maintained and forward-flexion of the spine is impossible. The accuracy of the reduction should be confirmed in radiographs taken in two planes. A second jacket should be applied some three weeks later when the original jacket has become less close-fitting. At this stage a check-lateral radiograph should be obtained.

It is generally agreed that early ambulatory activity should be encouraged in crush fractures of the spine. Much depends on the age, temperament, and physical condition of the patient. The younger individuals should be allowed to sit up after a few days and to walk at the end of a week. Elderly patients—and more especially those with fractures in the mid-dorsal region, where complete anatomical reduction is rarely, if ever, achieved—can with advantage be kept in bed or on a couch for the first three or four weeks.

The position of hyperextension should be maintained until there is clinical and radiographic evidence of consolidation of the fracture. This will generally mean that the spine must be immobilized and protected for not less than four months from the time of the injury. During the latter part of this period many patients are able to engage in light duties. After the final removal of the jacket a rehabilitation programme is arranged. The functional and anatomical results of the treatment of crush fractures of the vertebral bodies by the method of hyperextension are most gratifying. Seventy-five per cent. of the patients so treated should be able to return to their original occupations.

With hyperextension fractures the method of reduction described is definitely contraindicated, for the obvious reason that further hyperextension of the spine may produce cord damage. In these cases the jacket should be applied with the spine in the ordinary neutral position.



FIG. 3.—Plaster jacket maintaining hyperextension.

Old Fractures: Kümmell's Disease

In the case of crush fractures undiagnosed in the early stage or treated ineffectively, the patient may later present himself complaining of backache, persistent rigidity, or increasing deformity. This clinical picture, when appearing after a long interval, was formerly known as Kümmell's disease (spondylitis traumatica). The treatment to be considered in such cases is: (a) a period of rest followed by the fitting of a support—a course suitable for elderly patients who cannot hope to return to heavy duties; or (b) in the younger individuals the operation of spinal fusion, which is generally effective in curing the backache.

Correction of Fracture-dislocations

CERVICAL REGION

The common fracture-dislocation of the cervical spine with forward displacement at the level of the fifth or sixth vertebra calls for prompt correction. If the signs of cord or root compression are present no time should be lost. Two methods of reduction are available.

Reduction by Manipulation.—The technique devised by A. S. Taylor of New York has been successfully used for some years by many different surgeons. The patient

is placed on a fracture table and a halter applied to the head. A stout cord or rope is attached to the side rings of the halter and passed round the waist of the surgeon. With the neck securely controlled between the surgeon's hands, steady traction is now exerted by a backward movement of the body. Counter-traction is provided by the fixation of the lower limbs to the traction bars of the table. The traction force is first applied in very slight flexion in order to disengage the articular processes. When the neck is felt to elongate, the head and upper part of the spine are allowed to drop back into the position of extension. The accuracy of the reduction is checked in a lateral radiograph, and the head and neck are then fixed in a plaster-of-Paris cast.

Gradual Reduction by Continuous Traction.—This is a recent innovation which has already proved to be particularly effective in the reduction of fracture-dislocations of the upper part of the cervical spine (Mackenzie, Turner, Cone, Crutchfield, and others). The traction is applied direct to the skull either by special tongs which perforate the outer table or by wires passed through drill-holes and connected to a cross-bar (Fig. 4). The

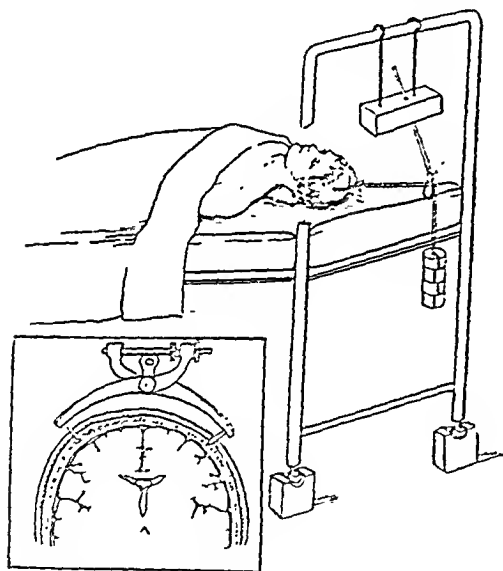


FIG. 4.—Skeletal traction on the head in fracture-dislocations of the cervical spine. (The diagram inset shows the application of the tongs to the skull.)

points of attachment to the skull should be chosen so that the pull is in the long axis of the cervical spine. Counter-traction is provided by raising the head of the bed. A weight of 10 to 15 lb. may be required for a short time to correct gross displacement.

In recent fractures the reduction takes place almost immediately. In fractures of some weeks' standing correction is a gradual process. In cases without cord injury, if the patient is in good condition, the tongs can be removed after the reduction has been confirmed in the lateral radiograph and a "Minerva" plaster jacket applied. In severe cord lesions it is wise to keep up light traction (that is, 4 or 5 lb.) for ten to fourteen days, and if the patient survives this critical period to apply the plaster at a later stage. This method of skeletal traction enables a paraplegic patient to be nursed with safety and comfort. In this respect alone it undoubtedly represents an important advance in the technique of treating fractures.

Skeletal traction is of course inapplicable if there is infection of the scalp.

It will be realized that the reduction of a fracture-dislocation of the cervical spine by either of the methods described requires special training and a high degree of manipulative skill, as well as the necessary armamentarium.

DORSAL AND DORSO-LUMBAR REGION

In hyperflexion fracture-dislocations without cord injury reduction by hyperextension should be carried out as soon as the patient is fit.

In paraplegic cases, although the fate of the cord has been determined from the moment of the injury, the correction of gross displacement is no less essential. The precarious condition of many patients during the first few days, however, makes the ordinary reduction and application of a plaster jacket a distressing and hazardous undertaking. Where for good reasons it is necessary to veto or postpone any attempt at complete correction the patient should be placed in the hyperextended position in a well-padded bivalved plaster bed in which he can be turned repeatedly without flexing the spine. If an air mattress is used hyperextension can be obtained by inserting a rolled blanket under the mattress at the level of the lumbar spine (Byron Stookey).

In a small proportion of fracture-dislocations of the dorso-lumbar region, accompanied by severe injury to the lower end of the cord and roots of the cauda equina, reduction by manipulation or by gravity is impossible owing to interlocking of the dislocated articular processes. In such cases hyperextension not only is ineffective but is also a dangerous manoeuvre, which may inflict grave additional damage on the cord or nerve roots. When this type of dislocation is recognized the correct procedure is to operate and remove the superior articular process of the vertebra immediately below the displaced body. This allows the articular processes to be realigned and the displacement of the body corrected.

Treatment of Paraplegia

The modern methods of reduction of fracture-dislocations have entirely supplanted the operation of laminectomy. Despite increasing experience in the handling of spinal fractures the mortality in cases with neural involvement continues to be high. A number of patients die in the first few days from shock or from the effects of other injuries. Of the survivors, some die during the first few weeks from such complications as urinary tract infection, bedsores, or pneumonia. Patients who reach the stage of reflex cord function may live for many years, and in the less severe cord lesions a useful measure of control over the paralysed limbs may be regained.

The prevention of bedsores and contractures and the care of bladder and bowel function demand skilled nursing. The areas of skin in contact with the air mattress or plaster bed at points of greatest pressure should be constantly shifted by gentle stroking. The prevention of urinary infection is the greatest responsibility of all. In a few patients the bladder may be emptied by pressure, but in the majority some form of regular catheterization is necessary. This must be done with the strictest aseptic precautions. A safe and effective method is to use an in-dwelling catheter, changed every five or six days. The bowels should be regulated by mild aperients or enemata, and over-distension should be avoided. The paralysed limbs should be supported in the standard positions, and after the stage of spinal shock is

H. Ensing (*Nederl. Tijdschr. Geneesk.*, 1938, 82, 5381) records his observations on seventy-nine cases of actinomycosis treated at the Gröningen Academy Hospital during the last thirty years. The localization of the disease was as follows: neck and jaw, forty-six cases; thorax and lungs, two; abdominal wall and abdominal organs, thirty-one. Of the fifty-one male adults thirty-one were agricultural labourers, while the occupation of the remaining twenty brought them much less in contact with the soil (clerks, factory workers, and others). The ages of the patients ranged from 15 to 35. There were fifteen adult women patients, and of thirteen patients under 20 even were males and six females. In more than half the cases infection took place by the buccal mucosa. In twenty-three of the thirty-one cases of abdominal actinomycosis the primary localization was in the ilco-caecal region, in two in the sigmoid, and in one in the rectum, while in the other five the primary focus could not be discovered. Recovery took place in 88 per cent. of the cases in which the neck and jaws were involved, and in 28.5 per cent. of the abdominal cases.

DEMONSTRATION OF MECHANICAL RESPIRATORS

In view of the general interest in the use of the apparatus popularly known as the "iron lung" in the treatment of poliomyelitis and paralysis after diphtheria, the Public Health Department of the London County Council arranged at County Hall a demonstration of the several types of mechanical respirators used in its institutions. The Council began using mechanical respirators in 1934, the year in which the first English-made "iron lung" was introduced, and now it has sixteen of them in operation, including at least one in each of its acute infectious diseases hospitals. One of the objects of the demonstration was to encourage other local authorities to equip their own hospitals in this manner. The Council is constantly being asked for the loan of its apparatus, and with the best will in the world it is not always possible to comply.

Since the design of the original Drinker respirator in Philadelphia, a number of refinements and accessories have been added in this country with a view to making the apparatus safer and more convenient in use, more comfortable for the patient, and more effective in treatment. Some of these were shown embodied in the

L.C.C. Drinker model. More recently a machine identical in principle with the Drinker respirator has been designed, having a chamber of laminated wood instead of metal, together with other modifications more especially to facilitate nursing. This new respirator is mounted on a tripod stand with a worm-and-sector tilting device. It has a constant-speed motor, with bellows driven at rates of 18, 22, and 28 respirations per minute, and all the working parts are enclosed in a steel cylinder which protects the mechanism from dust and eliminates noise. In the working out of this cheaper, lighter, and more transportable respirator the staff of the Council has had the advantage of consultation with Mr. Both, an Australian technician.

Another apparatus shown was an improved jacket respirator. The original jacket was widely used in Australia during an epidemic of poliomyelitis last year, and was described and illustrated in a paper by Professor A. E. Burstall of Melbourne in the *British Medical Journal* of September 17, 1938 (p. 611). It consists of a one-piece aluminium cuirass enclosing the trunk of the patient from neck to waist. The Council staff believes that the modifications it has made in this apparatus have resulted in a great improvement on the original and has elimin-

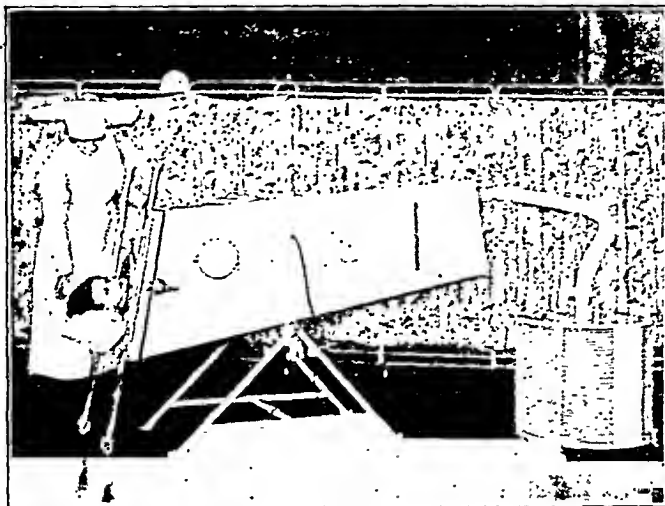
ated some of its admitted disadvantages. It now consists of an aluminium jacket shaped to the thorax and made in two pieces, back and front. These halves join at the sides by thumbscrew nuts on an air-tight joint. The shape of the armholes has been altered to afford more freedom, the design of the rubber diaphragm has been modified, and an escape valve provided to regulate the depth of the respirations. The respirator is operated by a one-eighth horse-power motor designed to drive a suction bellows at a fixed speed of 20 double strokes per minute. The jacket respirator does not replace the cabinet—in which the patient is wholly enclosed save for the head and which may be essential in the treatment of certain cases—but it has advantages in simplification. The patient with this appliance can, of course, be nursed in an ordinary bed. Another apparatus on view was the pulsator for prolonged artificial respiration, designed by

Mr. R. W. Paul at the suggestion of Sir William Bragg.

Coincident with the demonstration came the announcement of Lord Nuffield's offer whereby hospitals in the country having cases requiring respirators may be equipped. Like all Lord Nuffield's gifts, it is marked by largeness and a sense of what is needed. It must be borne in mind, however, that the respirator is still in a state of evolution, and probably many modifications will yet be made, just as new uses will be found for it (already it is suggested in cases of

drowning, carbon monoxide poisoning, partial electrocution, mine explosion, and war casualties). When presently it is stabilized it may be a much simpler affair than the still quite formidable arrangements which were on view in London. It will be unfortunate if Lord Nuffield's most generous offer has the effect of stereotyping the present patterns.

[The photograph reproduced is by the Photographic Department, L.C.C. Southern Laboratory.]



Case of diphtheria with respiratory paralysis being treated in mechanical respirator (tilted) at the North-Western Hospital, London County Council. Respirator designed for use in the Council's hospitals.

F. Tecilazic (*Minerva med.*, 1928, 29, 451) states that the specific action of vitamin B₁ in beriberi neuritis has suggested its use in other forms of neuritis, and records his personal observations on forty-one cases of diphtheritic paralysis. Of five severe cases of paralysis of the diaphragm and of the muscles of deglutition two recovered after three or four intraspinal injections of vitamin B₁ in the form of tetrophan, while the other three died. In the remaining thirty-six cases, which were examples of paralysis of the palate with or without general hypotonus, paralysis of accommodation, and loss of reflexes, vitamin B₁ did not appear to have the slightest effect. On the other hand, in twenty-four cases of malignant diphtheria and thirty-three cases of extensive faucial diphtheria in which vitamin B₁ was given, the incidence and severity of paralysis were much less than usual.

THE PLACE OF PATHOLOGY AMONG MEDICAL SCIENCES

KETTLE MEMORIAL LECTURE

The first lecture in memory of Edgar Hartley Kettle was delivered at the London School of Tropical Medicine and Hygiene on November 24. The lecturer was Professor W. W. C. TOPLEY, F.R.S., who chose as his theme, "The Place of Pathology among the Medical Sciences." There was a large attendance presided over by Sir John Caulcutt, chairman of the Governing Body of the British Postgraduate School, with Viscount Dawson and Colonel A. H. Proctor, Dean of the School, beside him on the dais.

Professor Topley began with a moving tribute to Kettle himself. Kettle had, he said, the rare wisdom that enabled him to keep a clear head amid the rapid emergence of new subjects and new techniques, and the adjustments that these necessitated in the older scheme of things. "He never resisted or resented them. He had an instinctive sympathy for all new things and for all young people; but in welcoming the new he did not forget the old." The lecturer quoted freely from Kettle's written papers, illustrated his successive points from Kettle's work, and said that, consciously or unconsciously, he was influenced most of all by recollections of his spoken words.

The Scope of Pathology

A growing science, said Professor Topley, not only expanded, it budded and divided. Physiology and pathology were themselves offshoots of medicine. A description of any science must be given in dynamic, not in static terms. It could never be said that pathology *is* so-and-so. It could only be said what and where it was at the moment, and which way it seemed to be moving.

In each of the biological sciences there had been a drift from the systematic study of structure and its relationship to a study of function, and from a study of any given function as an integrated whole to an analysis of the mechanisms on which that function depended. This movement was, of course, only a shift in the immediate focus of intellectual interest and effort. Structure did not become less important when viewed in terms of function; indeed, it gained greatly in significance.

Pathology, like physiology, began with the study of structure, or rather of structural changes; but it was still in this phase when physiology had undergone its metamorphosis into an experimental science. The accurate and detailed study of the changes in tissue structure associated with disease must always be an essential part of pathology as a whole; nor could a worker claim the label "pathologist" in any broad sense if he had no knowledge at all of the structural changes that are associated with disease.

If there is any danger at the present time in regard to the relative activity of the different aspects of pathology, it is a danger of too few morbid anatomists, not too many. The rapid advances made by bacteriology and immunity, by biochemistry, and by the application, as in cardiology, of physiological methods of attacking pathological problems have led so many workers into other paths that the expert histologist may soon be, if not a *rara avis*, at least a species whose future gives rise to anxiety. We cannot do without him. As a diagnostician he has an essential part to play, and he forms a firm and valuable link between pathology and clinical medicine. In the field of experimental research his potentialities are in the early stages of development; and the growing realization of this fact, particularly in this country and in America, may provide us with the records that we so clearly need.

A Question of Labels

It did not follow that pathology was morbid anatomy, or that morbid anatomists were the only pathologists. Here the lecturer thought that labelling had lagged behind practice, with results that were, or might become, unfortunate. "A pathologist must have some knowledge of structural tissue change, but he must also know enough physiology to relate abnormal structure to abnormal function, enough biochemistry to understand something of the chemical causes, or consequences, of the pathological processes that he studied, and enough bacteriology and immunity to give him some insight into the mechanisms concerned in infective disease. No man could be a master in each and all of these fields; but they were all pathology, and none of them had an exclusive right to that title.

If the common use of the label "pathology" as a synonym for morbid anatomy was misleading, the label "bacteriology," in so far as it implied a differentiation from pathology, was more misleading still. The bacteriologist, properly so called, was clearly a particular kind of botanist. He studied bacteria as such. The medical bacteriologist, on the other hand, was a pathologist who was concerned with the bacterial and virus infections of men and animals. He must spend much of his time and energy in studying the parasites; but he could not neglect the hosts. The tissue changes associated with infection were clearly within his province, and here the lecturer remarked that it would be difficult to find a better illustration of the close and inevitable relationship between morbid anatomy and medical bacteriology than was afforded by Kettle's work in the years following the great war.

Methods of Pathology

Professor Topley went on to emphasize some of the factors which differentiated pathology from most other medical sciences, except clinical medicine itself. A considerable part of the pathologist's work was still concerned with the observation of naturally occurring events not subject to experimental control. He had, therefore, in common with others in a similar position, to guard carefully against drawing premature conclusions from inadequate data, and rapid solutions were unlikely to come his way. What was less often realized was that he usually suffered from a similar disadvantage when he confined himself to the experimental field. Here he thought there was as sharp a contrast as with physiology.

It would not be a gross misrepresentation to attribute the rapid advance of physiology in the last half-century to the successful designing and exploitation of "acute" experiments. By his skill in this direction the physiologist had been able to obtain rapid answers to many of his problems; not only because experiments of this type gave their answers quickly, but because their very shortness of duration helped to eliminate the chance intrusion of many disturbing factors.

Probably a similar technique would yield valuable results to the pathologist, when he was in a position to use it, and one of the hopeful signs of the present day was the entry into the pathological field of workers who had acquired a physiological technique. But for a long time to come pathologists would be largely concerned with experiments that were as "chronic" as the processes they were designed to study, and the technique of the long-term experiment would be an essential element in their training.

Scientific research might be roughly divided into two broad categories: those inquiries that could be determined mainly by the nature of the problem to be solved, and those that were determined mainly by the nature of the technique to be employed.

"The great names and the great moments of science are associated with the transient merging of these two categories."

A technique developed in an attack on one particular problem is found to be applicable to a multitude of related problems, all of which, by their intrinsic interest and importance, are pressing for solution. Such a period occurred in the bacteriological field between 1880 and 1900, when, as Löffler put it, 'Koch shook the trees and the apples fell.' But it is seldom long before the advent of a period of diminishing returns. A new technique takes its place as one of the tools of science, but the advance on that particular front slows up until some new technique is invented. There are not many Pasteurs and Kochs, and the efficacy even of these great ones depends in part on the times in which they live, and on the developments in the several branches of science that provide them with the instruments that they exploit."

At most times and for most workers the choice was less happy. A chosen problem could be attacked by slow and relatively ineffective methods, which could be developed where this seemed possible, or a technique could be selected and applied to such problems as it was clearly fitted to solve. There was a danger of judging too much on results, and particularly on the form in which results could be presented. The neat and tidy answer to one problem might represent no more significant advance than the ragged and partial solution of another. It was a misuse of words to say that the one result was more "scientific" than the other or had been gained by more "scientific" means.

Relation of Pathology to Clinical Medicine

Neither pathology nor physiology, Professor Topley continued, could ignore the problem of clinical medicine, though an individual pathologist or physiologist might be well advised to do so. The clinician on his side could not ignore pathology and physiology. An increasing amount of clinical practice derived directly from the methods devised and from the results obtained in pathological and physiological laboratories, and these in their turn depended in large part on methods and results derived from the fundamental sciences of chemistry and physics.

For convenience, labels were attached to the broad fields of activity in medical sciences and to the people who worked in them. Boundaries had been put up which called not only for separate professorial chairs but for separate institutes. Did such separation matter? So far as research was concerned the lecturer believed that for the original worker, the man who would do the biggest things, it did not matter at all. For the ordinary man it mattered much more. It was not good that a young pathologist in his early or middle twenties should be labelled a morbid anatomist, or a bacteriologist, or a pathological chemist, and run in blinkers from that day onwards. From the point of view of the application of pathological or physiological knowledge to curative or preventive medicine he believed that the existing separation mattered profoundly. It was the main reason why medical practice and medical science failed to advance as quickly as they might. Could anything be done about the present separation of the medical sciences, supposing it to be a harmful thing? The crux was clearly education.

Integration of Medical Education

The present medical curriculum was frankly a system of almost disconnected examinational hedges. He believed that the historian of medical education in this country would regard the introduction of pathology as a tripos subject at Cambridge as a turning point, not only because there were aspects of general pathology that could best be taught at this stage in a student's career, but because the introduction of pathology of the right kind would enhance the student's interest in his physiological and histological studies, and would make clear to him, while he was pursuing them, their bearing on disease processes.

He thought that there should be introduced much earlier into education the concept of disease processes, of

abnormal function and structure, and that the teaching of the ancillary sciences should be continued much later in the curriculum. This would mean a scrapping of certain things that were now taught, but he would willingly let them go. If the student knew well those parts of anatomy, physiology, and pathology that had a direct bearing on his clinical work—if he knew them so that he could grasp their significance and discuss them intelligently—he would be a better scientist and a better clinician than if his heritage from his pre-clinical studies was a vague recollection of a partially digested mass of unappreciated facts and theories. This would help most substantially to break down the barrier of which he had spoken.

The Organization of Medical Sciences

But that was not all that could be done to break down the existing separation.

"I fancy that bricks and mortar are more dangerous things than is commonly supposed. I have a growing dislike of separate institutes where these can be avoided. Separate chairs of morbid anatomy, bacteriology, and pathological chemistry have become an obvious administrative necessity; but I profoundly mistrust the housing of this family of sciences in different buildings. Nor would I give to one more than another the right to adopt the family name of pathologist."

It would also be well to encourage men whose early training had been in one scientific field to migrate to another; and, again, to look favourably on a shift of subject-matter from one departmental territory to another.

One word of caution was necessary. In trying to abolish such barriers as already existed, the creation of new ones must be prevented. No man could compass the range of the medical sciences; nevertheless, it was possible to develop a common tradition, a common background of knowledge, and a common way of thought. This could best be done by breaking down existing barriers in the manner of which he had spoken, and erecting no new ones; and by training those who came into medicine to respect scientific method, which included accurate and critical observation, rather than to acquire, and then forget, an arbitrary collection of unrelated knowledge.

There was one factor, said the lecturer in conclusion, on which the success of all such purposes depended, and that was the personal one. Co-operation could never be forced, though it could be encouraged. "By Kettle's death we have lost one of our number who had the gift of true co-operation at its best. He had the widest interests and the widest sympathies, and was always able to view his own problems in relation to those of others. He has left behind him a memory and an example that none of us will forget."

An enthusiastic vote of thanks was accorded to Professor Topley for his lecture, on the proposal of Professor Francis R. Fraser.

Dr. Charles V. MacKay, Acting Director of the Australian Institute of Anatomy, Canberra, contributes to the *Medical Journal of Australia* of October 1 an article, copiously illustrated, on some pathological changes in the Australian aboriginal bones. This records the author's investigations into the pathology of bones found near the River Murray in southern New South Wales. The total number of bones examined was 351. Of these specimens nearly 200 were classified as periostitis, osteitis, or osteomyelitis. Dr. MacKay discusses at length the problem of the underlying causative factor which brought about such marked changes in bone architecture, and by elimination concentrates upon some form of spirochaetal infection, either acquired syphilis, endemic syphilis, yaws, or some unknown pathological entity peculiar to the Australian race. After studying the historical, geographical, and medical information at his disposal he regards venereal syphilis as the most likely cause of the lesions.

RADIUM 1898-1938

LA SEMAINE INTERNATIONALE CONTRE
LE CANCER

The International Cancer Week, organized by the International Union against Cancer to commemorate the fortieth anniversary of the discovery of radium, was formally inaugurated in Paris on November 23 by a series of notable functions.

In the morning the scientific delegates were received at the Palais de la Découverte by the great French physicist, Jean Perrin, who afterwards conducted a tour of this remarkable building, which was constructed for the exhibition held last year and contains an amazing collection of exhibits illustrating recent progress in every branch of applied physics and biology. In the afternoon the delegates were entertained to tea (and champagne) at the Hôtel de Ville and were addressed by M. le Provost de Launay and

by M. Justin Godart, the President of the International Union against Cancer.



Commemoration at the Sorbonne

The climax of an eventful day came, however, in the evening when the great amphitheatre of the Sorbonne was filled to overflowing by an immense concourse of delegates from the universities, academics, and learned societies of forty or fifty countries. M. Albert Lebrun, the President of the Republic, supported by the Ministers of Education and of Public Health, presided over the gathering, and with him on the platform were the two daughters of Pierre and Marie Curie, Mlle Eve Curie and Mme Joliot-Curie; the Marchesa Marconi; and Mlle Hertz—the daughter of the discoverer of Hertzian waves—now, alas! a refugee from Germany but living in safety in England. There were also on the platform M. de Broglie, M. Gutton, M. Langevin, Professor Roussy, M. Bezançon (the President of the Academy of Medicine), Dr. Bécélère (the doyen of French radiologists), Dr. Carter Wood of New York, and Professor G. P. Thomson (the distinguished son of the celebrated J. J.). British scientific institutions were represented in full force: the British Empire Cancer Campaign by Professor Woodburn Morison, Mr. Malcolm Donaldson, and Mr. Cecil Rowntree; the Ministry of Health by Colonel Smallman; the Medical Research Council by Professor Russ; Edinburgh University by Mr. Shaw; the Royal Institution by Professor Hopwood; and the Royal Cancer Hospital by Dr. Kaye.

Homage to the Curies

The proceedings were opened by the President of the Republic with a speech in which he paid an eloquent tribute to the achievements of science and in particular to the work of the Curies. His speech was followed by a broadcast from Warsaw by M. Moscicki, the President of the Republic of Poland, which on the whole came off quite clearly but was from time to time disturbed by German interference. The French President then replied in a speech broadcast to Poland. After other speeches from eminent French scientists Dr. Gendreau, the Canadian delegate from Montreal, gave great pleasure by his eloquent panegyric of the Curies, and worthily maintained the prestige of the British Empire by proving that he could easily hold his own with the great orators of France in their own tongue.

There is no question that France well knows that science should be honoured and knows well how to do it. Few who had the privilege of being present at the Sorbonne last week will forget the picture it presented. Cuirassiers of the Guard posted round the amphitheatre lent an unaccustomed touch to a scientific gathering, while the uniforms of high officers of State, the orders, stars, and ribbons of the ambassadors, the dresses of the women, and the robes of the Papal Nuncio all combined to produce a colourful and impressive spectacle.

One of the objects of the International Cancer Week is to raise funds for the International Union against Cancer, and a special set of surcharged stamps bearing the portrait of the Curies has been issued. It is satisfactory to learn that the sale of these stamps has already exceeded expectations and that the funds of the International Union will benefit accordingly.

The scientific business of the Cancer Week has continued daily and many papers bearing more particularly on various aspects of x-ray and radium therapy have been submitted. On the first day Mr. Cecil Rowntree gave a brief account of the anti-cancer effort of Great Britain, during the course of which he conveyed a message of good wishes from the Minister of Health and referred to the Bill which Dr. Elliot proposes shortly to introduce in the House of Commons, in order to implement the proposals with regard to the treatment of cancer foreshadowed in the King's Speech at the opening of Parliament.

GREAT MEDICAL VICTORIANS
SIR SICLAIR THOMSON'S LECTURE

At a reception given by the President of the Royal Society of Medicine (Sir Girdling Ball) and Lady Ball on November 29, Sir SICLAIR THOMSON gave an address on "Medical Notabilities of the Victorian Age, as Seen by *Vanité Fair*." The periodical mentioned published for many years a series of cartoons entitled "Men of the Day." These were drawn by two artists who signed themselves "Spy" and "Ape." "Spy" was the late Sir Leslie Ward, a sensitive draughtsman, and "Ape" was an Italian artist, one Carlo Pelligrini, who scored a great success with his first caricature of Disraeli in 1869. Appended to each of the cartoons was a short biographical sketch signed "Jehu Junior." This was Thomas Gibson Bowles, the editor of the periodical and sometime member of Parliament. The Library of the Royal Society of Medicine possesses thirty-one of these cartoons which have as their subjects prominent physicians and surgeons of Victorian and Edwardian days. These were shown as lantern slides, while Sir Sicclair Thomson made a few remarks on the careers, personalities, and reputations of the artists' "victims."

Good Vintage Years

The year of Waterloo and the year immediately following it saw the birth of three great figures in British medicine—Sir William Jenner, Sir William Gill, and Sir Richard Quain. Of the first of these Sir Sicclair Thomson said that although a court physician he had not the bedside manner described in fiction and often represented on the stage as characteristic of a successful consultant. His chief characteristic was robust common sense. His manners were somewhat autocratic, and he allowed no sentimental illusions to blind him to the frailties of human nature. He once told his class at University College Hospital that there were two things they were bound to encounter—death and ingratitude. On another occasion, slapping his trouser pockets, he told his students that when he began practice one of those pockets was for fees, the other for affronts. But as soon as he had made his way he buttoned up the second pocket. The reference to him in *Vanité*

Fair stated: "Sir William Jenner is one of the most successful practitioners of those obscure devices to which the strongest are occasionally forced to resort, and which, even now, often consist of curing a man of one disease by giving him another."

Sir William Gull, another court physician, was somewhat of an agnostic in therapeutics, as many men were in those days following the ages during which patients had been drenched with drugs. One of his wise sayings was: "Never write a prescription which causes you any anxiety." He was a man who had decided dramatic sense, and the great Charcot, who was a psychologist, called him "*un grand poseur*." Sir Richard Quain, the third of the trio, was often in consultation with Gull. On one occasion Quain detailed a line of treatment, but Gull said that all the patient required was a warm bed, whereupon Quain remarked that his colleague was well known for his habit of sending his patients to a warm place. Gull once suggested a little reserve in prognosis, adding, rather pontifically, "We must remember *Populus vult decipi*." To which Quain replied, "I quite agree; the public does not like to be gulled."

Sir James Paget, who was born in 1814, was a scientific surgeon, a great teacher, a delightful writer, and a captivating orator. For the benefit of younger members of the profession Sir StClair Thomson quoted his opinion on the prospects of a career:

"Anyone with a safe knowledge of his profession and free from such faults—that is, idle, time-wasting, unbusinesslike, unpunctual, unevill, unable to work with others—may be as certain of success in the practice of medicine or surgery, or both, as in any other business of life; or even more certain, because his prosperity may be very nearly independent of that of others."

A Later Period

Next came a group of men who were born during the first ten years of the Victorian era. Sir Francis Laking was medical attendant on three sovereigns, and a man who "could walk with kings nor lose the common touch." With his cartoon it was stated, "He is a courtly gentleman who knows his business," and Sir StClair Thomson, who knew him fairly well, said that this was an excellent description. Sir William Dalby, who was in his time the leading aural surgeon in this country, had more the appearance of a leisured squire than of a leader in a surgical specialty. His brief biography in *Vanity Fair* stated:

"He is well known in smart society, and he dines at all sorts of houses. He is a member of the Garrick . . . excellent company, and finds time to play whist every day before dinner."

Such was the well-rounded life of a London specialist in the spacious days of Queen Victoria. Sir Alfred Cooper also had a large and fashionable West End practice, and was a keen sportsman—rode in the Row every morning, shot in Scotland every autumn, and, said *Vanity Fair*, "is known as 'Alfred' and is as cheery as he looks."

Two surgeons of a later period, only a few years gone from us, who were also immortalized in these cartoons, were Sir Alfred Fripp and Sir John Bland-Sutton. Of the former Sir StClair Thomson said that he was a happy and successful man and one of the best-known surgeons in the late Edwardian and early neo-Georgian periods. Full of vigour and responsiveness, always ready to please and to be pleased, unsparing in his care and anxiety for his patients, and with an attractive personality, it was not surprising that these qualities, added to his skill, care, and experience, secured him a large, fashionable, and lucrative practice. He had the good fortune to come in on the flowing tide of surgery which followed the long-delayed but sudden and complete acceptance of Listerian principles in London. Sir John Bland-Sutton also was fortunate in that his rise in his profession coincided with the adoption

of Listerism. He had the insight, training, and courage to be one of the pioneers in the great realm of surgery to which Lister had pointed. The biography described him as "the scientific mind incarnate, a born enemy of ambiguity and indecision, dangerously fond of facts, an able and experienced debater, a cold and logical writer, and an accurate observer. He is impatient and blunt, and makes no pretence of winning converts by any of the drawing-room virtues."

The Nestor of the Profession

Sir StClair Thomson's last example was one happily still with us—Sir Thomas Barlow, who was the subject of "Spy" more than thirty years ago. "Jehu Junior" stated that books always formed the bulkiest part of Sir Thomas's baggage, that he was interested in archaeology, that he consumed meals rapidly and at irregular hours, that he had an unequalled reputation in the treatment of children, and knew exactly what to say to anxious parents. "He is tactful in consultation, and avoids his neighbour's corns by doing his duty." To this Sir StClair Thomson added that his name would live in Germany, where a disease which he discovered was known as "*Barlows'sche Krankheit*."

In conclusion Sir StClair Thomson said that he trusted his disjointed remarks had revived some happy memories among any Victorians present. These successful medical men of what the French were beginning to call "*le grand siècle*" showed that the strenuous life was not a modern invention, but had to be led by all who loved their profession.

"In our days, when medicine is rapidly becoming more and more scientific, the doctor is perhaps better able to mould his career without devoting so much care to developing and applying the art of his profession. But he will better succeed, and be a happier man, if he preserves his humanity, always remembering that the patient's first anxiety is to be cured, and not merely studied."

THE SOCIETY OF APOTHECARIES

HONOUR FOR SIR BUCKSTON BROWNE

At the Yeomanry Dinner of the Society of Apothecaries of London, held on November 22, the Honorary Freedom of the Society was conferred on Sir Buckston Browne. In introducing him to the Society, Mr. L. V. CARGILL, the Senior Warden, said that the Honorary Freedom was the highest honour the Guild could bestow, and Sir Buckston had been unanimously elected to the only vacancy both for his eminence in the profession and his munificent gifts to medicine and to science. Sir Buckston, he continued, was born in April, 1850, and came to London from Owens College, Manchester. He had been house-surgeon to Erichsen, and was associated with the celebrated lithotomist, Sir Henry Thompson, who operated on Napoleon III. Sir Buckston had founded a scholarship in memory of his son, had given Downe House to the nation, and to the Royal College of Surgeons had presented and endowed the Buckston Browne Research Farm to the extent of some £100,000; he had also instituted an annual dinner at the College of Surgeons. After this speech the Master, Dr. Reginald Hayes, conferred upon Sir Buckston the Honorary Freedom of the Society.

A Medical Family

In expressing his deep gratitude to the Society for this honour, Sir BUCKSTON BROWNE said that he was the fifth and last practitioner of medicine in his family. His great-grandfather was born 225 years ago and was an apothecary in the town of Derby, and married into the family of the Buckstons. His great-grandmother's brother fought

at Culloden beside Wolfe, who subsequently became the famous general known to history. Continuing his interesting family history, Sir Buckston said that his great-grandfather had served seven years as an apprentice to his great-great-grandfather, and in 1797 went to London and presented himself for examination to the Company of Surgeons: this was the common way of entering the profession in those days. Finally Sir Buckston said that he himself always determined to become a doctor and came to London at the age of 18 for that purpose.

In proposing "The Society of Apothecaries," Sir GEORGE CHRYSIAL, secretary of the Ministry of Health, said that he dined in this hall and with this great and beneficent corporation with greater pleasure than with any other Company of the City. He referred to the forecast of a method used in modern medicine when at Epidaurus Aesclepias arranged for serpents to bite his patients. The sons of Aesclepias, he was glad to record, went into administrative medicine. Referring to the past struggles between the Society of Apothecaries and the two Royal Colleges, he observed that the Royal College of Surgeons had recently made the Past Master of the Society its President, and he congratulated Mr. Hugh Lett on attaining these two distinctions.

In reply, Dr. HAYES said that it was just forty-three years ago that he had attended his first Apothecaries' Dinner. The Society was founded in the seventeenth century as a craft guild, and assisted research by providing a scholarship, and among other activities showing that the Society was adaptable to modern conditions he referred to the mastership of midwifery and to the founding of the Register of Medical Auxiliaries. Dr. Hayes paid a tribute to Dr. Cecil Wall as the archivist of the Society.

Reform of the 'Curriculum'

The Junior Warden, Mr. T. B. LAYTON, proposing "The Guests," said that there was one subject of interest to them all—namely, the medical curriculum—and all would agree that this needed revision. Some six years ago a conference was held under the guidance of three of their Honorary Freeman on the curriculum, and it was soon agreed that this was seriously overloaded. A report had been produced which went the way of most "blue books." He had long pondered over this report, and had concluded that "some large subject" should be transferred from the students' curriculum into the graduate period of medical education. He proposed that the subject should be obstetrics. This was a revolutionary idea, but he hoped that they would give it serious consideration. He coupled the toast with the names of Dr. E. H. T. Nash, President of the Society of Medical Officers of Health, and Dr. Adolphe Abrahams, Dean of the Medical School attached to Westminster Hospital.

In reply Dr. NASH said that in ten years' time there would, in his opinion, be a great change in the relations between the public health service and the general practitioner and specialist. He felt that the general practitioner was being left out more and more in deliberations at the centre. He deeply deplored this. Dr. ABRAHAMS replied in a characteristically witty speech in which he said that the Deans of the Medical Schools look upon the Yeomanry Dinner "as one of our best perquisites." Referring to "a dithering of deans," he said that this was about the only chance they had of meeting each other.

E. Massobrio and A. Appiano (*Minerva med.*, 1938, 29, 381), who record three cases of pernicious anaemia in patients aged 61, 72, and 59, state that clinically psychoses arising in the course of pernicious anaemia are prone to considerable variation. They agree with other writers who hold that there is nothing characteristic in these mental syndromes. In all three cases complete disappearance of the psychoses—which had led to the patients being sent to an asylum—followed the administration of raw liver by mouth and the intramuscular injection of liver extract.

Nova et Vetera

THE JUBILEE OF THE "BRITISH JOURNAL OF DERMATOLOGY"

This periodical appeared for the first time in November, 1888, under the joint editorship of Malcolm Morris (afterwards knighted) and H. G. Brooke, and celebrates its jubilee with a special number of historical interest. Many readers will be glad to see in this jubilee number a photograph of Mr. H. L. Jackson, who has now himself been fifty years with Messrs. H. K. Lewis, the firm which publishes the *British Journal of Dermatology*. At the time of its foundation there were but few special medical journals in England. The doyen of such publications is the *British Journal of Ophthalmology*, which first appeared in 1882 under the name of the *Ophthalmic Review*, and was followed in 1887 by the *Journal of Laryngology*. The *British Journal of Dermatology* was a good many years junior to the corresponding publications both on the Continent and in America. It is rather remarkable that although the foundations of modern dermatology were laid in London at the beginning of the nineteenth century by the exertions of Robert Willan and Bateman, there was no special society devoted to its study in this country until 1882, when the Dermatological Society of London was founded by Stowers and Sangster, who were the first two joint secretaries. During the first six years of that society's existence there was no periodical specially devoted to diseases of the skin, and the general medical journals only gave a very scanty and grudging hospitality to the subject.

During the first years of the existence of the *British Journal of Dermatology* the chief objective was the morphological differentiation of the multifarious diseases of the skin and accuracy in their diagnosis. In a very large number of cases the practical problem before the dermatologists was the question whether the eruption was syphilitic or not. Although long before the era of the Wassermann reaction and the demonstration of the *Spirochaeta pallida* in the dark-ground field, that generation of physicians became extremely proficient in making the correct diagnosis. Later on the advance of pathology contributed a great deal to elucidating the problems of skin disease. The bacteriologists demonstrated the aetiology of the common septic diseases, while the mycologists showed that not only were the recognized forms of ringworm but also many other inflammatory conditions of the skin formerly relegated to the vast and amorphous collection known as "eczema" really due to pathogenic fungi. In this connexion the work of Colcott Fox, Adamson, and Whitfield has been outstanding. Fifty years ago cutaneous therapeutics were by no means powerful.

A Mirror of Therapeutic Progress

Most of the advances in the treatment of skin diseases have come from outside. It has been the privilege of dermatologists to grasp and adapt the weapons provided for them by the physicists and chemists. In 1900 Queen Alexandra gave the first Finsen lamp to the London Hospital, and under Dr. Sequeira a famous and successful dermatological department was developed. Almost simultaneously Freund and Schiff began to use x rays therapeutically, and their methods were soon studied and extended in British hospitals. It was about this time too that radium first made its appearance on the therapeutic

scene. A pioneer paper on this subject appeared in the *British Journal of Dermatology* by Louis Wickham of Paris in 1906. A little later the chemists began to contribute a series of powerful therapeutic compounds, the first of which was salvarsan—the famous 606—the dramatic effects of which will never be forgotten by those who were witnesses of its introduction into medicine. Later they demonstrated the therapeutic qualities of gold, and still more recently they have given us sulphonamide and its modifications. Perhaps the most important contribution to dermatological therapeutics emanating entirely within the medical profession has been the treatment of varicose and traumatic ulcers of the legs by means of adherent elastic bandages, which we owe to Dickson Wright. This method has relieved, and indeed cured, many thousands of sufferers from one of the most distressing and disabling of all non-fatal complaints. All these advances may be traced within the columns of the journal whose jubilee we are now celebrating.

One of the landmarks of the progress of dermatology in this country was the formation of the London School of Dermatology at St. John's Hospital in 1923. It is a remarkable fact that Stowers, who in 1882 had been successful in forming the Dermatological Society of London, and in 1894 the Dermatological Society of Great Britain and Ireland, which did not confine its membership to specialists but admitted all interested in skin diseases, was again the prime mover in the formation of the London School of Dermatology. In accomplishing this task he had great difficulties to overcome, and only great tact and perseverance brought success to his efforts. The formation of the school was celebrated by a dinner given to Stowers on October 10, 1923. The Jubilee Number before us will be found extremely interesting by all those who are connected with the study of the progress of dermatology, and we venture to think it also appeals to the wider medical public. It is embellished by portraits of the dermatological heroes of the epoch.

Reports of Societies

PSYCHOLOGICAL FACTORS IN PHYSIOTHERAPY

In the Section of Physical Medicine of the Royal Society of Medicine on November 18, Dr. COLLIS HALLOWES presiding, a discussion was held on psychological factors in physiotherapy.

Dr. H. CRICHTON-MILLER said that a compromise attitude towards disability—the conscious wish to be well associated with the unconscious wish to be ill—was commoner among patients than was usually supposed. There were two fallacies to be avoided: one that the will to be ill was equated with malingering; the other that the will to be ill was based on rational considerations. Physiotherapists were specially interested in this subject because physical treatments tended to be long and expensive, and therefore the more to be desired by patients of a certain psychological make-up. There were patients who pursued an interminable course of physical treatments from motives other than a desire for cure. It might not have occurred to the physiotherapist that the patient whose fibrositis was so resistant to treatment was for some obscure reason anxious to continue his or her visits. The unconscious gratification derived from the treatment might be stronger than the desire to be well. The cost of treatment was not necessarily a deterrent. The discontented ménopausal wife of the affluent man found a satisfaction in exacting from her spouse the doctor's fees. Even when the treatment, such as electrical treatment,

induced pain, it was possible that to the patient a form of torture had a hidden and morbid fascination. There were patients, especially females, who "enjoyed" painful symptoms, and to whom cure was an unwelcome discontinuance of pain. Chief among these were the hypochondriacs. The essence of hypochondria was a compulsive expiation. The original factor was repressed guilt which called for absolution or expiation, and made any form of suffering, such as insomnia or pruritus, to be desired.

A familiar patient was the one who had had to endure scepticism on the part of his family or his doctor. Such a patient sought vindication, and exulted when a specialist gave the opinion that an operation was necessary. The inevitable spectacular character of some forms of physiotherapy gave patients a comfortable feeling that their complaints were shown to be valid and their family's scepticism was rebuked. Thus the popularity of physiotherapy might sometimes be based on considerations of this kind, and depend more on personal prestige than on therapeutic value. The seekers after Christian Science and spiritual healing were often really in search of cure by magic. Not that these cults, whether orthodox or heterodox, all partook of magic; many of them were analogous to good psychotherapy, but the patient attracted to such forms of cure craved for that superiority which was associated with initiation into any obscurantist cult. Dr. Crichton-Miller also reminded the physiotherapists of a psychological difficulty among themselves. Every specialist in a sense had an unconscious bias towards his own department, and in the case of physiotherapy there might be an equally unconscious bias owing to vested interest in equipment, though it was far from his mind to suggest that the physiotherapist tended to become a panacea-monger, only that the specialism was rather more liable than others to that unconscious bias which tended to warp diagnostic discrimination.

Psychology of the Cripple

Dr. R. G. GORDON described possible reactions of the cripple to his condition. A very common reaction, though perhaps not so common as it used to be, was resentment against society and a development, as a compensation to the disability, of a spirit of aggressiveness. It was to be found in Shakespeare's conception of the hunchback Richard III:

"Deform'd, unfinished, sent before my time
Into this breathing world, scarce half made up,
And that so lamely and unfashionable
That dogs bark at me as I halt by them.
... since I cannot prove a lover ...
I am determined to prove a villain."

It was probable that something of the psychology of Kaiser Wilhelm II depended on his crippledness from birth paralysis. The physiotherapist if confronted with this aggressive attitude must try to make his patient see that he had to adjust himself to his crippledness, and that it was to his advantage to modify his resentment. Then there was the cripple who was in a chronic state of irritability because of pain; the more irritability he exhibited the more sensitive his nervous system became, and thus a vicious circle was established. Other patients accepted their disability in a state of apathy, and again a psychological approach was necessary, with re-education for social life; some sank into extreme despair, and suicide became a possibility. Dr. Gordon believed that the normally constituted person did not commit suicide; suicide was proof of a psychopathic mentality. Finally, there was the desirable attitude towards the crippled state, such as was exemplified by President Franklin Roosevelt, who not only exhibited determination to overcome the disability, but had shown, especially in recent events, his sympathy for and desire to help the unfortunate. Each patient must be taken as a separate problem. Some sort of occupation in which a use could be found for the disabled limbs was desired. The physiotherapist also should

learn with which patients, and at what stage of their treatment, he himself could in a measure fade out of the picture. Sometimes the change over to a less impressive person than oneself, provided one kept the psychological elements of the case in mind, was desirable.

General Discussion

Dr. J. B. MENNELL took up a reference by Dr. Crichton-Miller to "railway spine." He had been taught to believe that this was a psychological entity, but since he came to know something about differential diagnosis he had changed his opinion and was now convinced that there was often a definite physical lesion, and that so long as this was untreated the psychological lesion would persist. Dr. C. B. HEALD remarked that he had been puzzled occasionally by finding that a treatment which he had adopted more or less in despair did good when it had no business to do good. What was the explanation? Dr. WILFRID EDGECOMBE referred to a certain class of patients at spas, not hypochondriacs but commonly called neurasthenics, whose sole occupation was their health. Was it well to rob these people of their one interest in life? Dr. DRURY PENNINGTON asked how the "obsession" of the specialist for his specialism was to be overcome. Dr. P. P. DALTON mentioned the profound effect of the mind on rheumatic disease. He had recently seen a patient in whom some readjustment of her family life had led to immediate clearing up of deformed finger-joints. Dr. G. D. KERSLEY spoke of the association of gout with worry. Dr. DAWSON, taking up the question of self-murder, said that he had seen at a seamen's hospital Chinese patients in whom clinically no disease at all could be discovered, yet within three days they were dead. Was it an example of the will to die? Dr. KERR RUSSELL spoke of the reactions of the physiotherapist to the fact that in his specialty, unlike most others, there were large numbers of unqualified people doing practically the same work. Dr. C. W. BUCKLEY said that no single cause accounted for rheumatoid arthritis. Here was an agent of low virulence which in the ordinary individual produced no ill effects, but constitutional factors, type of musculature, the stance, and various matters of that kind came in. Dr. W. YEOMAN mentioned patients in whom acute gout was apparently induced by worry, also a patient who had had two attacks of generalized psoriasis, the first during the war, when he was extremely worried, and the other during the recent crisis. The PRESIDENT said that many people who undertook physical treatment only did so in the last resort when they were already in a state of chronic invalidism. Had they come earlier physical treatment might have done them good much more rapidly.

Dr. CRICHTON-MILLER, in replying, said that he was not prepared to admit with Dr. Gordon that all suicides were of unsound mind. There were people who took their own lives who could not be considered unsound. A great deal could be said about spontaneous death amongst Orientals, but there was no doubt that the will to be ill, the will to recover, and the will to die were factors to be taken into consideration. As for "railway spine," he agreed that there were some cases which no amount of compensation would clear up until the physiotherapist had treated them, but there were others which no amount of treatment would improve until the compensation question had been adjusted.

E PSYCHIATRIST AND THE CRIMINAL LAW

A joint meeting of the Medico-Legal Society and the Section of Psychiatry of the Royal Society of Medicine was held on November 24, His Honour Judge Earengay presiding. The subject of discussion was "The Place of the Psychiatrist in Relation to the Administration of the Criminal Law."

Dr. R. D. GILLESPIE, in opening, discussed the place of the psychiatrist in magistrates' courts. The magistrate apparently, in dealing with a number of charged persons—most of them probably first offenders—had no means of knowing about their state of mind unless the offender

appeared obviously ill or had been reported by a police official as suspected of mental disease. There were precedents for a better system in some courts of the United States, to which a psychiatrist was permanently attached with the duty of examining the offenders psychiatrically, especially after conviction and before sentence. The mere appearance of a prisoner for a few minutes in the dock was an impossible situation from which to single out the individual who was a psychiatric problem, and a night or two in the cells afforded only a slightly better basis for observation. A psychiatric report could be both brief and simple and a useful guide to a magistrate wishing to impose as appropriate a form of sentence as it might be in his power to give. It had been suggested that there should be legislation to obtain a routine psychiatric examination of certain classes of offenders—for example, sex offenders. Except in so far as it might be useful to have legislation of this kind introduced in the hope of obtaining wider facilities later, Dr. Gillespie said that he would prefer to see wider powers given so that convicted persons might receive sentences founded on a survey which at least included the psychiatric aspect.

The M'Naghten Rules

Later in his remarks Dr. Gillespie addressed himself to the M'Naghten rules. That judges themselves found the rules unwieldy and unreal was, he said, shown by the way in which they appeared to refrain from applying them. But so long as the rules remained in force it seemed to be the duty of psychiatrists to interpret them literally, and not to strain their conscience and distort their use of language in order to try to achieve an impossible task—that of moulding this abstract and unreal formula to actual knowledge. Otherwise they would bring psychiatry into disrepute and would not, in the long run, help the mentally ill. It must remain for the legal machinery to see that no ultimate injustice was done. As a matter of fact, it must only rarely happen that there was any fundamental difference of opinion between the psychiatrists who appeared for the prisoner and the prison medical officer who appeared for the Crown. A joint report would often be possible, or, if that was not legally desirable, separate reports could be submitted beforehand, and the psychiatric witnesses examined and cross-examined on them. If this were coupled with judicial recognition of the fact that the dividing line between sanity and insanity was not sharp, and that there were in consequence degrees and indeed kinds of responsibility, the position would rest more certainly upon the facts, including the psychiatric facts, rather than upon a formula.

Mr. ROLAND BURROWS, K.C., Recorder of Cambridge, said that in his view the answer to the problem set for discussion was implicit in the very form of words setting out the subject-matter. The place of the psychiatrist must be assistant and not dominant. By a psychiatrist he meant a person trained in medical knowledge who was specially interested in the abnormal working of the mind—mainly, if not entirely, in such abnormalities as were the result of mental disease. By the criminal law he understood the body of rules of conduct compliance with which was insisted upon by the State on pain of punishment. The content of that body of rules was a matter for the State to determine. The object of criminal proceedings was primarily to ascertain whether the accused was proved to be guilty or not. Underlying this was the principle that organized society must insist upon a standard of conduct to which members had to be made to conform. The object of medical treatment, on the other hand, was the prevention, cure, or alleviation of some bodily ailment.

In Mr. Burrows's view the M'Naghten rules had stood criticism and would continue to stand it for many years to come. They could be readily understood and applied by persons who gave their minds to the subject. Some members of the medical profession, faced with people suffering from mental trouble, committed themselves to a definition of insanity which would prevent anyone from

being classed as sane. They suggested that they were prepared to let anybody off the consequences of crime. By the very nature of their profession medical men when on the bench made very bad justices. His experience of medical men, with one conspicuous exception, was that they were quite incapable of weighing evidence. Their practice disabled them from taking a dispassionate view. The rules of evidence which lawyers followed were totally disregarded by doctors. Medical men suffered from a not wholly unfounded fear that they might find themselves defendants in proceedings. In his own jurisdiction he had found gross cases where persons had been before him for criminal offences, and on listening to their history he had gathered that they had been released from an institution in circumstances "in which I, an untrained layman in medical matters, would have bet any sum of money that they would commit a criminal offence after their release."

Mr. Burrows added that in the case of some unfortunate individuals he had been forced to impose sentences of imprisonment when in his opinion they ought to have been remanded to some place where they could receive mental treatment. But he had reflected that in prison they would at least have a roof over their heads, food and occupation, and medical men to supervise them. That was better than sending them out into the street.

Dr. DENIS CARROLL said that it would be of great value to administrators of the law if psychiatrists would undertake a research into groups of delinquents and the appropriate methods for dealing with them. Until comparatively recently the role of the psychiatrist was almost entirely restricted to the question of insanity and criminal responsibility, but in view of recent advances in psychiatry a court would be grossly neglecting valuable assistance if it refused to regard the psychiatrist in any role save that of an alienist. The psychiatrist might afford information which would materially affect the magistrate's view as to the usefulness or otherwise of punishment for a particular offender. That the final decision lay with the court and not with the expert on behaviour was an advantage, because it meant that the protection of the public would not be lost sight of in considering the interests of the misdoer.

Mentally Abnormal Cases in the Courts

Dr. LETITIA FAIRFIELD said that the function of the psychiatrist was to assist the court in its duty of fixing responsibility and also to advise on the disposal of the person charged. It was not the duty of the court *prima facie* to inquire into the mental state of anyone who came before it, but only to find out if a crime had been committed and the responsibility of the person charged. To attack the M'Naghten rules was like hitting a child! The only reason why they were continued in existence was that no one in the courts paid any attention to them. It was an amusing study in the art of compromise to go through the judgments of the courts during the last fifty years with regard to mental disease and capital punishment. As regards mental disease the courts were deplorable in theory, but in practice there was little ground for criticism except in dealing with some of the minor offences. In the case of certain offences such a large proportion of the offenders turned out to be mentally abnormal that on the ground of common sense and economy the courts would be justified in employing a psychiatrist before verdict and sentence. The chief of these offences were the sex category, but they included also arson, and what were known as "poison pen" cases.

She had great sympathy with the desire of the lawyer to be master in his own house, but she reminded him that his original function was to protect the prisoner from injured parties or relatives, whose vengeance was likely to be more severe than that of the law, also from the priest, and nowadays from the schoolmaster, and in certain cases and countries from the politician. The psychiatrist had been badly handicapped because by force of circumstances he was so often employed by the prisoner and was

not an official appointed to advise the court. She would welcome the official psychiatrist, not because she favoured the bureaucratic practice of medicine, but because the psychiatrist who was acting as the servant of the court had a very considerable advantage.

Dr. H. CRITCHON-MILLER, in summing up the discussion, said that apparently the two professions were going to quarrel over the M'Naghten rules for ever. The rules were only a narrow gate through which the legal profession might pass, in the eyes of their medical colleagues, into light and salvation. None of the medical speakers had claimed that the psychiatrist should have a dominant position in the courts; he would be there in the position of assistant to the magistrate or of assessor, and he hoped that the new legislation would make it possible for him to fill that role. Mr. Burrows had been very emphatic that the services of medical men should be restricted to suffering humanity. "Some of us think that humanity is apt to suffer by the slight myopia of some magistrates on certain occasions, and therefore with clear conscience we do what we can to correct these errors of refraction."

IMMUNITY IN INFLUENZA

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on November 25, Dr. J. A. H. BRINCKER presiding, a paper on "Immunity in Influenza: the Bearing of Recent Research Work" was read by Dr. C. H. ANDREWES.

Dr. Andrewes began with the assumption, which he believed to be true, that epidemic influenza was caused by a filterable virus. The term "influenza" was used to cover a variety of conditions, and it was difficult to find any precise clinical criterion as to what epidemic influenza was and was not. Experimental animals which were susceptible to infection had been found and the formidable task attempted of trying to find out whether there was any correlation between the presence or absence of a virus pathogenic for ferrets and mice and any particular clinical diagnostic feature of the infection in human beings. On the whole a virus which would infect ferrets had not been obtained from minor outbreaks occurring in years when there was no general prevalence of influenza. On the other hand, in the widespread epidemics of 1933 and 1937 it had been possible to obtain such a virus from a large proportion of the outbreaks. The cases had been divided into those of epidemic influenza and those of other febrile catarrhs; in other words, the "scrap-heap" of influenza had been taken and an attempt made to differentiate one single item as "epidemic influenza." It had not been possible as yet to say by examination of patients that one had epidemic influenza and another had not, but it had been discovered that there were certain features which distinguished one group from another. For example, the cases from which virus had been recovered had mostly an abrupt onset; it was exceptional in such cases to find a history of several days' catarrh. In true epidemic influenza constitutional symptoms had prevailed over catarrhal symptoms, there was much more malaise and aching in the limbs, and comparatively little coryza. But in the last outbreak, 1936-7, two of the features generally regarded as characteristic of influenza were not present: there was no particular tendency to protracted convalescence and the so-called post-influenzal depression, and no particular tendency to leucopenia, most of the white cell counts being within normal limits.

This point needed emphasis. It was very important in trying to appreciate how long was the immunity of man to influenza to realize that one could not rely on statements from a clinical point of view that this or that patient suffered from two attacks of influenza within, say, three months unless there was evidence that both attacks were certainly due to the virus. This could not even be said about successive outbreaks in an institution. A very

life and could assist the psychoneurotic patient to understand his illness. The limitations upon observation and recording excluded the use of the scientific method in the study of dreams. Their significance could only be seen when the concept of the unconscious was introduced. Emphasis was laid upon the view advocated by Jung—that the unconscious was the natural background of the mind. The dream was not the road to the unconscious, it was the unconscious. The aim of dream analysis and of psychotherapy was to remove the restrictions imposed by unnaturalness and artificiality. The dream, as the natural mind, could provide exactly the material required for adjustment and hence for optimum efficiency.

Many made the mistake of studying the dream as though it were an extension of conscious thinking. But the dream was rather a picturesque paraphrase of something new. Each incident in it could be thought of as causally connected with what went before. A series of dreams might be coherent and could provide not a commentary upon, but an important addition to, conscious life. When this information was assimilated the patient could take over responsibility for his life with understanding. Patients could be trained to work at their dreams in their own time and not only during the analytical session. Thus the duration of treatment could be shortened. The conflict in psychoneurotic illness was between two "goods" (using the word "good" in its philosophical sense). Hence the difficulty many had in reconciling their nature and its possibilities with that which training had commended. Dreams would show clearly how such a situation could be met.

General Discussion

Dr. CRICHTON-MILLER emphasized the point made by Dr. Bennet that analysis of his own dreams was the only means by which the analyst could keep himself sensitive to the significance of his patients' dreams. Referring to persons said to be dreamless, he described the case of a young soldier who claimed never to have dreamed and also never to have wakened with a dry bed in his life. This patient was a hypopituitary type, and after the administration of thyroid his enuresis was almost completely cured and he experienced dreams for the first time. Dr. Crichton-Miller ventured to amplify Dr. Bennet's emphatic assertion of the basic truth that we are primarily creatures. He said that the real trouble began for us when we realized that we were both creatures and creators, and that it was the incompatibility of these two aspects of life that rendered the art of living so difficult.

He went on to review the position of dream interpretation in all mental analysis. He pointed out that while dream interpretation had been described as the royal road to the unconscious, it was not the first road that had been tried, nor could it be described as the only road. Before dream interpretation was attempted, Freud had laid bare the unconscious motive through hypnosis, and to-day the Freudians regarded analysis of the transference as the most important aspect of analysis. Dr. Crichton-Miller went on to say that chemically induced narcosis in some cases served a most useful purpose, and that probably evipan or similar drugs would have a considerable vogue in mental analysis in the future.

Dr. JOHN MACKWOOD said that it was difficult to separate the dream from the sleep of the dreamer. Just as the waking life had need of sleep to restore its physical energy, so had the psychical life the need of dreams to amplify its significance. The individual owed his existence to the species, but the species owed its persistence to the individual; the two were, in fact, inseparable. Various levels of sleep were necessary to restore and maintain the balance of the physical and psychical life. The deepest levels made contact with the phylogenetic origins of the species, before the dawn of consciousness; dreams from this level were mere organic gestures.

The higher levels were those of the ontogenetic unconscious of the individual. Dreams at this level were com-

parable to analogies which had significance for all the levels of the individual psyche, if we could interpret them. Out of the dreams came synthesis. Inasmuch as any symbolization could only be interpreted for a few of the levels, he doubted if one did much more than scratch the surface by any analysis. The experience of the dream was, in itself, a synthesis. Kent defined experience as a "synthesis of the perceptions—a synthesis which is not itself contained in perception . . . in experience our perceptions come together contingently." In the dream with affect, the affective part of perception came together contingently with that part of perception which marked an object for future action. The synthesis which took place inaugurated new forms of movement in behaviour.

Local News

ENGLAND AND WALES

Hospital Contributory Schemes

The annual conference of the British Hospitals Contributory Schemes Association was held at Liverpool on November 24, 25, and 26. The principal speaker on the first day was Lord Horder, who said that contributory schemes gave hope of new life and activity to voluntary hospitals. Payment of the full cost of maintenance of the patient should be the aim of such schemes, but whether any payment should be made to the doctor out of the funds before that aim was reached was a moot point. At present the doctor's claim was being waived, but the generosity of the profession should not be too long abused. The speakers on the second day included Professor Henry Cohen of Liverpool University, who said that the position of the young consultant was much affected by contributory schemes. If he was denied opportunities because people beyond a certain income limit were admitted to these schemes, his earlier years might be a bitter struggle. Mr. S. Clayton Fryers, house-governor of Leeds General Infirmary, speaking of contributory schemes from the hospitals' point of view, considered that payment to medical staffs should be a matter for agreement between the hospital and its staff and should not be the concern of contributory schemes. It should be a direct lump-sum payment and not a percentage of moneys received from any class of contributors. Dr. J. M. Mackintosh said that in hospital development space must be found for the promotion of convalescent treatment. There must be increased provision for research and for greater elaboration of treatment. He urged the need for co-operative arrangement with local authorities in respect of patients who made no contribution. So long as treatment was not free and universal there must, he said, be some system of charge.

Royal Dental Hospital of London

The annual dinner of the staff and past and present students of the Royal Dental Hospital of London was held on November 26 under the chairmanship of Dr. F. C. Porter. In proposing the health of the hospital and the dental school, Dr. Porter spoke of his pleasure at revisiting his old school at the annual clinical "at home" which had been held earlier in the day, and he contrasted with some envy the space and equipment available to staff and students to-day with the limitations within which an earlier generation had to be accommodated. There were two things, he said, which they all desired for the dental profession—that it should receive due appreciation from the community, and that it should be worthy of such appreciation. In his response the Dean (Mr. H. Stobie) referred to the loss which the institution had suffered

during the year in the resignation of Dr. A. W. Oxford from the chairmanship; the hospital owed him a great debt for the outstanding position it now occupied. They also mourned the death of Mr. W. H. Dolamore, to whom it was due that the school became a school of the University of London. A friend of Mr. Dolamore had furnished a sum of money to establish a prize in his memory. Mr. Stobie also mentioned other events of the school year, and added that the number of students was satisfactory and the results of examinations were well up to the average. The toast of "The Visitors" was proposed by Mr. A. T. Pitts, who offered a special welcome to Mr. Hugh Lett, President of the Royal College of Surgeons, with which institution dentistry had a very close association. It was in 1860 that the College established the qualification which was held by the majority of dental surgeons. Great interest had been aroused in the proposal of the Council of the College to grant a higher diploma in dentistry, and it was with disappointment that they learned later that there were technical difficulties in the way. No body was more appropriate than the College for the granting of such a qualification, and it was hoped that the setback would be only temporary. Mr. Hugh Lett made a brief response, expressing his pleasure at being present as representing the College in view of its close connexion with dental qualification. He said that Mr. Pitts had touched upon a very important matter in mentioning the higher diploma. He could only say that the Council of the College was in sympathy with any suggestion made for the progress of dental surgery. He congratulated the hospital on the position it had attained. Mr. T. A. Coysh proposed the health of "The Chairman," and a very pleasant evening concluded.

The hospital and school presented a very busy appearance in the afternoon on the occasion of the clinical "at home." A routine operating session was held by Mr. S. A. Riddett at the adjacent Charing Cross Hospital. Mr. D. G. Walker and Mr. H. L. Hardwick gave brief lectures on the causation and treatment of haemorrhage following extraction and on the treatment of periodontal disease respectively; Miss K. C. Smyth and others showed orthodontic cases of interest; Dr. R. H. Leaver demonstrated some cases recently treated in the electrotherapeutic department, and there were exhibitions of skiagrams, photomicrographs, specimens of anatomical and pathological interest, and models of denture technique.

Joint Tuberculosis Council

The November meeting of the Joint Tuberculosis Council was held in London at the rooms of the Society of Medical Officers of Health. The chairman, Dr. S. Vere Pearson (Mundesley), referred to the great loss sustained through the deaths of Dr. L. S. T. Burrell and Dr. Jane Walker, both of whom had rendered valuable service to the Council almost since its inception. A welcome to the Council was given to Dr. R. A. Young, who was elected by the National Association in place of Professor Lyle Cummins, recently resigned. A request from the secretary of the Tuberculosis Society of Scotland for representation was acceded to. Dr. G. Lissant Cox was able to report on a successful interview with the Ministry of Health regarding the republication of Memorandum 131/T. The Council was informed that an entirely new memorandum could be drawn up at the Ministry, and that it would have a further opportunity of considering the memorandum in its final form. A brief account was given of the interview which Dr. Lissant Cox, Dr. Esther Carling, and the hon. secretary (Dr. J. B. McDougall) had with the Interdepartmental Committee on Nursing Services. Considerable discussion centred round future policy on postgraduate courses. Dr. F. Heaf, who has taken over temporarily during the absence of Dr. Brand the offices of convener of these classes, reported on the success of the two most recent efforts—at Brompton Hospital and at Heatherwood Hospital. There was a general feeling that the Council's past record in postgraduate work must be

maintained, and Dr. Heaf was asked to continue the organization of the classes until such time as Dr. Brand had recovered from his illness. During 1939 some attention will no doubt be given to postgraduate classes on tuberculosis for general practitioners, and it is hoped that a schedule will be available early in the New Year. Dr. C. O. Hawthorne brought to the notice of the Council his concern as to certain provisions in the Milk Bill now before Parliament. In his view medical opinion had been to a large extent disregarded, and after some discussion he proposed that the Milk Committee be authorized to prepare a memorandum in keeping with the past policy of the Council—as previously minuted—and that this memorandum be circulated to Members of Parliament. To this the Council agreed unanimously. A motion was tabled dealing with closer co-operation between organizations interested in tuberculosis, and Dr. R. A. Young expressed himself as being in hearty agreement with it. Professor W. W. Jameson suggested that the following resolution should be put to the Council:

"That the time has come when the relationship of the National Association for the Prevention of Tuberculosis, the Joint Tuberculosis Council, and the Tuberculosis Association to one another should be discussed, and that the Joint Tuberculosis Council will be glad to appoint representatives to meet members of the other two bodies for this purpose."

Support for this was forthcoming from Drs. Ernest Ward and Heaf, and Dr. Jessel, while agreeing with the wording, emphasized the importance of the Council preserving its identity. It was resolved that the motion be agreed to, and that the Chairman, Dr. Ward, Professor Jameson, the hon. treasurer and secretary be representatives of the Joint Tuberculosis Council in such discussions as may take place. A subcommittee had prepared a list of subjects which might be suitable for the Council for investigation. After an interesting discussion it was decided to investigate immediately "The Tuberculosis Service in Time of National Emergency" and "Whether the Use of Books in Public Libraries is a Source of Infection." Dr. James Watt (Godalming) and Professor Tytler (Wales) were appointed conveners of the two committees appointed to report.

Postgraduate Instruction in Obstetrics

The London County Council has approved a scheme for the provision, at its general hospitals, of postgraduate courses in obstetrics designed to enable general practitioners to learn the latest developments in that branch of their profession. The scheme provides for six weekly lectures, each of about one hour's duration, to be given by consultant obstetricians, six attendances at ante-natal clinics at a general hospital served by one of the consultant lecturers, and six ward rounds. The series of six lectures will be given twice a year, once at a centre north of the Thames and once at a centre south. Each practitioner attending the course will be required to pay two guineas registration fee, and it is proposed that the consultant obstetricians concerned should be paid at the rate of two guineas for each lecture.

Welsh Temple of Peace and Health

The Temple of Peace and Health built by Lord Davies at a cost of £62,000 on a site presented by the Cardiff Corporation in Cathays Park, Cardiff, was opened on November 23. The temple, of which the foundation stone was laid by Viscount Halifax last year, is a fine T-shaped building constructed in the Classic style from the designs of Mr. Percy Thomas. It stands in the Civic Centre. One of the wings will house the administrative headquarters of the Welsh National Council of the League of Nations Union, and the other the King Edward VII Welsh National Memorial Association for the prevention and treatment of tuberculosis in Wales. In a short oration Viscount Cecil said they were there to inaugurate a new centre of effort from which he hoped would radiate all over the world a new impulse for the two great causes of peace and health.

Fracture Cases at L.C.C. Hospital

The report of the London County Council's Hospitals Committee, made to the Council on November 29, contains an extract from the article by Mr. John C. Nicholson which appeared in the *British Medical Journal* of August 27, in which he described his experience as a patient in an L.C.C. hospital. Mr. Nicholson sustained a fracture of the neck of the femur, which it was advised should be nailed, and the operation was "most expertly carried out." The report adds that the operation was carried out at one of the Council's general hospitals by a senior resident medical officer.

INDIA

The Tuberculosis Campaign

Frequent allusions have appeared in this column to the increasing spread of tuberculous infections in India and to the steps taken in various parts of the country to combat it. An appeal was issued by the wife of the Viceroy for greater support of the King George Thanksgiving (Anti-Tuberculosis) Fund, and the response was so gratifying that the central committee appointed a technical committee of experts from the whole of India to formulate a general plan of campaign. A note has now been issued to all Provincial and State organizations with a view to formulating a uniform approach to the problem while allowing elasticity as regards local details and requirements. In this note it is stated that the dispensary clinic occupies a front place in the organization for combating tuberculosis in a given area and is the centre for preventive work. In urban areas such dispensaries should be established, each having its own staff under a full-time or part-time medical officer. Except in cities large enough to justify a separate building fully equipped and staffed, the dispensary should be situated within the boundaries of a well-established hospital in order to make use of the facilities for x-ray diagnosis and surgical work obtainable there. In rural areas tuberculosis clinics should be opened in existing dispensaries on fixed days each week. Emergency beds for temporary examination of suspected cases or for minor surgical treatment might be attached to the tuberculosis dispensary clinics. It is agreed in the note that, owing to the paucity of beds available in sanatoria and hospitals, domiciliary treatment must be the rule for many years to come in most cases, and the health visitors and care committees will have very important parts to play. It is possible, however, that open-air centres might be organized where patients could be kept by day, especially those coming from very congested areas. The health visitors or tuberculosis nurses should in general be specially trained women, some uniform rate of pay being arranged in each Provincial or State area. Care and after-care committees should be organized on a voluntary basis in connexion with all tuberculosis dispensaries and comprise non-officials as well as officials. The committee would meet at the dispensary, where the circumstances and difficulties of patients requiring aid would be explained, each case be considered on its merits and given financial help as required, and in some instances helped to find suitable employment. These committees would keep in touch with patients, when possible, after the completion of treatment. Appropriate training of the whole tuberculosis staff is laid down as an important function of the central and provincial organizations. School teachers in village schools could co-operate most usefully in anti-tuberculosis work if given training at Provincial and State centres. Sanatoria for tuberculosis cases might be increased on a district basis, and in cities some of their accommodation might be devoted to cases of the hospital type. In some areas the establishment of open-air schools, playgrounds, and open-air shelters is commended; in

some areas the inauguration of open-air colonies adapted to Indian conditions might also be possible. The importance of ensuring the whole-hearted co-operation of medical practitioners is emphasized, and various local Government departments and voluntary societies, such as the Red Cross Society and maternity and child welfare organizations, could afford useful assistance, representatives of such being offered seats on the council of the tuberculosis association. In allocating funds an endeavour should be made to spend not less than 75 per cent. on institutions and organizations primarily of a preventive character, the chief of which is the tuberculosis clinic. In view of the widespread slum conditions which contribute so largely to the spread of tuberculosis in towns, and of the tendency to create more overcrowded areas, it is urged that tuberculosis associations should take a leading part in stimulating measures directed towards the removal of slum conditions and their prevention in future. These associations should also be responsible for the many kinds of educative work relating to control and prevention.

IRELAND

Northern Ireland Parliamentary Vacancy

Mr. Howard Stevenson, F.R.C.S., has been selected by the Queen's University Voters' Association as the candidate to represent the University in the Northern Ireland Parliament. The vacancy has been caused by the death of Sir Robert J. Johnstone, who had been the University member since 1921. It is not anticipated that there will be any opposition.

General Medical Council

At the last meeting of the Senate of the Queen's University of Belfast it was agreed that Professor C. G. Lowry, F.R.C.S., who holds the chair of midwifery and gynaecology, should be the University representative on the General Medical Council in the place of the late Sir Robert Johnstone.

Ulster Medical Society

At the opening meeting of the session Professor W. W. D. Thomson introduced and installed his successor, Dr. J. McCloy. Dr. McCloy, in accepting the office, referred in appreciative terms to the services rendered by his predecessor in the chair, to Professor Thomson's special contributions, to his hospitality, and also to his generosity in presenting to the society the portraits of Sir Hans Sloane and Sir William Whitla. Dr. McCloy referred in feeling terms to the irreparable loss sustained by the society, and also by the whole profession in Ulster, in the death of Sir Robert Johnstone among other former members who had passed away during the year. He then delivered a most interesting address on "The By-ways of Medicine," dealing with superstitions and examples of quackery, the effects and beliefs in charms not only in Ireland but in ancient history and the less enlightened parts of the world. The address was notable alike for the sustained interest it invited and for the charm of its form and delivery. Dr. A. Gardner Robb proposed a vote of thanks to the president, which was supported by Professor W. J. Wilson and agreed to with enthusiasm.

In anticipation of the completion next spring of the new Westminster Hospital at St. John's Gardens, Horseferry Road, the Governors have approved the immediate expenditure of £10,000 upon x-ray and other electrical equipment. The greater part of the lower ground floor of the new hospital has been allocated to electrical services.

Correspondence

Prophylactic Inoculation against Pneumonia

SIR,—I would be much obliged if you could grant me space to state the facts concerned in a lengthy experiment carried out by the South African Institute for Medical Research in collaboration with Dr. A. J. Orenstein, Chief Medical Officer of the Rand Mines, Ltd., Health Department.

The experiment was to run for a number of years, and was intended to study the effect of prophylactically inoculating certain native mine labourers on the City Deep Gold Mine at Johannesburg. The mine medical organization was to be responsible for the inoculation of the natives and for the keeping of the relevant records, while the Institute prepared the vaccine and carried out all the appropriate bacteriological and pathological investigations.

In the *British Medical Journal* of October 8 (p. 761) there appeared a reference to this experiment under "South Africa: Health of Rand Miners," abstracted from Dr. A. J. Orenstein's annual report on the Central Mining—Rand Mines Group—Health Department for 1937. The report disclosed that the figures concerned in this experiment for the first three years had been submitted to Professor Dalton of the Witwatersrand University for detailed statistical analysis, and the conclusion arrived at was to the effect that the inoculation was ineffective. The first knowledge the Institute had of this publication in the annual report was its receipt, in the ordinary course of distribution. The Institute subsequently drew Dr. Orenstein's attention to some very grave shortcomings in connexion with the carrying out of the inoculations and the keeping of records in the following respects.

The essential conditions laid down for the experiment were that every alternate native on engagement at the mine was to receive three doses of vaccine, each of 1 c.cm., at intervals of approximately seven days; the uninoculated natives were to serve as controls. These conditions were not fulfilled; indeed, upon investigation it was clear that the City Deep had only received 24,000 c.cm. of vaccine from the Institute, whereas they reported to have inoculated 10,943 natives in accordance with the conditions laid down. It is obvious that, allowing for wastage and for some of the vaccine having been used therapeutically in hospital in numbers of cases, less than two-thirds of the required inoculations could have been carried out. Nevertheless the total of 10,943 natives was returned as having been "inoculated," and these are the figures which were submitted to Professor Dalton for analysis. Furthermore, no records could be given of any of the natives individually as to the number of times each had been inoculated. It is thus impossible to draw any conclusions whatever from the figures submitted in connexion with this experiment.

I am not concerned with how or why the experiment was so unfortunately handled for a period of years, but only that the results published should not be allowed to influence the judgment, in respect of the value or otherwise of pneumonia prophylactic inoculation, of those not thoroughly informed of the facts.

That the reference which appeared in the *British Medical Journal* is likely to cause some concern amongst interested investigators is evidenced by correspondence already

received by me with regard to it. (This letter has been shown to Dr. Orenstein, who agrees to its publication as representing the facts of the case.)—I am, etc.,

Johannesburg, Nov. 15.

SPENCER LISTER,
Director, South African Institute
for Medical Research.

Profound Hypoglycaemia

SIR,—I have just read Drs. J. A. Price and A. B. Raper's study of hypoglycaemia with great interest (*Journal*, November 12, p. 987). They comment with surprise that their patient at a blood-sugar concentration of 20 mg. per 100 c.cm. of blood was not in hypoglycaemic coma and remark that this has not been recorded in the literature. Perhaps not exactly, but I have pointed out (*Diabetic Life*) that the blood sugar in diabetic children may fall below 30 mg. without any symptoms. My own blood sugar has been estimated accurately as 20 mg. during an insulin experiment without any more than trifling symptoms of shakiness, and I have had similar unexpected figures in children as out-patients who showed only slight pallor. I think habituation to low blood sugars leads to a tolerance to hypoglycaemia.—I am, etc.,

London, W.t, Nov. 28.

R. D. LAWRENCE.

The Pituitary and Diabetes

SIR,—It is difficult for a retired practitioner to follow all the implications of your article under the above heading in the *Journal* of November 19 (p. 1048), but it may interest and perhaps help the men who are studying this intricate subject if I place on record the following case history:

Some fifteen to twenty years ago I had a patient (a healthy and active business man of middle age) who developed an attack of encephalitis lethargica. The attack turned out to be a mild one and he duly recovered and went to a South Coast resort to convalesce. He stayed at a luxury hotel and enjoyed to the full the sybaritism of the table. When he returned he consulted me about an excessive thirst, and I found that his urine was loaded with sugar. Now (and here is the point of this letter) he had a sugar-free urine at the beginning of his illness. I know this, because I tested it in the course of my routine examination before making a diagnosis. He was put on diet (I don't think that insulin was a practical proposition at that time) with immediate disappearance of his thirst. His urine was examined every week; sometimes it was sugar-free, sometimes not, but the latter condition could always be traced to an indiscretion in diet. He is still alive and well and under the care of my successor. To a skilled observer there is a trace of Parkinsonism in his facial expression.

In my physiology days I believe I learned that in experimental animals puncture of the tip of the calamus scriptorius produced glycosuria. Since reading your article I have been wondering if reactive hyperplasia of the anterior pituitary to an encephalitis infection in its neighbourhood had some connexion with my patient's glycosuria.—I am, etc.,

Walesby, Lincs, Nov. 20.

G. A. GRIERSON.

Infections of the Hand and Fingers

SIR,—My attention has been called to the articles that have appeared in the *Journal* on treatment of infections of the hand and fingers by Mr. Norman C. Lake in your issues of October 1, October 8, and October 15. I have read them with interest not unmingled with surprise.

For the last fourteen years I have made a special study of the surgery of the hand, and the results of my experi-

ence are embodied in a book entitled *Chirurgie de la Main*, the third edition of which has just been published by Masson et Cie, Paris. It is impossible for me to discuss here the various points that seem to me to call for remarks. One instance, however, I may mention. Mr. Lake, while accepting Kanavel's anatomical descriptions as a theoretical basis, warns the reader that he may find pus where he would not expect to find it if he accepts literally Kanavel's teachings. Yet pus in the hand does not progress in a haphazard way; it follows well-defined paths, always the same for the same starting-points. The trouble is that these paths are not those described by Kanavel. By clinical and operative observation first, then by dissections and by experimental work, it has been possible for H. Evvard and myself to map out clearly the paths of infection in the hand and fingers. It will thus be possible for the surgeon to locate the pus, to foresee the channels through which it may spread, and to make the incisions suitable for each case.—I am, etc.,

M. ISELIN,

Paris, Nov. 15. Surgeon, American Hospital of Paris.

Air Raid Precautions

SIR.—Many of us who served on subcommittees of hospitals to organize emergency medical services in the event of war were not only dissatisfied with, but extremely apprehensive of, the proposals. We were compelled to work within a framework imposed upon us by the Ministry of Health. Apparently we had no option. Adverse criticisms were made and, in my opinion, justly. While an organization was operating for the partial evacuation of the population of Greater London, concurrent arrangements were being made to concentrate enormous numbers of wounded in single buildings, which were highly vulnerable and in the very midst of the danger zone. To serve these wounded there was to be a lavish and reckless use of expert medical and nursing personnel with, again, this terrible concentration. The services of these experts were readily promised in spite of the sacrifice and the risks.

In war time if a commanding officer were given orders to occupy an untenable position by his superior officers, who were ignorant of the local conditions, he had to obey, but his first thought was to improvise what protection he could for his men. But how were we to find protection for our wounded and for our nurses? In my opinion we could give little or none. Every big hospital in London is near some legitimate objective of a bombing aeroplane, according to modern ethical standards. I believe that the unit in central London should not be a casualty clearing station unit at all, but more on the lines of a field ambulance unit, with aid posts in control of a medical officer or officers. Everyone with experience of the last war knows the implications of this and the vast difference. For one thing, instead of a large concentration of wounded, there would be a spreading out of the risks. It would admittedly be working under difficulties, but this would probably be the case anyway. No one of course knows what would happen in the event of war, but I imagine it is safe to say that for every bomb dropped on London during the last war, when flying was in its infancy, there would be hundreds in the next.

Recently one saw the strange spectacle of trenches being dug in remote country places, while we were arranging for a thousand wounded in St. Bartholomew's. Field ambulance headquarters could be scattered and housed in buildings—some parts of which would be relatively safe in the event of the collapse of the superstructure. In the neighbourhood in which I am specially interested one thinks of certain parts only of St. Bartholo-

mew's, the Old Bailey, and other solidly constructed buildings, and by the laws of chance it is unlikely that all would be hit. It will be objected that the sanitation would be difficult, but it could be improvised, as it had to be in field ambulances and casualty clearing stations in France.

Black Wednesday, September 28, is receding, and perhaps there seems an air of artificiality in discussing war measures now, but I have to admit that I was profoundly disturbed by our emergency arrangements. I have talked to many who, like myself, had front-line experience in the last war, and they think as I do. It was not only soldiers with whom we were concerned, but in the early days of the war we had to deal with large numbers of civilians of all ages—sick, wounded, and killed—and with women giving birth to children during bombardments, and the cry from the toughest men to the smallest children was always for cover. I cannot see the wounded content to be housed, even temporarily, say on the third or fourth story of a huge ferro-concrete building, a large area of the walls of which is composed of glass, even though it be covered by cellophane, brown paper, or three-ply wood.—I am, etc.,

London, N.W.1,
Nov. 23.

F. G. CHANDLER, M.D., F.R.C.P.,
Physician, St. Bartholomew's Hospital.

SIR.—I was very interested to read Dr. C. Watney-Roe's letter on bomb-proof shelters in the *Journal* of November 19 (p. 1064). Since May of this year I have been advocating bomb-proof shelters in Halifax as a *sine qua non* in any well-thought-out scheme of air raid precautions. Until such shelters are properly erected in sufficient numbers our people will continue to live in danger of mass slaughter. Improvisations are no use. The high-explosive bomb is a terrible weapon. The time has arrived—and it may be too late if we continue to delay in this matter—when every town should be provided with sufficient well-constructed bomb-proof shelters.

As regards first-aid posts, I am of the opinion that these, to be efficient, should be specially constructed. The adaptation of old buildings, schools, etc., will mean inefficiency, waste, and unnecessary loss of life. In view of the present very disturbed state of Europe—and the psychology underlying such disturbance—air raid precautions are likely to continue a permanent feature of our social structure. Of course the whole thing is a very sad commentary on our so-called civilization, but in the present circumstances it is our duty to give really adequate and efficient protection to our people. Half-measures will not do.—I am, etc.,

GEORGE C. F. ROE, M.R.C.P., D.P.H.,
Nov. 21. Medical Officer of Health, Halifax.

Food Supply in War Time

SIR.—In the Report of the Food (Defence Plans) Department for 1938 we read that "the experience of the great war shows that if control is to be effective in maintaining supplies and holding prices it must be introduced before and not after a shortage has arisen," but according to the figures given there is even to-day, before war starts, a serious shortage. In an article of mine in the *Medical Officer* (March 13, 1937), based on figures supplied by Viscount (then Mr.) Runciman as President of the Board of Trade, I pointed out that for everybody to have 5 lb. of flour a week (the amount stated as necessary by the National Dietary Committee) we need a total of 4,700,000 tons a year. The Food (Defence Plans) Department allows only 4,450,000 tons, and there are available only 4,450,000 tons yearly. If there is this shortage during

peace, how can we hope for satisfactory supplies during war? The amount of milk needed, as stated in the report, is 910,000,000 gallons, but the amount consumed to-day is only 785,000,000 gallons—or less than one-quarter pint a head daily—while 380,000,000 gallons go into factories at less than half the price which is paid by poor people for this essential protective food. It is stated under the heading of "other vegetables" that 2,425,000 are available. I have shown that if we allow only 1 lb. of green vegetables a head a week, which must be fresh so as to be "protective," we need a total of 900,000 tons a year. According to the figure given by the Food (Defence Plans) Department only 750,000 tons are produced at home, so that even during peace time there is a shortage.

The figures given by this Department also show that we produce only 8,000 tons of butter yearly, although 89,000 tons of cream are produced. The poor people get very little butter and they never get cream, so that the Food (Defence Plans) Department is going to maintain a supply of 80,000 tons of cream for the benefit of those who already are overfed. Is this a sane method of allowing the people to be fed? The A.R.P. arrangements have been shown to be anything but what they should be, but, alas! the Food (Defence Plans) Department arrangements are such as to reduce the people to a level at which no A.R.P. arrangements will be necessary!—I am, etc.,

Swansea, Nov. 19

G. ARBOUR STEPHENS.

Decline of Breast-feeding

SIR,—I was particularly interested in Dr. Horace A. Nathan's views (November 19, p. 1062) on the decline of breast-feeding. He states: "There are patients who, in spite of every encouragement, supplementary feeding, and all the other usually employed devices, prove themselves beyond any doubt incapable of supplying in the natural way any useful contribution to the baby's daily needs." (The italics are mine.) I think Dr. Nathan has indeed struck the nail on the head; for I contend that supplementary feeding is one of the chief causes of insufficiency of breast-milk, and is, in fact, one of the methods generally adopted when weaning is indicated. I am afraid that supplementary feeding is only too often advocated when complementary feeding should be the method of choice. Admittedly the terms "supplementary" and "complementary" are very confusing with regard to breast-feeding; but all textbooks teach that the supplementary feed is given to replace the breast-feed entirely for that particular meal, and that the complementary feed is given after the breast-feed to make up any deficiency in the mother's milk supply.—I am, etc.,

Southampton, Nov. 22.

S. CHALMERS PARRY.

SIR,—The address by Dr. J. C. Spence and the subsequent correspondence in the *Journal* prompt me to discuss a type of failure confined to a comparatively short period of the breast-feeding age—the failure which occurs in the first four weeks. Some time ago I undertook an investigation into the phenomenon, and it may not be outside the range of the present discussion if I quote the results of my inquiry and the opinions which, rightly or wrongly, I deduced from them.

During the investigation I found that in North Derbyshire 4.3 per cent. of the infants alive at 4 weeks had been completely weaned. Of those alive at 6 months 26 per cent. had been weaned. Of all weanings in the first six months in that area not less than 17 per cent. took place in the first month. In all I inquired into 100 cases of this type, eliminating all cases in which the weaning was brought about by some obvious reason such as the illness or absence from home of

the mother, illegitimacy, etc. I considered all the factors discoverable which might have had a bearing on the failure of natural feeding, whether affecting the mother or the infant; such conditions as, for instance, too frequent or irregular feeds, the state of nutrition and health of the mother, the condition of her nipples, the prematurity or immaturity of the child, and mechanical difficulties, such as hare-lip and cleft palate. The broad results of the inquiry are set out in the table.

An Analysis of One Hundred Cases of Failure of Breast-feeding in the First Month

| Primary Cause | Other Conditions Present | % |
|---|-----------------------------------|------|
| 33 Return to domestic duties | None discovered | 33 |
| 11 Ditto | Depressed nipples | 11 |
| 1 Ditto | Somnolence | 1 |
| 12 Ditto | Too frequent feeding | 12 |
| 2 Ditto | Mother undernourished | 2 |
| 2 Ditto | Mother ill | 2 |
| 1 Ditto | Weakling | 1 |
| 1 Ditto | Depressed nipples; weakling | 1 |
| 4 Nipple trouble—sore | | 4 |
| 6 Ditto—depressed | | 6 |
| 3 Exudative diathesis (dyspepsia) | | 3 |
| 1 Mother undernourished | | 1 |
| 2 Mammary abscess | | 2 |
| 1 Birth injury to child | | 1 |
| 7 Weakling | | 7 |
| 2 Ditto | Depressed nipples | 2 |
| 2 Cleft palate | | 2 |
| 9 Bad management during lying-in period | | 9 |
| 100 | | 100% |

In thirty-three instances the milk had been well established while the mother was confined to bed, all conditions for suckling were favourable, there was no apparent reason for weaning, but the milk became scanty when the mother got up and weaning followed. In thirty other cases there were various conditions present which might have influenced the issue to some extent, but in my opinion none of these were grave enough in themselves to have caused failure, and in all of these cases breast-feeding had been quite satisfactory up to the time when the mother left her bed. In the remaining thirty-seven cases there were obvious troubles, as set out in the table, which in the majority of instances were probably the primary causes of the failure. It will be apparent, however, that even among this group of thirty-seven there were a considerable number in which weaning need not have taken place, if only the difficulty had been taken in hand soon enough and energetically enough; the ten cases of nipple trouble, for instance, and the nine cases of "bad management," by which I mean lack of will to nurse, or lack of perseverance, or unwise advice given by relations or friends. Probably, too, the nine "weaklings" could have been successfully breast-fed if dealt with in a hospital or institution.

The really significant group, however, is the sixty-three at the head of the table. Why did failure occur in these cases? Nipple trouble had little or no effect during the first fortnight, too frequent feeds had no material influence, nor had the condition of the mother as to health or nutrition. Yet at the end of the month all had been weaned. In the words of the mothers themselves, "the milk went when I got up." Why? Should the mother have stayed in bed a little longer and had more rest? One case, included in the table, and two others, not included, are significant. In one the mother lay in bed twenty-three days owing to a post-partum haemorrhage; during this period, suckling was thoroughly satisfactory. Directly she got up her milk became scanty. In another case the woman was confined while away from home with friends. She remained away five weeks, during which time her milk was ample and the baby thriving. On her return home the milk at once faded away. In the third case the mother lay in bed six weeks with phlebitis. The child was quite satisfied during this time and put on weight, but as soon as the mother got up and resumed domestic duties the child became uneasy and dissatisfied. Supplementary feeds were begun and weaning ensued.

Three cases of depressed nipples are instructive. I found that while in bed there was plenty of easily flowing milk, and

the infants secured enough for their needs. Directly the mother left her bed the flow became less free and the infants were "suffocated" in their efforts to get a firmer grip of the nipple. In all these sixty-three cases there is only one common factor—the rising from bed and, with it, the resumption of domestic duties and anxieties. I formed the opinion that this was the decisive issue, though helped, no doubt, in some cases by auxiliary factors, in bringing about the early weaning.

The fact is that efficient motherhood is almost, if not quite, a whole-time job. Anything that diverts the mother's energies from the strict business of nursing her child, whether it be the mental and physical strain of the working-class woman returning to domestic duty or the social engagements of the more leisured classes, will detract from the continued efficiency of the maternal function. It is largely a psychological problem. I have formed the opinion that this early failure occurs more often in the anxious, highly strung woman than in the woman of the stolid and phlegmatic type, in the "Marthas" of modern life, "careful and troubled about many things," rather than in the idle and less caring. The feckless and the slattern can feed successfully in almost any circumstances and up to almost any period. In short, it is the best type of womanhood who most needs our help and consideration at this critical period.—I am, etc.,

H. W. POOLER, M.B.,

Ashover, Nov. 24. Medical Officer to Child Welfare Centres,
Derbyshire County Council.

REFERENCE

Brit. J. Child. Dis., 1930, 27, 269.

SIR.—After conducting four infant welfare centres weekly for ten years, may I contribute the following observations on breast-feeding? In my experience breast-feeding is a function of the endocrine system, and as such is largely beyond our scope—some women successfully breast-feed all their babies without any trouble, others never achieve it. It is much more than a question of adequate diet. One woman feeds herself on the ideal diet, grows fat, and has a thin inadequate milk supply. Another woman is palpably underfed and successfully suckles a lusty baby. I often get mothers to put their babies to the breast at the clinic, and to see the half-starved infant trying to avoid the nipple, taking a few despairing pulls at it, and then bursting out into cries of rage, convinces one that in these cases the psychological benefits of breast-feeding are *nil*, and that the game is not worth the candle. I give the mothers a pamphlet on breast-feeding; I suggest, and often supply from the clinic, lactagol, calcium and iron tablets, free milk, etc.; but I find that if the milk supply has begun to fail these things seldom restore it. This may be a confession of failure, but it is my experience. The successes of such places as the Mothercraft Training Centre, where mothers and babies are admitted and breast-feeding re-established, are not reproduced in the ordinary conditions of clinic work. I should say that not more than 50 per cent. of our mothers, leading a poverty-stricken, working-class, town life, are able to breast-feed; I should say also that 99 per cent. of them would like to breast-feed, and that all those who do so successfully enjoy doing it.

Fortunately these views are not so gloomy as might be supposed, for I would defy any doctor given a hundred children of 1 year of age to examine to pick out those who had been breast-fed and to be 100 per cent. right. I endeavour to examine all babies under my care on their first birthday, and I do not find any marked difference between naturally well-fed babies and artificially well-fed

babies, using such criteria as closure of fontanelle, number of teeth, firmness of limbs, etc. The same thing applies in the examination of 5-year-olds at their school entrance examinations; the exceptionally well-developed child has by no means always been breast-fed.—I am, etc.,

Bournemouth, Nov. 26.

GRACE H. WOOD.

Prevention of Breast Infection

SIR.—Breast abscess may also arise through massaging the breast with undue heaviness and thereby bruising the tissues. This may explain an apparent epidemic in an institution, the probationers being insufficiently supervised. I have just dealt with two such abscesses of contusion: one followed excessive massage, the other recurrent strenuous efforts to get a retracted nipple into the baby's mouth by compressing the breast surrounding the nipple with the fingers.—I am, etc.,

Birmingham, Nov. 20.

W. J. BURNS SELKIRK.

Mental Treatment Services

SIR.—A perusal of the Board of Control's *Annual Report for the Year 1937* (a précis of which appears in the *Journal* of November 12 (p. 1006)) gives rise to the reflection that, though in many respects an enlightened and illuminating publication, it is, with respect to a number of matters, apt to give a misleading impression.

1. The Board criticizes the development of out-patient centres on the ground that the function of many of these centres is mainly diagnostic. While with regard to out-patient centres organized in association with mental hospitals this may be true, it must not be taken to speak for the country as a whole. In Liverpool, for example, the Board can only speak for three of the ten psychiatric out-patient clinics in existence in the city. At two of the voluntary clinics—the Liverpool Psychiatric Clinic and the Department of Psychological Medicine of the Liverpool Royal Infirmary, both clinics at which patients are seen regularly for treatment—there were dealt with during the twelve months ended March 31, 1937, 496 new patients, total attendances numbering 3,446. The corresponding figures for the three clinics associated with the local mental hospitals were: new patients 181, total attendances 1,445. Comparisons are odious, but these figures are quoted solely for the purpose of suggesting that, in one area at any rate, the picture is not quite so discouraging as the Board's report would have us suppose. Moreover, during the year ended December 31, 1937, the volume of work dealt with by the two clinics referred to above was almost double that for 1935, amounting to 602 new patients and 4,428 total attendances.

2. Allusion is made to the difficulty of staffing such centres, and the St. Albans Clinic is cited as an example of how psychotherapists in outside practice have been employed. While it is only with the greatest hesitation that one would claim sufficiency in number of staff in a rapidly growing clinic, it is notable that the Liverpool Psychiatric Clinic (founded so comparatively long ago as 1924) has a medical staff of six persons—three men and three women; and with regard to the Board's statement that "... if centres continue to be staffed insufficiently or by doctors who have to give up (as many do) part of their leisure to out-patient work, there can be little hope of improvement in this direction," it should be pointed out that of these six medical officers one only receives part-time remuneration, the services of five being rendered voluntarily. It is felt very strongly that the Board of

Control could play a valuable part in encouraging co-operation between the various services dealing with mental treatment. A natural reply to this suggestion is that this is a matter for the locality concerned, but on reflection there will perhaps be realized the obvious difficulties that are apt to arise, difficulties that are more easily overcome if assistance and guidance come from a central and, so far as the locality concerned therefore an independent, body or authority such as the Board.

3. The report states: "To start a private practice in psychiatry to-day outside of London is a hazardous adventure. It is not surprising that, except in London, there are lamentably few private practitioners in this branch of medicine. . . ." While it may be admitted that relatively the number of psychiatrists practising privately is all too few, it might be pointed out that there are in this city no fewer than ten fully accredited specialists whose practice is devoted to psychological medicine. Five of these have been in whole-time psychiatric practice for periods of twelve to fifteen years. It is, therefore, not altogether a shortage of those who will dare "the hazards and prizes of private practice" that is the difficulty so much as a lack of disposition on the part of those concerned to encourage co-operation with psychiatrists, however qualified and experienced, who are not members of the mental hospitals service.

I do not speak for the governing bodies of the clinics to which I have referred, and this is but a personal view, but it has seemed to me that it would be most undesirable in relation to psychological medicine for there to occur between official treatment services on the one hand and voluntary and private effort on the other that cleavage which long ago occurred in the hospital services devoted to physical medicine—a gap which it has proved so difficult to bridge. It would seem unfortunate if, at this comparatively early stage, the opportunity for greater co-operation should be lost.

Finally, and with the utmost respect, it is submitted that before generalizing with regard to conditions of treatment service and of psychiatric practice, attempting to speak for the state of affairs as related to the country as a whole, or authorizing the establishment of new centres, the Board of Control should acquaint and familiarize itself not only with the facilities and centres directly associated with the institutions under its supervision but also with the work that is going on outside its immediate purview. It may be argued that these efforts are no concern of the Board's, but that is also an argument against the issuing of general statements which do not give an accurate presentation of the facts.—I am, etc.,

Liverpool, Nov. 21. S. BARTON HALL, M.D., D.P.M.

The Occipito-posterior Case

SIR,—Although I do not agree with much of what Dr. David Price says (*Journal*, September 17, p. 638), I do agree with him that when the head (in the occipito-anterior position) has become fixed or impacted behind a partly dilated cervix it is so difficult for further dilatation to take place as to interfere seriously with the progress of labour. In fact, this condition has been the commonest cause of protracted labour in my experience. Here also I must agree with Dr. Price in that I consider that the application of forceps through the partially dilated cervix is the treatment of choice. We get remarkably few cases of persistent occipito-posterior presentation in this part of the country, so that I am speaking of cases of occipito-anterior presentation only. The usual case has proceeded normally but slowly until this stage is reached, and then,

in spite of strong pains, no further progress is made. The pains begin to diminish in frequency and severity, and the case is further protracted by secondary uterine inertia. On vaginal examination one can feel a substantial rim of cervix all round the head, and this is often after several days of strong labour. If forceps are now applied and, with a finger in the vagina carefully gauging the tension on the cervical rim, traction is exerted, it will be found that a considerable force has to be used to get the head to move. Once on the move, however, my practice is to remove the forceps, and I find that the pains soon come back, the cervix dilates rapidly, and the foetus is speedily delivered with remarkably little trouble.

If it were more generally realized that the commonest cause of slow dilatation of the cervix is not rigidity but impaction of the head in the middle of the birth canal, the conservative use of forceps in this way would be an everyday matter and not a cause of horror, as it seems to be. After all, the country practitioner is now, as he has always been by force of circumstances, the acknowledged expert in cases which without being abnormal are really difficult.—I am, etc.,

W. H. M. WILSON.

Burnham-on-Crouch, Essex, Nov. 19.

Adrenaline Treatment of Asthma

SIR,—May I refer to some points raised by the correspondence on the above subject.

The effect of injecting adrenaline is purely physiological. It evokes all the phenomena normally evoked by stimulation of the sympathetic system, including active dilatation of the bronchi and bronchioles. In allergic asthma the condition is one of vagotonia, and it should be remembered that many such patients have a low blood-pressure and some degree of hypoglycaemia.

The effect of an injection of, say, 0.5 c.cm. of a 1:1,000 solution of adrenaline in a healthy individual is to produce an *appearance* of fright or disturbed emotion in the absence of *real* fright or emotional disturbance; that is to say, pallor, dilated pupils, "startling eyes," dry mouth, goose-flesh, quick, deep breathing, with increased secretion of urine. Emotional disturbances are *par excellence* the common stimuli which cause the adrenal glands to become active and, through their hormone, the appearance associated with the corresponding emotion. Plentiful reserves of sugar are poured into the blood and the bronchi are dilated, so that the individual is in a state of mobilization, instantly ready to fight or fly. It is not unusual to find that a sudden access of temper occurring on the inception of an attack is sufficient to provide adequate stimulation of the adrenals and that the paroxysm does not materialize or is aborted. When adrenaline is injected in asthma we are not supplying a deficiency directly but merely stimulating the sympathetic system generally and through it the adrenals, which provide their own adrenaline. The injection is merely the detonator, or the pinch of powder on the touch-hole of an old-fashioned cannon. Bronchospasm is an indication of vagotonia or vagosympathetic imbalance. The injection adjusts it and brings about a temporary sympathotonia.

I have never seen the symptoms mentioned by Dr. Joah Bates (*Journal*, October 29, p. 921)—continuous dyspnoea and cyanosis—in a patient with allergic bronchospasm and a normal circulatory system, in spite of the fact that post-mortem records show that approximately one person in three has some form of patent interauricular communication. Such symptoms would suggest to me an underlying abnormality in the circulatory system.

It should not be lost sight of that in persons who have never had a typical paroxysm of asthma some degree of spasm of the smaller bronchioles is not infrequently found, the only complaint being of "chestiness."

I have always found it preferable to give a small dose of adrenaline at the earliest possible moment, if necessary self-administered by the patient himself. In this way 0.2 c.cm. may suffice. It has been my experience that the longer one can ward off a fully developed paroxysm the less likely the patient is to have one. I have never seen pulmonary congestion or cardiac failure, or for that matter arteriosclerosis, after long-continued use of adrenaline in a patient with a normal circulatory system. As regards pulmonary congestion, is not adrenaline actually useful as a haemostatic in haemoptysis?—I am, etc.,

Brookwood, Surrey, Nov. 25. H. M. STANLEY TURNER.

SIR,—When I mentioned 60,000 injections I was relying on the patient's own statement. He was a highly scientific man and I had no reason to doubt his figures. He had his first attack of asthma in the night after some polypi were removed, and he subsequently used adrenaline by injection for over twenty years. I first saw him in 1907 when he had had asthma for three years, which had been made progressively worse by further operations for the removal of polypi and clearing of the ethmoidal cells.

For perhaps some eight or nine years I was able to restrain him from having more polypi removed, and he was able to exist in a fair amount of comfort with three or four injections of adrenaline a day. Then an eminent rhinologist undertook to cure his asthma by a further nasal operation. The patient asked my advice, and I told him that I was anxious not to interfere with the prospect of his obtaining relief but that I believed the operation would increase his daily injections of adrenaline from three to five. My surmise was not altogether correct, for after the operation he needed eight injections a day. The rhinologist was confident that another operation would cure him completely; this was done, with the result that the daily injections went up to twelve. Some time later the rhinologist discovered yet another polypus and persuaded the patient that this was the sole remaining cause of his asthma. His distress by this time had become so acute that he allowed this to be removed, and subsequently he required twenty injections a day to enable him to breathe.

Ever since 1903 I have issued warnings against the indiscriminate removal of nasal polypi in asthmatic cases. In the *Journal* of August 29, 1925, I wrote: "If operators could see some of the many patients who come to me who have been made helpless asthmatic wrecks by nasal operations for the removal of polypi they might possibly pause and think." In a paper in the *Practitioner* of September, 1929, Dr. Clement Francis clearly discussed the question of when to remove polypi in asthmatic cases. Yet some rhinologists will not realize that it is disastrous to remove polypi by extensive operation from aspirin-sensitive patients, especially when the blood pressure is low. I wish Mr. Hutchinson could suggest some method of giving relief to a patient who has had a submucous resection of the nasal septum, complete removal of polypi, free drainage of the ethmoidal cells and antra, in addition to allergic tests and treatment including living in a dust-free atmosphere; and who now needs to be continually under the influence of adrenaline, which at times gives little more than temporary relief. I know other cases whose present desperate condition is, I maintain, due to their having had nasal polypi removed when they were aspirin-sensitive.—I am, etc.,

London, W.1, Nov. 27.

ALEXANDER FRANCIS.

Artificial Anterior Pneumomediastinum

SIR,—I would like to correct a false impression which may be created by your reference in the annotation on extra-pleural pneumothorax (*Journal*, November 19, p. 1050) to a paper of mine on artificial anterior pneumomediastinum (*Post-grad. med. J.*, 1938, 14, 216). In that paper I believe I was more cautious than appears from your reference in assessing the value of artificial anterior pneumomediastinum as an agent of collapse therapy, and I emphasized that it is not intended to replace artificial pneumothorax. When this is not possible and the lesion is moderately recent and situated in the anterior and paramedian aspect of the lung, I believe that artificial anterior pneumomediastinum should be given a trial. An incitement to research with this new procedure is very different from a recommendation of its more or less indiscriminate application, which was never in my mind.

I would like also to lay stress on the fact that the procedure was intended by its originator, Professor Condorelli, to serve as an aid to the diagnosis of conditions affecting the pericardium and the mediastinum, with special regard to pleuro-pericardial and pericardio-sternal adhesions. Its diagnostic value is, to my mind, quite well established, and has been confirmed at the Italian Hospital in a recent case. In this the skiagraphic demonstration of air between the sternum and the heart and in the pleuro-pericardial spaces, after the introduction of 200 c.cm. of air into the anterior mediastinum, excluded the clinical diagnosis of adhesive pericarditis and saved the patient from an unnecessary operation. I would like to add that no untoward effects were observed in this patient.—I am, etc.,

Italian Hospital, London, W.C.1. E. MONTUSCHI, M.D.
Nov. 22.

The Blood Platelet

SIR,—The routine examinations of the blood I have been accustomed to make, which include the use of the dark-ground condenser, have led me to conclude that blood platelets are agglutinated colloid (protein) particles.

Employing the terms to which I am used, agglutination is a stage of dehydration which separates this chemical-physical change from the one of hydration. Any agent which dehydrates the colloid particles in the blood, which are mainly protein in nature, tends to increase the number of the platelets, whereas the production of hydration has the reverse effect. In citrated, oxalated, or heparinized blood, provided sufficient hydration has been produced, no platelets are to be found in the plasma which is examined with a dark-ground condenser. But when a calcium salt, which dehydrates these hydrated colloid particles, is allowed to reach the plasma under the cover-slip, platelets of varying shapes and sizes appear in abundance. The significance of the presence or absence of platelets as an isolated observation is nil.—I am, etc.,

London, W.1, Nov. 25.

J. E. R. McDONAGH.

Grenz-ray Therapy

SIR,—I was interested to note the annotation in your issue of November 26 (p. 1093) on Grenz rays. In co-operation with Bucky I have investigated the influence of these rays in a number of constitutional diseases. It is impossible to discuss results in a letter, but it is perhaps of interest to mention that very good results have been achieved in previously intractable cases of bronchial asthma and in certain forms of arthritis. I quote these

two diseases as you referred to them specially in connexion with Scott's work. This author, working with deep x rays, has shown that medium voltage, comparatively large field, and small dosage should be applied to indifferent areas of the body. Similar principles are applicable in Grenz-ray therapy, but instead of 100-150 kV it is the practice to apply 10 kV with consequently very greatly reduced x-ray energy.

I welcome the suggestion advocating a controlled investigation of the effect of Grenz rays in various constitutional diseases. This method of treatment is without danger and is simple to carry out. Further, the method is economical in use, and this is a factor of particular importance in considering the application to any large-scale investigation. Though it is possible to point to more than 1,000 references in the literature of Grenz-ray therapy there are as yet but few publications dealing with this treatment in constitutional diseases. Further work in this direction is certainly indicated.—I am, etc.,

London, W.1, Nov. 27.

Z. A. LEITNER.

Control of Small-pox in India

SIR.—Although the infectivity of variola minor is low, Dr. C. Killick Millard is not correct in his statement that it is not infectious, nor, indeed, is it an entirely harmless disease. In "A Critical Review of the Clinical Features of 13,686 Cases of Small-pox" (variola minor), Dr. J. Pickford Marsden (L.C.C., 1936, No. 3,209) reports that three cases were toxic and nineteen confluent, while the total number of deaths was thirty-four (0.25 per cent.). Among these deaths small-pox was the direct cause in five, the immediate cause in eleven, a definite contributing factor in three, and a remote contributing factor in fifteen. Complications are also not unknown in variola minor similar to, if not so frequent as, those found in variola major, such as subcutaneous abscesses, encephalomyelitis, and various ocular complications, as shown by Dr. C. R. M. Greenfield, who reported 218 cases (3.4 per cent.) among 6,233 small-pox patients admitted to the river hospitals of the L.C.C. in 1930 (Ann. Rep. L.C.C., 1930, 4 (Part III), 174.—I am, etc.,

London, W.8, Nov. 25.

J. D. ROLLESTON.

SIR.—While agreeing with Dr. C. Killick Millard (November 19, p. 1061) that the mortality from small-pox in India is appalling, I cannot agree with the measure he propounds to combat it. I do not propose to discuss the merits or demerits of his suggestion, but merely the practicability of introducing it into that country. My experience of the various sects in India, and having had to deal in an administrative capacity with outbreaks of 5,000 (registered) cases annually, and smaller outbreaks elsewhere in India, convince me of the danger of the suggestion. When a certain sect, at the worst stage of the disease, wishing to appease the evil spirit (or the goddess Mithra) gathers a party of the relatives—men, women, and children, perhaps all unvaccinated—around the confluent case of small-pox, how on earth can one prevent the spread of the disease when many will not even hear of being vaccinated? I have seen this often. Not only this, but they will often block up the small inlets for ventilation (apologies for windows) to propitiate the evil spirit. In such places there are large groups of people living one above the other and perhaps on the same storey. Many of the leaders of the sects, and even some active practitioners, have no faith in vaccination. I have often been able to persuade (the work is really

a missionary effort) early infected cases to be vaccinated, with a modification of the disease and saving of life. Again, not only are these houses infected—and their construction makes practical disinfection an impossibility—but often the clothes of the deceased patients are sold, and the clothes of vaccinated contacts will still carry the disease.

The first line of defence, in my opinion, is education of the leaders of the people as to the value of vaccination. With a view to enlightening these leaders—often on municipal bodies—in sanitary matters and public health generally, I started the *Indian Public Health and Municipal Journal*; the various municipalities took this journal and the local Governments subscribed for certain copies for distribution. Keener insight is now being shown in sanitation, but there is much to be done owing to the stupendous problem of fighting against religious views and ignorance. There is no evidence that vaccination has lamentably failed in India. On the contrary, where vaccination has been used the statistics show its great value.

Now, what would be the effect of introducing inoculation with the virus of variola minor in place of vaccination with calf lymph? In the first place, it would mean making a new start and undoing the past education and belief in vaccination, and all that has been gained by it under difficulties. Dr. Millard now proposes to tell the people that doctors are actually going to produce in them a mild type of small-pox so that they may be protected against a severe type. Not only would this be "handing the torch" to others, so far as the disease is concerned, but agitators would say, "The British Government is producing a loathsome disease among the people and many of our children will die of it." It would be dangerous to give them such an argument, and the administrative difficulties would be enormously increased. We cannot afford to try the experiment in India, as variola major would still exist and its existence to any larger degree would be put down to the experiment. Why not leave well alone and continue the education of the leaders and all medical men in India as to the value of vaccination. The people are coming to recognize its value; why break this trend?—I am, etc.,

Ilford, Nov. 21.

A. G. NEWELL, M.D., D.P.H.

SIR.—Dr. C. Killick Millard's statement in his letter in the *Journal* of November 19 that vaccination in India has been "a lamentable failure" cannot be allowed to pass unchallenged. Far from being a failure, the success of vaccination will not be disputed by any medical officer who has served in India. May I inquire if Dr. Millard has any experience of India? Also, how many of the deaths he quotes from the statistics in Bengal were among vaccinated people? Statistics may prove anything, especially in India. The registers of births and deaths in the villages are kept by the village watchmen, who are mostly illiterate, and therefore the records of the causes of death are very unreliable. All cases with a pustular eruption would be entered as small-pox. I am of opinion that if vaccination were made compulsory small-pox would soon be stamped out. During my service in the Punjab as regimental medical officer and civil surgeon I have never seen a case of small-pox in a properly vaccinated person—that is, one showing three good marks on each arm. Small-pox is unknown in the Indian Army and the Police Service, where vaccination is compulsory. The Punjabi woman realizes the value of vaccination, and will bring her infant from outlying hamlets two or three miles for vaccination and inspection.

tion. A great deal depends upon the proper supervision of the vaccination staff and the help given by the local notables and headmen of villages. Certainly vaccination in the Punjab is anything but a failure.

Possibly political reasons—which I need not specifically explain but which will be understood by anyone with Indian experience—have led to laxness in vaccination in Bengal. If the work of the vaccinators is not properly inspected one cannot expect to have good results. When I was a civil surgeon I had to inspect the vaccination, and I always found the work was good and failures were extremely few. In my time it was common to see elderly Indians pock-marked; but it was rare to see Indians under 30 marked at all. I can only answer for my own province; but from what I have seen there I can entirely refute Dr. Millard's statement.—I am, etc.,

H. C. KEATES,

London, S.W.16, Nov. 23. Lieutenant-Colonel I.M.S. (ret.).*

R.M.B.F. Christmas Gifts

SIR,—We have the following letter to our beneficiaries ready for dispatch, printed with suitable decoration in red and green:

Christmas Greetings from the Royal Medical Benevolent Fund.

Dear —,

Many supporters of the Royal Medical Benevolent Fund have kindly subscribed to a Special Fund which enables the Committee to send you the enclosed Christmas Gift of thirty shillings.

We all hope that the Gift will contribute to your happiness, and it brings from many friends Christmas Greetings and Good Wishes for the New Year.

With kind regards,

Yours very truly,

Unfortunately, Sir, we have not yet received sufficient response to my appeal to enable us to send the thirty shillings to all our beneficiaries. May I ask your readers who have not responded to my letter which appeared in your paper during the month of October to send a donation as soon as possible so that we may make the distribution in proper time. Contributions, large or small, will be gratefully received by the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, London, W.1.—I am, etc.,

THOS. BARLOW,

President.

Nov. 30, 1938.

The Services

RHEUMATISM RESEARCH: NAVAL TRAINING CENTRES

It is announced by Lord Horder that the Empire Rheumatism Council, in co-operation with the Admiralty, has set up a Research Foundation to investigate the causes and the best means of prevention and treatment of rheumatic disease in the training establishments of the Royal Navy.

The history of rheumatic disease in the Navy in recent years shows that up to the first decade of this century rheumatism was a considerable problem in H.M. ships. It is now rare among trained seamen; the success in overcoming it is probably due to the improvement of medical services and living accommodation. In the training establishments, however, the position cannot yet be considered entirely satisfactory, and the Medical Service of the Admiralty and the Naval Medical Staff, hospitals, and laboratories will assist the Empire Rheumatism Council Research Foundation in its investigation in every way possible. The Empire Rheumatism

Council recognizes the importance of the task, not only as a service to the principal line of defence of the realm, but as a highly promising opportunity of solving one of the chief problems of the causation and treatment of rheumatic disease, since there will be opened up a wide field of research among a great number of youths, all of the same age-group, all under disciplinary control and subject to medical observation over a long period. Accordingly it will enlist to the fullest necessary extent its scientific resources for this Research Foundation.

The Research Advisory Committee has appointed an *ad hoc* subcommittee, consisting of Lord Horder, Sir William Willcox, Professor Geoffrey Hadfield, Dr. Mervyn Gordon, and Dr. W. S. C. Copeman, to supervise the work generally. Dr. C. A. Green comes from the Bacteriology Department of Edinburgh University to take direct charge of the Foundation; the Sir Halley Stewart Trust has granted him a Research Fellowship for three years for this task, and he will be assisted by other permanent workers as and when found necessary. Every factor in the problem—bacteriological, biochemical, and environmental—will be investigated at the chief naval training establishments.

DEATHS IN THE SERVICES

Surgeon Captain KENNETH HURLSTONE JONES, R.N. (ret.), died at Canterbury on November 15, aged 65. He was educated at Owens College, Manchester, and graduated M.B., Ch.B. at the Victoria University in 1897. He entered the navy immediately afterwards, became fleet surgeon on November 29, 1911, and retired with an honorary step in rank as surgeon captain on January 1, 1924. He served throughout the war of 1914–18, receiving the medals. He received the honours of Officer of the Order of the Crown of Belgium and Commander of the Order of St. Stanislaus (with Swords) of Russia, and was surgeon to the Canterbury Corps of the St. John Ambulance Brigade. In 1905 he contributed an article to the *British Medical Journal* on a case of primary sarcoma of the lung, and four years later one on the birds of Wei Hai Wei. He had been a member of the British Medical Association for thirty-nine years.

Universities and Colleges

UNIVERSITY OF OXFORD

On January 1, 1939, Dr. B. G. Macgregair will succeed Dr. K. J. Franklin as Dean of the Medical School.

UNIVERSITY OF CAMBRIDGE

The Faculty Board of Medicine has appointed Dr. T. S. Hele (Master of Emmanuel College), Dr. G. S. Graham-Smith, F.R.S., and Mr. W. H. Bowen to be members of the M.D. Committee for the year 1939; and Dr. W. L. H. Duckworth to be an Awardee of the Marmaduke Shield Scholarship.

Applications for a John Lucas Walker Studentship should be sent before December 10 to Professor Dean, at the Department of Pathology, to whom requests for further information regarding this studentship may be addressed. It is tenable for such period, and will be of such annual value not exceeding £200, as the Professor of Pathology with the approval of the Managers may determine.

J. B. Watson has been approved at the examination for the Diploma in Medical Radiology and Electrology.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

POSTGRADUATE DIPLOMA IN PSYCHOLOGICAL MEDICINE.—*With Special Knowledge of Mental Diseases*: H. N. Bradbrooke, J. E. O'N. Gillespie, D. Gilmour, J. B. Phillips. *Part A*: R. W. Crockett, M. S.-M. Rayner.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have satisfied the examiners at the examination indicated:

MASTERY OF MIDWIFERY.—John Desmond Burrows, M.R.C.S., L.R.C.P., Margaret Stewart Lithgow McCash, M.D., Sherda Shrinivasu Naidu, M.B., B.S., D.T.M. and H., Achamma Thomas, L.M.S., L.A.H., D.C.H.

to the building of houses by alternative methods of construction, which made the minimum demand on the types of labour that were short and made the most use of the types of labour that were plentiful. This policy was being further developed by this Bill. At the same time the Government did not regard these alternative methods as anything more than a supplementary way of providing houses, and expected local authorities to push on with all possible speed with building by ordinary methods.

The Bill was read a second time.

Unhygienic Conditions in Ships

On November 22 Mr. BEN SMITH asked the President of the Board of Trade whether his attention had been drawn to the annual report of the Tyne Port Health Authority for 1937, which stated that the inspection of vessels revealed 1,691 defects, many of them concerned with heating, doors, floors, bunks, lavatories, dampness due to leaking decks, ports, skylights and decklights, the presence of dirt, vermin, litter, discarded bedding, and the need for painting; and whether, in view of the fact that many of these defects remained unremedied, he would take steps to ensure a stricter adherence to principles of comfort and hygiene. Mr. OLIVER STANLEY said the port health authorities had full powers under the Public Health Acts to require the abatement, or themselves to abate, in ships within their districts insanitary conditions or other nuisances injurious to health. The duty of seeing that crews' quarters were kept in a fit condition fell primarily on the master as representative of the owner. A joint committee set up by the Shipping Federation and the National Union of Seamen was at present considering methods of improving the standard of comfort and cleanliness in crews' accommodation. Close co-operation was also maintained between officers of port health authorities and Board of Trade surveyors.

Medical Service of Dependants in Scotland

On November 22 Mr. WESTWOOD asked the Secretary of State for Scotland if he had considered the report of the Departmental Committee on the Scottish Health Services, with special reference to the provision of a medical service for wives and dependants of insured persons, and what action, if any, he proposed to give effect to either the majority or minority reports. Colonel COLVILLE said that this matter had received careful consideration, but he could not at present hold out any prospect of legislation.

Mr. WESTWOOD asked if the Minister was aware that the section of the British Medical Association which represented Scotland was now unanimous that some action should be taken in the interests of the health of the dependants of insured persons in Scotland. Colonel COLVILLE said he was aware of the importance of the question. The committee found it difficult to arrive at a solution.

Pulmonary Disease Investigation in South Wales

Earl WINTERBURN, replying to Mr. J. Griffiths on November 22, said that the investigation into chronic pulmonary disease among coal-miners in South Wales was making good progress. The analysis of the large amount of evidence collected at the Ammanford No. 2 colliery had been completed. As a result, it had been decided not to make another comprehensive study of this kind, but to make more limited and rapid inquiries at a number of different pits which were now being selected. It was hoped to complete these further inquiries within six months, but as the results could not be foreseen it was not yet possible to say when the investigation as a whole would be concluded.

Hospital Superintendents and Matrimonial Causes Act

On November 22 Mr. SORENSEN asked the Minister of Health whether he was aware of the difficulties that had arisen in connexion with the Matrimonial Causes Act through the failure or refusal of a mental hospital visiting committee to safeguard a medical superintendent by giving him instructions on the answering of reasonable inquiries respecting divorce proceedings; and whether he would take steps to avoid any

such difficulties in future. Mr. BERNAYS said that the Board of Control had suggested to the Mental Hospitals Association that the position of the medical superintendent might be safeguarded if the visiting committee gave him definite instructions to answer reasonable inquiries. The Minister of Health was not, however, empowered to give visiting committees any direction in this matter.

Government and Treatment of Cancer

Dr. ELLIOT was asked whether, before establishing further centres for the treatment of cancer by radium, he would have an expert investigation made of the whole question of radium treatment. He replied on November 24 that the further centres proposed to be established were for the treatment of cancer not merely by radium but by every recognized therapeutic agency. Radium was generally agreed to be a valuable agent in the treatment of cancer, in spite of the dangers attending its unskilful use. He did not think that the establishment of more centres should be deferred on that account.

Defective Hearing in Children

Mr. DAVID ADAMS asked on November 24 what steps the Government proposed to carry out the recommendations of the committee of inquiry into problems relating to children with defective hearing, and, in particular, if steps were being taken for the establishment of schemes for the treatment of ear diseases and defective hearing as a branch of the school medical service of local education authorities. Mr. KENNETH LINDSAY replied that the Board of Education was in general agreement with the recommendations of the committee, and was considering what steps were necessary to give effect to them. About one-half of the local education authorities were known to have schemes for the treatment of ear diseases and defective hearing. These schemes comprised arrangements either for the services of visiting specialists at aural clinics or for the provision at hospitals of in-patient or out-patient treatment.

Refuse from Coal Mines

Mr. J. J. LAWSON moved on November 25 the second reading of the Public Health (Coal Mine Refuse) Bill. He said the Bill was to make automatic instead of permissive the obligation to deal under Section 92 of the Public Health Act, 1936, with accumulations or deposits of refuse from coal mines if liable to spontaneous combustion. Such accumulations would be deemed to be prejudicial to health or a nuisance. Sir FRANCIS FREMANTLE said the nuisance clause of the Public Health Act had been a subject of contention ever since it was enunciated in the Act of 1875. It was difficult to say what was prejudicial to health or a nuisance.

Mr. BERNAYS said he was not convinced that the Bill would do all that was expected of it, but the House should give it a second reading.

The Bill was read a second time.

Health Insurance for Dependants.—Dr. ELLIOT holds out no hope of introducing legislation at present whereby the wives and children of persons insured under the national health insurance scheme may become entitled to medical benefit under the panel system.

Non-pulmonary Tuberculosis in Lancashire.—Mr. RHYS DAVIES asked, on November 10, whether the last annual report of the county medical officer for Lancashire showed increases in the number and percentage of non-pulmonary tuberculosis cases among children; if so, how these figures compared with other industrial areas. Dr. ELLIOT replied that there was a certain increase in the number of cases of non-pulmonary tuberculosis notified, consequent upon the medical examination of the school children, but the annual report of the county medical officer did not indicate any increase in the total number of cases among children. Indeed the figures showed a slight decrease compared with the preceding year. For the country as a whole there was a slight rise in the notifications of deaths at all ages. For Lancashire the figures were rather more favourable.

Investigation into Causes of Rheumatism.—Mr. WHITELY on November 17 asked Dr. Elliot to consider the advisability of setting up a committee of inquiry into the causes of rheumatism with a view to its cure and prevention. Dr. Elliot replied that research into the problem of rheumatism was already undertaken by the Medical Research Council as part of its general activities. Investigations were also in progress by the Empire Rheumatism Council. It would be undesirable at present to institute another inquiry.

Fumigation with Naphtha Vapour.—Dr. ELLIOT, replying to Mr. Kirby on November 17, said the corporation of Liverpool among other methods of disinfection used naphtha vapour gas. In one case where there were special circumstances a claim made by an occupant of a neighbouring house for injury to health through the escape of naphtha fumes was settled out of court by the corporation. Such few other complaints as had been made had not been substantiated, and no danger to health need be apprehended. The control and management of houses belonging to local authorities were vested by statute in the authorities, and he had no power to give them instructions to arrange the evacuation of adjoining property while disinfection was taking place. The safest and most effective way of removing vermin from dwelling houses was under the consideration of a committee of the Medical Research Council.

Sewage Disposal in Holiday Camps.—Mr. POOLE asked on November 17 a question alleging unsatisfactory sanitary arrangements during the past summer in holiday camps in the urban district of Abergele. Dr. ELLIOT replied that representations had been made to him on the method of disposal of sewage at Kimmel Bay. The Urban District Council of Abergele had under consideration proposals for a sewerage scheme to serve this area. He was making further inquiries with regard to these proposals.

Alleged Small-pox Case on Board Ship.—Mr. GROVES asked on November 18 for details of a case of small-pox recently found when a ship called at Gibraltar, the patient being an American doctor. Dr. ELLIOT replied that particulars of this case had been given to his Department, which indicated that the illness from which the patient suffered might not have been small-pox. The patient was successfully vaccinated against small-pox in childhood, and had been vaccinated on several subsequent occasions without result.

Post-vaccinal Encephalitis.—Dr. ELLIOT, replying to Mr. Groves on November 21, said that in the five cases of post-vaccinal encephalitis referred to in the Annual Report of the Chief Medical Officer for 1937 Government lymph had been used. Medical practitioners had been requested from time to time by notice in the medical press and otherwise to report to his department any case of acute nervous disease following within four weeks of vaccination. Information regarding such cases was also obtained from the returns rendered by public vaccinators to the Government Lymph Establishment regarding the use of Government lymph. There was no reason to suppose that any sensible number of such cases escaped the notice of the Department.

Tuberculosis Death Rate in Women.—Colonel COLVILLE told Mrs. Hardie, on November 22, that the report of the medical officer of health for Glasgow contained the statement that the death rate from tuberculosis among girls from 15 to 25 years of age had increased, and that notifications of this disease among this age group had risen during the last five years. While the general death rate from pulmonary tuberculosis had continued to decline, the relatively high mortality among young adults had been a matter of serious concern for many years. The rate among girls in Glasgow was receiving special consideration from the medical officer of health and his staff.

Chronic Incapacity of Insured Workers in Scotland.—On November 22 Colonel COLVILLE informed Mrs. Hardie that the clinical inquiry by the Department of Health for Scotland into the problem of chronic incapacity of insured workers in

Scotland was still proceeding. It was too early to give any indication of the conclusions which might be drawn. About 25,000 cases had now been reviewed, of which some 5,000 had undergone special clinical examination.

Storage of Blood for Transfusion.—Dr. ELLIOT said on November 24 that he knew the transfusion of stored blood had been extensively adopted in Spain during the war. His advisers were in touch with the arrangements for blood transfusion which are proposed in this country by the British Red Cross Society and the hospitals.

Treatment of Gas Casualties.—Sir JOHN ANDERSON stated on November 24 that specially selected and trained medical practitioners were appointed by the Home Office in 1936, and were available throughout Great Britain to give to members of the medical and allied professions, whether they had volunteered for air raid precautions duties or not, free training in the general and medical aspects of anti-gas methods so as to enable them to give skilled treatment to gas casualties.

Notes in Brief

It will not be possible to legislate this session to give effect to the recommendations of the Departmental Committee on Coroners.

The committee appointed to consider the effect of cardroom dust on workers in the cotton industry hopes to present its report before the end of this year.

The administrative cost of health insurance during 1937 was 14.6 per cent. of the total expenditure on that scheme.

Ample fresh vegetables are included in the diet of H.M. prisons, but the inclusion of fruit would involve a large addition to the cost, and the medical evidence as to the effect on health of the present dietary is such that the Prison Commissioners have not felt justified in proposing this increased expenditure.

Medical News

The Harben Lectures, 1938, under the auspices of the Royal Institute of Public Health and Hygiene, will be delivered by Professor R. D. Passey on "Factors in Carcinogenesis" at 28, Portland Place, W., on Monday, Tuesday, and Wednesday, December 5, 6, and 7, at 4 p.m. Admission is free to members of the medical profession and to medical students. Applications for seats should be made to the secretary of the Institute.

The next Réunion Médico-Chirurgicale de Morphologie will be held in the amphitheatre of the School of Anthropology, 15, Rue de l'Ecole-de-Médecine, Paris, on Wednesday, December 14, at 9 p.m. Particulars may be had from Dr. C. Claoué, 39, Rue Scheffer, Paris, XVIe.

The fifty-first Congress of the German Society for Internal Medicine will be held at Wiesbaden under the presidency of Professor Stepp of Munich from March 27 to 30 next, when discussions will be held on arteriosclerosis, morbid anatomy of circulatory disturbances in the brain, clinical disorders of the brain, and psychical changes due to disturbance of the cerebral circulation.

The programme has now been issued for the twelfth annual congress of the British Institute of Radiology to be held at the Central Hall, Westminster, on December 7, 8, and 9. On the first day, at 3 p.m., the Mackenzie Davidson memorial lecture will be given by Dr. G. Shearer. On the second day there will be medical papers on "Contact Therapy" in the morning, and physical papers in the afternoon. On the third day there will be medical papers on "X-Ray Diagnosis with Reference to the Urinary Tract" and on "Stereo-radiostriatigraphy" in the morning, and the Silvanus Thompson memorial lecture by Dr. Ledoux Lebard on "Advances in the X-Ray Diagnosis of Gastric Cancer" in the afternoon. An exhibition of x-ray apparatus will be open each day.

Major-General Sir Cuthbert A. Sprawson, I.M.S.(ret.), who visited the U.S.S.R. this summer, will speak on his impressions at a meeting arranged by the Society for Cultural Relations on Thursday, December 8, at the Royal Society of Arts, John Street, Adelphi, W.C., at 8.30 p.m., with Professor W. E. Le Gros Clark, F.R.S., in the chair. The secretary of the S.C.R. will send invitations to those interested if they apply to her at 98, Gower Street, W.C.1. Sir Cuthbert Sprawson will deal principally with Soviet medical education and the campaign against tuberculosis.

At the first meeting of the trustees of the Lord Nuffield Fund for Orthopaedic Services in the Union of South Africa, held in London on November 22, the Earl of Athlone was elected chairman and the trust deed was signed by Lord Nuffield and the four trustees—Lord Athlone, Professor G. R. Girdlestone, F.R.C.S., the High Commissioner for South Africa; and Mr. W. Hobbs. The other trustees, in approving Professor Girdlestone's draft orthopaedic scheme for the Union of South Africa, place on record their appreciation of his valuable services in undertaking the great burden of work involved in its preparation and his zeal and generosity in giving to South Africa the benefit of his great experience and advice.

With the November number Dr. John Comrie has succeeded Dr. A. Rae Gilchrist as editor of the *Edinburgh Medical Journal*.

The Crown Agents for the Colonies, 4, Millbank, London, S.W.1, have published at 6d. the returns for 1937 of vital statistics of non-native officials in West Africa.

EPIDEMIOLOGICAL NOTES*

Infectious Diseases during October

In the four weeks ending October 29, 1938, 7,558 cases of scarlet fever, 5,227 cases of diphtheria, 2,050 cases of primary pneumonia, and 111 cases of enteric fever were notified in England and Wales. The notifications of scarlet fever, diphtheria, primary pneumonia, and enteric fever were 74 per cent., 102 per cent., 72 per cent., and 62 per cent. of the expected numbers (deduced from the median values of the corresponding weeks of the years 1929-37).

Enteric Fever

The outbreak of typhoid fever in Shoreditch, described in detail in last week's issue, appears to be under control (last case notified on November 24), despite the fact that the source of infection has not been traced so far. Of the 28 cases notified to date, 25 were in the borough and 3 were 'outside'. As 2 of the cases have not yet been confirmed the actual total is 23 cases in the borough. In East Suffolk 4 cases were notified during the week—3 at Hartismere and 1 in Ipswich.

Poliomyelitis

During the week poliomyelitis fell in England and Wales from 51 to 45, but in London notifications rose from 3 to 5. Of the 45 cases 4 were in Essex (West Ham 1, Halstead 1, Chelmsford 1, Saffron Walden 1), 4 were in Southampton (Ringwood and Fordingbridge 2, and 1 each in Eastleigh and Winchester), 3 in Hereford (Bishop's Stortford 2, Welwyn Garden City 1), and 3 in Derby—all in Heanor urban district. The 5 London cases occurred in Battersea, Finsbury, Greenwich, Lambeth, and St. Pancras.

In Germany in the week ended November 5 there were 254 cases notified, compared with 96 for the corresponding week of 1937. Increases were recorded in Bavaria 61 (41) and Württemberg 51 (36). Twenty-one cases were notified in Holland during the week ended November 12, 14 of these being in the Province of South Holland and 4 in that of North Holland. During the fortnight ended October 31, 117 cases were recorded in Sweden, including 32 non-paralytic cases: of these 117 cases 32 occurred in the rural districts

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

of Jämtlands Province and 19 in those of the Västernorrlands Province. During the same period 89 cases were recorded in Finland, including 18 in the rural district of Hollola and 12 in the town and district of Helsingfors.

Anthrax

The manner in which public health authorities, with the co-operation of hospital and pathological services, and the business firms immediately concerned trace and eradicate even rare infections is well illustrated by a recent case of anthrax in the borough of Southwark, London. On October 21 a workman employed in a brush-making factory developed a pimple on the face which was recognized as a malignant pustule when he came under observation five days later: serum treatment was immediately instituted with complete success. Specimens of all types of bristles and hair were taken from the factory for examination at the Ministry of Health pathological laboratory in London: among these was a specimen of Manchurian horsehair which had been purchased from a firm in Bermondsey on October 3 and which was said to be dusty and dirty. Similar specimens were obtained from this firm and from the original source of supply, acquired in October, 1937, by a firm in the City of London. None of this horsehair had been used by the brush factories until October 3, 1938. The distribution of the suspected horsehair was therefore limited, as was the number of brushes already made from it. All the firms handling the bristles and horsehair and all brush manufacturers were asked to stop all sales until the investigations were completed. Lists were prepared of all purchasers, retail and private, of the horsehair, bristles, and brushes, and the medical officers of health for the districts concerned were notified. On the evening following notification all the suspected articles had been traced. Next day the Ministry of Health laboratories reported that the hogs' bristles were apparently free from infection but the Manchurian horsehair was infected. Medical officers of health were all informed by telephone, and late that evening all the infected hair and brushes in the districts concerned were destroyed.

Diphtheria and Scarlet Fever

During the week diphtheria rose from 1,445 to 1,530 in England and Wales, and from 141 to 160 in London. The chief centres affected were London 160 (Lambeth 20, Battersea 13, Wandsworth 12, Southwark and Poplar 10 each, and Paddington and Shoreditch 8 each), Birmingham 33, Bristol 31, Manchester 27, Liverpool 25, South Shields 24, Sheffield 21, Easington 17, and Cheltenham 10. In South Shields diphtheria is still rife, but the type of disease has become milder, many of the cases notified being merely carriers. Nearly 5,000 children between the ages of 5 and 8 years have recently been inoculated, but it will probably be found necessary to apply the measure to children under school age before the disease can be eradicated.

Scarlet Fever

Despite the increase of scarlet fever in England and Wales from 1,887 to 2,072, notifications remain well below the median value for the last nine years, and this holds true for London to a much greater degree. The principal towns affected were London 179, of which 16 were in Wandsworth, 11 each in Bethnal Green, Camberwell, and Hammersmith, and 10 in Hackney; Birmingham 41, Liverpool 66, Manchester 46, St. Helens 23, Stoke-on-Trent 30, Leeds 32, Sheffield 32, Bradford 20, York 20, and Newport 16.

Primary and Influenzal Pneumonia

In England and Wales pneumonia (influenzal and primary) fell from 799 to 723, a figure that is well below the median value for the last nine years. In London a slight rise is recorded, and the number is a little above the median value. Deaths fell from 28 to 21. The counties chiefly affected were: Warwick 41, of which 31 were in Birmingham, West Riding of Yorkshire 85 (Sheffield 17, Leeds 16, Bradford 10), Durham 38, and Stafford 32.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended November 19, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 15 | 3 | 10 | 3 | 2 | 16 | 2 | 11 | — | — | | |
| Deaths | — | — | 1 | — | — | 1 | 1 | 2 | — | — | | |
| Diphtheria | 1,530 | 160 | 288 | 86 | 35 | 1,634 | 255 | 261 | 57 | 40 | 1,358 | 235 |
| Deaths | 22 | 3 | 2 | 5 | 1 | 38 | 8 | 7 | 3 | 1 | | |
| Dysentery | 42 | 11 | 18 | — | — | 228 | 69 | 26 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Encephalitis lethargica, acute | 5 | — | — | — | — | 2 | — | 1 | — | — | | |
| Deaths | — | 1 | — | — | — | — | — | — | — | — | | |
| Enteric (typhoid and paratyphoid) fever | 31 | 11 | 8 | 5 | 2 | 97 | 5 | 3 | 38 | — | 31 | |
| Deaths | 3 | 2 | — | — | — | 4 | 2 | — | — | — | | |
| Erysipelas | — | — | 73 | 8 | 7 | — | — | 92 | 11 | 6 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Infective enteritis or diarrhoea under 2 years | 40 | 8 | 7 | 4 | 3 | 43 | 14 | 10 | 6 | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Measles | — | 23 | 22 | — | 2 | 14 | — | 203 | — | 93 | | |
| Deaths | — | — | — | — | — | — | — | 3 | 1 | 1 | | |
| Ophthalmia neonatorum | 69 | 6 | 28 | — | — | 87 | 10 | 35 | — | 3 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Pneumonia, influenzal† | 723 | 104 | 15 | 5 | 17 | 781 | 92 | 12 | — | 2 | 861 | 96 |
| Deaths (from Influenza) | 21 | 1 | 3 | 2 | 3 | 42 | 10 | 7 | — | 2 | | |
| Pneumonia, primary | — | — | 392 | 11 | — | — | — | 412 | 7 | — | | |
| Deaths | — | 1 | 8 | 11 | — | — | 22 | 11 | 11 | — | | |
| Polio-encephalitis, acute | 2 | — | — | — | — | 2 | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Poliomyelitis, acute | 45 | 5 | 6 | 2 | 1 | 28 | 1 | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Puerperal fever | 7* | 7 | 22 | 4 | — | 2* | 2 | 14 | 1 | — | | |
| Deaths | — | 1† | — | — | — | — | — | — | — | — | | |
| Puerperal pyrexia | 180 | 15 | 21 | — | 1 | 144 | 12 | 24 | — | 4 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Relapsing fever | — | — | — | — | — | 1 | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Scarlet fever | 2,072 | 179 | 396 | 48 | 100 | 2,590 | 197 | 574 | 104 | 111 | 2,601 | 359 |
| Deaths | 1 | 1 | 1 | — | — | 2 | — | — | 1 | — | | |
| Small-pox | — | — | — | — | — | 1 | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Typhus fever | — | — | — | — | — | 1 | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Whooping-cough | — | 160 | 293 | — | 17 | — | — | 50 | — | 7 | | |
| Deaths | 8 | 3 | 2 | 2 | 2 | 13 | 3 | — | — | 1 | | |
| Deaths (0-1 year) | 294 | 41 | 87 | 16 | 14 | 344 | 53 | 105 | 34 | 16 | | |
| Infant mortality rate (per 1,000 live births) | 49 | 34 | — | — | — | 58 | 44 | — | — | — | | |
| Deaths (excluding stillbirths) | 4,274 | 805 | 603 | 210 | 134 | 4,833 | 944 | 693 | 183 | 123 | | |
| Annual death rate (per 1,000 persons living) | 10.5 | 10.3 | 12.3 | 14.2 | 11.9 | 11.9 | 14.2 | 12.5 | 10.9 | — | | |
| Live births | 6,388 | 1,208 | 844 | 351 | 204 | 5,902 | 1,231 | 827 | 277 | 201 | | |
| Annual rate per 1,000 persons living | 15.7 | 15.4 | 17.2 | 23.8 | 18.1 | 14.5 | 15.5 | 16.9 | 18.9 | 17.8 | | |
| Stillbirths | 273 | 30 | — | — | — | 260 | 45 | — | — | — | | |
| Rate per 1,000 total births (including stillborn) | 41 | 24 | — | — | — | 42 | 35 | — | — | — | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.
† Death from puerperal sepsis.

Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Condensation Water from Theatre Skylight

Dr. E. S. HEMSTED (Newbury) writes: As some of your readers have probably had to solve a similar problem, I should be glad to have the benefit of their experience. The operating theatre in a nursing home is provided with extra lighting by a V-shaped skylight over the operating table. In cold weather the heat of the theatre causes condensation on the glass and drops of water fall from time to time on the patient and also on those carrying out the operation. An electric fan working in the skylight fails to keep the air sufficiently disturbed to prevent this condensation. This difficulty must be frequently met with, and if any reader can suggest a sure and simple solution it would be very greatly appreciated.

Local Use of Petroleum

Dr. RHYS PATON writes: Ordinary lamp paraffin is often used as a hair restorative and it appears to be effective. Can anyone tell me if it is carcinogenic if used over a period of years?

** We have referred this matter to an expert adviser, who informs us that lamp oils distilled from ordinary petroleum crude have not been tested for carcinogenic power but only those from shale. As the latter proved to be non-carcinogenic, and in view of the generally lower activity of products of petroleum crudes compared with products of oil shale, it is fairly safe to assume that ordinary lamp paraffins are for practical purposes non-carcinogenic.

Cattle Ringworm in Man

Dr. P. J. SMITH (Co. Cork) writes: Dr. Stewart (*Journal*, November 12 (p. 1027)) will find ung. hydrarg. nitr. dil. well worth a trial for cattle ringworm in man. I am also a medical practitioner in an agricultural area, and I find that a daily application of this ointment is a specific remedy for the disease he mentions.

Dr. C. EDE writes: I was faced with the same problem when I started practice in a large dairying district many years ago. Dr. Scqueira came to my rescue with resorcin 5j, tinct. benzoin. co. 3j. This should be painted all over the area twice a day for a week or ten days.

Varicose Veins

Dr. STUART MCAUSLAND (Liverpool) writes: It is probable that "M.E.D." gave the injection by the full vein method. There are some varicose veins which do not sclerose when the fluid is injected into the full vein. The use of a tourniquet in the empty vein method is desirable. When one fluid

failed, "M.E.D." should have had recourse to one of the other sclerosing fluids—for example, 5 or 10 per cent. sodium morrhuate, or lithium salicylate 35 per cent. with 1 per cent. ethocaine. Other reasons for the failure may be that the dose was inadequate or that "M.E.D." did not firmly occlude his puncture site, and exert constant pressure on the vein after the injection by means of a pad of wool and firm strapping with elastoplast. Actually, in my own clinic, no one fluid constantly acts as a sclerosing agent. In such cases one adopts Rodney Maignot's mixed fluid method. This consists in injecting into the one vein 4 or 5 c.cm. of lithium salicylate and 2 or 3 c.cm. of quinine. These fluids when mixed are incompatible, and cause the formation of a glutinous substance. This injection can be made from two separate syringes through one large needle, or a second puncture of the vein may be made half an inch from the original puncture. Upward and downward flushing of the vein is also helpful. Full details of the technique will be found in my book, *Cure of Haemorrhoids and Varicose Veins* (John Bale Sons and Danielsson).

LETTERS, NOTES, ETC.

Price of Radium

In the article in last week's *Journal* headed "Government versus Cancer" we recorded an announcement in the *Times* that the Government had bought 11 grammes of radium from the Eldorado Gold Mines, Ltd., at a cost of about £200,000. As we were aware that radium can be bought for about 15 a milligramme we should have interpolated the convenient "(sic)" or expressed surprise and doubt with the aid of an exclamation mark. But we did not know which figure was wrong—that for the price paid or that for the quantity bought. During the war radium cost about £20 a milligramme; eight or nine years ago it cost about £12 a milligramme; during the last four or five years the price has been in the region of £10; and during more recent months between £5 and £7.

"Typhoid Mary"

Dr. W. R. BETT writes from New York City: Mary Mallon or "Typhoid Mary" (typhoid carrier No. 36), to whom reference was made in the *Journal* of June 4 (p. 1247) and on August 20 (p. 436), died of paralysis on November 11 in Riverside Hospital on North Brother Island in New York City's East River. A "medical prisoner" for more than a quarter of a century, at first she had proved rebellious and moody, but with advancing years became profoundly religious and more philosophical in her acceptance of fate. She suffered a paralytic stroke on Christmas Day, 1932. Of Irish extraction, she managed to conceal her exact age, but was believed to be about 70. She was buried in St. Raymond's Cemetery, the Bronx.

Reprints and Pamphlets

The Librarian, University College, Dublin, would be pleased to receive offprints and pamphlets on medical subjects for the use of the staff and research workers in the Medical School of that College. The Medical Library already possesses a large collection, but it is very probable that much material on these subjects is still available.

Ether Convulsions

Dr. J. J. HOGAN (Waterford) writes: Seeing the amount of correspondence that has appeared on ether convulsions, I thought it might interest the writers and other anaesthetists if I mentioned that I have been giving ether for thirty-two years (about 20,000 cases) and I have never seen a case of ether convulsions.

Benzedrine: Correction

Dr. G. DE M. RUDOLF writes: So seldom are errors made in the reports in your columns of discussions at the Royal Society of Medicine that I would like to draw attention to one which must be the exception which proves the rule. In the account of the discussion on benzedrine (November 5, p. 961) I am reported to have said that I knew a doctor who used an inhaler about once an hour and was awake all night. Perhaps I lowered my voice so that the reporter was unable to hear, but I said that he used the inhaler more often than once an hour, and that he used it in the evening. I am drawing attention to this point as, in my experience, the inhaler used hourly, even in the evening, does not interfere with sleep.

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Canadian Medical Association Journal

Montreal vol. 33 October, 1935

- Oster Orator. H. Rolleston.—p. 333.
 Goutre from Standpoint of General Practitioner. E. M. Eberts.—p. 324.
 *Two Unrecorded Cases of Quintuplet Births, Canadian and Italian. N. Ford and G. Caruso.—p. 333.
 Syphilitic Ulcerations with Histological Picture of Carcinoma cured by Antibiotic Treatment. A. Marin and H. Betner.—p. 336.
 Head Injuries: Treatise considering Accidents. W. O. Stevenson.—p. 338.
 *Leber's Hereditary Optic Neuritis through Six Generations. Sterilization Problem. W. C. Whitehead.—p. 347.
 Experimental Study of Toxicity of Various Types of Quarts. D. A. Irwin and C. S. Gibson.—p. 349.
 Diagnosis of Heart Conditions in Early Childhood. A. P. Hart.—p. 352.
 *Slipping Rib. H. C. Ballon and L. Spector.—p. 355.
 Magnesium Trisilicate in Treatment of Peptic Ulcer. C. J. Tidmarsh and R. G. Baxter.—p. 358.
 Syphilophobia and Allied Anxieties States. F. E. Cornu.—p. 361.
 Anemia in Infancy. N. H. Coward.—p. 366.
 Three Cases of Diabetes Insipidus, one associated with Toxic Gout. H. McPhedran.—p. 370.
 Youngs Myocoe. F. A. Asleworth.—p. 374.
 Secondary Post-appendectomy Abscesses. W. A. Shandro.—p. 375.
 Improvement in Syphilis following Exfoliative Dermatitis. J. E. Westphal.—p. 377.
 Malignant Coll. T. R. Whaley.—p. 378.
 Accidental Hemorrhage during Pregnancy. R. Mitchell.—p. 379.
 Local Anesthesia in Anaesthetic Diarrhea. F. B. Bowman.—p. 379.
 Discussion of Indications for Unilateral Artificial Pneumothorax in Pulmonary Tuberculosis. T. G. Heister.—p. 385.
 Place of Bread in Normal Diet. E. G. Young.—p. 389.
 Staphylococcus Toxic. A. Branch.—p. 391.
 Thinking Part the Profession. C. Stanley.—p. 394.

Quintuplets.—Two unrecorded cases of quintuplet births are described, bringing the total number of authentic cases in medical literature up to forty-seven. The Canadian quintuplets, three girls and two boys, were born in 1880, and the Italian, three boys and two girls, in 1914.

Leber's Hereditary Optic Neuritis.—In the family under consideration here Leber's hereditary optic neuritis had affected twenty-three males in six generations. The condition is usually symmetrical, and is a sex-linked malformation of the optic nerve with atrophy of the papillomacular bundle transmitted by the female to the male.

Slipping Rib.—Recurring luxation of a costal cartilage, or slipping rib, is a condition which is often overlooked. The pain which it causes is frequently attributed to conditions of major importance in neighbouring organs. The authors have met with eight cases of slipping rib during the past five years, of which four are described in detail. The method of treatment is outlined.

Deutsche Medizinische Wochenschrift

Berlin vol. 64 September 23, 1938

- Concerning Units and System Formations in Organism. A. Benninghoff.—p. 1377.
 Vitamin-C Requirements of Human Beings. Rietschel.—p. 1382.
 Glycogen Storage Disease (Glycogenesis). F. Fischer.—p. 1385.
 Experiences with Depot-insulins. R. Ammen.—p. 1388.
 Visually Controlled Colour Photography of Interior of Stomach. N. Henning and H. Keilhack.—p. 1392.
 Cardiac Form of Chronic Benign Hypothyroidism (Masked Myxoedema). H. Schlunbaum.—p. 1394.
 Diagnosis of Gastric Ulcer in Men. H. Boehnhardt.—p. 1395.
 Renal Obstruction in Case of Diabetes with Intestinal Strangulation. L. Falkensammer.—p. 1397.
 Secondary Pellagra following Gastro-enterostomy (B₁₂-complex Avitaminosis). R. Maassen.—p. 1398.
 Emaciation. H. H. Meyer.—p. 1400.
 Osteoclastic Anemia. H. E. Conrad.—p. 1404.
 Toxins and Nervous System. A. Slauck.—p. 1407.
 Chemical and Microscopic Examinations at Bedside. H. Marx.—p. 1410.
 Experiences and Results with Ambulant Diabetes Service. G. Thiele.—p. 1412.
 *Gastric and Duodenal Ulceration as Social Problem. H. Stursberg.—p. 1414.

Gastric and Duodenal Ulceration.—A follow-up system is recommended for those patients whose gastric and duodenal ulcers have been cured, but who require special working conditions and a suitable environment if they are not to relapse.

Gazette Hebdomadaire des Sciences Médicales de Bordeaux

Bordeaux vol. 59 September 25, 1935

- Intestinal Form of Hodgkin's Disease. R. Dupré, J. Dubarry, and R. de Lachaud.—p. 562.
 Rupture of Urethra. Blanchot and Gourman.—p. 564.
 Bordeaux vol. 59 October 2, 1935
 Botany: Its Part in Biological Progress and Practical Applications. Guillemerod.—p. 573.
 Mentaire: His Dietetic Habits and Illnesses. J. Sabrazès.—p. 579.

Bordeaux vol. 59 October 9, 1935

- *Tannin in Thoracoplasty. E. Leubet and J. Maresca.—p. 591.

Tannin in Thoracoplasty.—Five possible modes of costal reossification following thoracoplasty are described, together with their results and inconveniences. For its prevention, chemical applications in the course of a subperiosteal operation are preferred to the extraperiosteal resection. Formalin is sometimes dangerous and not always effective, but the authors, on the basis of experiments in dogs and in two patients (described in detail), recommend the application of 20 per cent. tannin in dilute alcohol as sufficiently retarding bony regeneration without injuring the tissues. The advantages of performing thoracoplasty in several stages are discussed.

Bordeaux vol. 59 October 16, 1935

- Monomolecular Laminar. Devaut.—p. 605.
 Electronic Optics and Electron Microscope. Fritz.—p. 608.

Bordeaux vol. 59 October 23, 1935

- Treatment of Recent Simple Fractures of Spine. Charbonnel and A. Sicard.—p. 622.
 Gonadotropic and Melanophore-dilating Substances in Urine of Patient with Addison's Disease. R. Sarric, L. Servanue, and J. Lafon.—p. 630.

Journal of the American Medical Association

Chicago vol. 111 September 17, 1935

- Histological Aspects of Iron Therapy in Anemia. R. Haden.—p. 1059.
 Surgical Lesions of Adrenal Glands. W. Walters and E. Kepler.—p. 1061.
 Consideration of Present-day Newborn Nursery Practice. M. Spivek.—p. 1065.
 Sodium Diphenyl Hydantoin in Treatment of Convulsive Disorders. H. Merritt and T. Putnam.—p. 1068.
 Recent Researches in Nutrition in Relation to Preventive Medicine. N. Semonides.—p. 1073.
 Alcohol in Relation to Traffic Accidents. R. Holcomb.—p. 1076.
 *Anorexia Nervosa. R. Farquharson and H. Hyland.—p. 1085.
 Mental Hygiene as Related to Psychoneuroses. W. Gardner.—p. 1092.
 Physiology of Vitamin C. C. King.—p. 1095.

Anorexia Nervosa.—Farquharson and Hyland are of the opinion that cases of anorexia nervosa should be treated in the public ward of a general hospital. After careful examination the patient should be assured that there is no organic basis for the symptoms. She should be encouraged to eat at frequent intervals small but increasing quantities of food of high caloric value. This must be calculated daily until 3,000 calories are being taken, when the number of meals is decreased and the variety of food increased. The relationship between emotional disturbances and imbalance of the autonomic nervous system should be explained. Prolonged

psychotherapy may be necessary to make the patient understand the true nature of her illness and to enable her to become properly adjusted to those disturbing associations in her daily environment from which there is no escape.

Klinische Wochenschrift

Berlin vol. 17 September 17, 1938

- Psychiatry in Present-day Clinical Medicine. K. Ernst.—p. 1306.
Significance of Proof of Physiological Amino-acid Synthesis in Animal Organism. F. Knoop.—p. 1309.
Pharmacology and Use of Stimulants. F. Haffner.—p. 1310.
Effect of Adrenal Cortex Extracts on Course of Thyroxine Metamorphosis of Toad and Axolotl. K. A. Bock.—p. 1311.
Splenogenic Inhibition of Bone Marrow. H. E. Bock and B. Frenzel.—p. 1315.
Clinical Experience with Different Depot-insulins. K. Beckmann and J. Weitzsacker.—p. 1321.
Production of Zonular Cataract. M. Bücklers.—p. 1325.
Paralytic Symptoms in Pigeons following Administration of Sulphonamide Compounds and Muscular Exertion. W. Engelhardt and O. Birkenmaier.—p. 1325.
Value of Air-conditioning in Operating Theatre. F. Gross, G. Lutz, and L. Weeber.—p. 1329.
Treatment of Affections of Ear, Nose, and Throat by means of Conditioned Air. Grahe.—p. 1334.
Radiation Institute of the Katharinen Hospital of Stuttgart. A. Reisner.—p. 1337.
Dermatological Clinic of Städtisches Krankenhaus (City Hospital), Stuttgart-Bad Cannstatt. E. Schmidt.—p. 1240.
Marien Hospital. Gotz.—p. 1242.
Pharmacy of the Katharinen Hospital in Stuttgart and its Function. H. Kaiser.—p. 1243.

Berlin vol. 17 September 24, 1938

- Formation and Destruction of Haemoglobin. R. Duesberg.—p. 1353.
Comparative Investigations into Methods for Determining Capillary Resistance. T. Jersild and A. Elmbj.—p. 1359.
Benign Lymphocytic (Aseptic) Meningitis. H. Glatzel.—p. 1360.
B. coli Infection of Duodenum. W. Grunke.—p. 1362.
*Physiology and Pathology of Intermediary Metabolism: V, Effect of Succinic Acid on Diabetic Ketosis. F. Müller and H. Buchwald.—p. 1364.
Experimental Production of Lipomatosis. K. Kuré, T. Sahara, and S. Okinaka.—p. 1366.
Gaehgans' Pallida Reaction in Cerebrospinal Fluid for Diagnosis of Syphilis. T. M. Vogelsang.—p. 1370.
Hypnotic Effect and Elimination of "Dormovits." F. Fretwurst and H. E. Never.—p. 1372.
Oxygen Pressure in Kidney. F. Meyer.—p. 1374.
Vitamin B, and Acetylcholine. B. Minz.—p. 1375.
Experimental Pancreatitis through Histamine and Peptone Shock. A. Rodrigues-Ollerios.—p. 1375.
Benzol and Gonads. J. Hett and H. Maak.—p. 1376.

Succinic Acid and Diabetic Ketosis.—Clinical investigations undertaken by Müller and Buchwald have proved that the oral administration of succinic acid ("katasuccin") had no effect on diabetic ketosis, whether residual or produced by an excessive intake of fat.

Lancet

London vol. 2 September 24, 1938

- Radiography in Pneumonia: Diagnosis of Complications and Atypical Forms. F. G. Nicholas and C. D. Agassiz.—p. 705.
Rheumatic Lung. G. Hadfield.—p. 710.
Organic Gastric Syphilis: Review and Case Report. S. M. Laird.—p. 712.
Mitral Stenosis with Chronic Passive Congestion Simulating Miliary Tuberculosis. A. F. W. Anglin.—p. 717.
*Action of Sulphanilamide on Leucocytes: Report on Fifty Ambulant Patients. C. J. C. Britton and J. Howkins.—p. 718.
Treatment of Urinary Infections in Puerperium. J. C. Cuthbert.—p. 720.
Technique for Spinal Anaesthesia. O. S. Hillman.—p. 722.
Two Cases of Pneumocephalus. J. H. Pringle.—p. 724.
Lumbar Thrombophlebitis: Complication of Retrocaecal Appendicitis and Other Pelvic Inflammations. E. Altschuler.—p. 726.
Case of Pneumococcal Meningitis treated with M & B 693. K. Robertson.—p. 728.

Sulphanilamide and Leucocytes.—Reports of occasional fatalities from agranulocytosis following the administration of sulphanilamide prompted the authors to perform serial leucocyte counts in fifty ambulant female patients each receiving 21 grammes of sulphanilamide in fourteen days. A transient polymorphonuclear leucopenia was found in 46 per cent., and in 44 per cent. a monocytosis—usually between the seventh and twentieth days. The toxic symptoms—generally mild—were noted in 70 per cent. of these cases are analysed.

Medical Journal of Australia

[Sydney vol. 2 August 13, 1938

- Vitamins in Nutrition of Children. D. Vickery.—p. 225.
Nutrition of Children. E. Stephen.—p. 228.
Nutrition of the Child. F. Hansman.—p. 233.
Psychology, Baby Health, and Child Welfare. E. Swanton.—p. 235.
Problem of the Partially Sighted? J. Barrett.—p. 242.
Some Recent Advances in Physical Therapy. E. Dark.—p. 243.

Sydney vol. 2 August 20, 1938

- *Toxic Goitre with Special Reference to End-results. A. Newton.—p. 265.
Diagnosis of Poliomyelitis. M. Powell.—p. 276.
Treatment of Trichomonas Vaginalis with Silver Picrate. H. Furnell.—p. 284.
Macrocytosis in Acholuric Jaundice. C. G. Lambie.—p. 285.
Streptococcal Meningitis treated with Sulphanilamide. C. Anderson and J. English.—p. 287.

Toxic Goitre.—This is a comprehensive study of 450 consecutive patients with toxic goitre, most of whom were treated by a one-stage subtotal thyroidectomy, with an operative mortality of 0.6 per cent. Of these cases 208 had been followed up for more than four years. In this group a complete restoration of economic usefulness was obtained in 85.7 per cent. and partial restoration in 8.3 per cent., while the end-results were unsatisfactory for various reasons in 6 per cent.

Medizinische Klinik

Berlin vol. 34 September 16, 1938

- Combination of Orthodox Medicine with Nature Cures. E. Veiel.—p. 1211.
Senile Diabetes. K. Beckman.—p. 1213.
Treatment of Diabetes with Depot-insulin. H. Robbers and W. Stoll.—p. 1215.
Mixed Ileus and its Treatment. H. v. Haberer.—p. 1218.
Diagnosis of Infiltrating Hydatid Cyst. H. Friedrich.—p. 1220.
Circulatory Disorders in Limbs and Physiotherapy. What is a "Burn"? H. Kostlin.—p. 1222.
*Puncture of Longitudinal Sinus in Infants. W. Birk.—p. 1225.
Death following Exertion: Electrocardiogram. A. Frey.—p. 1227.
Importance of Climate for Organism. F. Linke.—p. 1228.
Weather and Rheumatism. H. Lampert.—p. 1230.
Treatment of Vascular Naevi and Keloids with Radium. A. Reisner.—p. 1233.
Method of Phylogenetic Research. W. Zimmermann.—p. 1235.
Technique of Raw-food Diet and its Indications. G. Kochler.—p. 1238.

Puncture of Longitudinal Sinus.—The puncture is carried out through the fontanelle. The technique of the puncture and of intravenous injections and of blood transfusion through the longitudinal sinus is described.

Berlin vol. 34 September 23, 1938

- Effect of Flight on Hearing Organs. J. Koch.—p. 1251.
Blood Pressure and Endocrine System. H. Curschmann.—p. 1253.
"Fat-units" in Therapy of Diabetes. F. Kräupl.—p. 1257.
Diagnostic Value of Sternal Puncture. W. Grunke.—p. 1259.
*Are there any "De-inebrating" Remedies? J. Gutschmidt.—p. 1263.
Tissue Injuries through Intramuscular Injections of Calcium Sandoz. O. Siedl.—p. 1264.
Neurasthenia: Social Insurance Misled by Pretended Blindness. F. Pfister.—p. 1265.
Suicide by Tubercle Bacilli. K. Brandenburg.—p. 1266.
Diseases of Skin. H. Wilde.—p. 1266.
Parkinson's Syndrome. K. Brandenburg.—p. 1268.
Radiological Diagnosis of Diseases of Lung. A. de Veer.—p. 1268.

"De-inebration."—According to Gutschmidt there are no remedies capable of counteracting alcoholic intoxication or of influencing the results of the test for the concentration of alcohol in the blood.

Medizinische Welt

Berlin vol. 12 September 17, 1938

- New Problems and Results in Metabolic Diseases. G. Schlomka.—p. 1347.
Gout. F. Gudzent.—p. 1347.
Hyperthyroidism. W. Komant.—p. 1349.
Advantages of Zinc-protamine-insulin. K. Veiel.—p. 1354.
Treatment of Diabetes with "Delayed-action" Types of Insulin. H. Baum.—p. 1359.

Münchener Medizinische Wochenschrift

Munich vol. 85 September 16, 1938

- Some Terms of Treatment of High Blood Pressure. P. Mattioli—p. 1409.
Significance of Arrhythmia for Understanding of Action of Digitalis. E. Iders—p. 1415.
Arrhythmias and Paroxysmalities. R. Stachin—p. 1419.
Anemia in Gastric Carcinoma. H. v. Hoesslin—p. 1421.
Diabetes Insipidus. W. Lutz—p. 1425.
Electrocardiographic Records of Rest and Exercise. H. Kammerer and H. Naegebach—p. 1428.
Paroxysmal Tachycardia. S. Lauter—p. 1430.
Partial Alectasis of Lung. Biardi—p. 1432.
Liver Therapy in Theory and Practice. R. Duesberg—p. 1435.
Diseases of Cauda Equina. H. Jarchfeld—p. 1438.
Tripartite Factors in Nutrition. K. Fehr—p. 1440.
Test Tuberculous Simulating Polyarthritides. A. A. Dornier—p. 1442.
Nephritis and Water Economy in Body. A. Perach—p. 1446.
Attitude of Practitioner in Presence of Acute Conduction Disturbance to Life. H. Baur—p. 1448.
Microchemicals in Blood Transfusions. L. Fischer—p. 1456.
Perception and Circulation since Auerhueser and Laennec. A. Perach—p. 1459.

Munich vol. 85 September 23, 1938

- Tuberculosis. H. Hoffelder—p. 1465.
Latest Results of Transurethral Electrosurgical Resection of Prostate. B. Reiser—p. 1467.
Herpes Zoster and Chicken-pox. V. Hourand—p. 1468.
Poisoning with "Africa Spent." O. Merdinger—p. 1469.
Can Psychotherapy be Learned and Taught? J. Schulz—p. 1470.
Goal of Psychotherapy. M. Götz—p. 1472.
Dietetic Principles in Rheumatism. A. Brauchle—p. 1473.
Infection Treatment of Hernia and Pottery. R. Goldhahn—p. 1475.
Hospitals and Air Raids. C. Reimers—p. 1476.

New England Journal of Medicine

Boston vol. 219 September 22, 1938

- *Human Encephalitis caused by Virus of Eastern Variety of Equine Encephalomyelitis. L. D. Fothergill, J. H. Dingle, S. Farber, and M. Connelley—p. 411.
Role of Rest and Exercise in Congestive Heart Failure. D. Davis—p. 412.
Two Years of Diabetic Surgery. B. Rabonovitz and J. Weisman—p. 423.
Ratweed-pollen Survey in Maine for 1937. C. B. Sylvester and O. C. Durham—p. 428.
Dissecting Aneurysm and Sarcoma of Duodenum. A. J. Mendillo and W. B. Koufman—p. 432.
Progress in Dermatology. J. L. Grund—p. 434.

Human Encephalitis from Virus of Equine Encephalomyelitis.—This is a preliminary report of a fatal case of encephalitis in a boy aged 7. The aetiological agent has been shown to be the virus of the Eastern type of equine encephalomyelitis.

Nordisk Medicinsk Tidskrift

Stockholm vol. 16 September 17, 1938

- Potassium-poor Diet in Treatment of Addison's Disease. A. Jervell—p. 1447.
Bresler's Prurigo. G. Bostrom—p. 1450.
*Psychiatric Examination of Prostitutes in Copenhagen, with Special Reference to Mental Hygiene Measures. G. V. Bredmose—p. 1456.

Psychiatric Examinations.—The publication in March, 1936, of Dr. Tage Kemp's monograph on the causes of prostitution has inspired the institution of arrangements for the systematic psychiatric examination of prostitutes arrested by the Copenhagen police. Bredmose's study deals with seventy prostitutes thus examined between April, 1936, and April, 1938. It shows how important a part a psychiatric examination may play in dealing with this problem.

Presse Médicale

Paris vol. 46 September 21, 1938

- *Vascular Therapy in Aortic and Mitral Insufficiency. A. Ferrannini—p. 1401.
*Gangrene of Limbs of Venous Origin. M. Audier and H. Halmovici—p. 1403.
*Role of Vitamin B₁ in Humoral Regulation of Nervous System: Therapeutic Considerations. B. Minz—p. 1406.

Vascular Therapy in Heart Disease.—Ferrannini claims that great harm is sometimes done, in mitral or aortic insufficiency,

by the administration of remedies such as digitalis and strophanthin. They act in the same direction as the lesion and thus tend to intensify its effects—for example, in aortic insufficiency these drugs tend to increase diastole and to intensify systole, thus raising the systolic and reducing the diastolic pressure and aggravating the already excessive pulse pressure. He therefore prefers to use general tonics in conjunction with various physical methods, of which he gives a detailed list.

Venous Gangrene.—The authors discuss the problem of gangrene of the limbs of venous origin from the historical, clinical, pathological, and experimental points of view. They come to the conclusion that four chief factors are involved in these cases: (1) arrest of the circulation; (2) venous stasis; (3) vasomotor disturbances; and (4) certain general conditions, such as infectious diseases, tuberculosis, cachexia, etc.

Vitamin B₁ and the Nervous System.—The author discusses the role of acetylcholine in the regulation of the nervous system, and claims that the destruction of this substance by the esterase in the tissues (which can be partially inhibited for a short time by eserine) can be effectually prevented by vitamin B₁, which reinforces the action of acetylcholine without interfering with the esterase mechanism. Minz points out the significance of this fact for the treatment of certain nervous diseases.

Paris vol. 45 September 24, 1938

- *Extracutaneous Localization of Myxoedema. G. Marañon—p. 1417.
*Malaria as Parasitic Disease of Reticulo-endothelial System. G. Sicault and A. Messelin—p. 1419.

Extracutaneous Myxoedema. Marañon states that there is no *a priori* reason why myxoedema should be confined to the subcutaneous tissues. He then proceeds to give instances of myxoedema affecting the mucosa of the nose, pharynx, and larynx; that of the digestive canal from the mouth to the anus; that of the vulva and vagina; the heart, liver, and kidneys; and also the nervous and locomotor systems.

Malaria.—The authors, who are in charge of the French anti-malarial service in Morocco, explain their reasons for believing that malaria is primarily a disease of the reticulo-endothelial tissues and only secondarily a disease of the blood. They also show the bearing of these views on the treatment and prophylaxis of malaria.

South African Medical Journal

Capetown vol. 12 September 24, 1938

- Unholy Triad: Tuberculosis, Venereal Disease, Malnutrition. P. W. Laidler—p. 658.
Obstetrics: Ancient and Modern. J. A. Lloyd—p. 666.
Surgical Aspect of Endocrinology. A. G. Sweetapple—p. 669.
Medical Aspect of Endocrine Disease. J. S. Alexander—p. 673.
Gynaecological Aspect of Endocrine Disease. D. F. Standing—p. 676.

Ugeskrift for Læger

Copenhagen vol. 100 September 15, 1938

- Serum Treatment of Type 3 Pneumonia. H. C. Gram—p. 1045.
Pneumonia treated with Pneumococcal Serum in General Practice. R. Hurwitz—p. 1046.
Ascorbic Acid during Pregnancy, Labour, Puerperium, and Child's First Year of Life. A. Elmby and P. Becker-Christensen—p. 1047.
Foreign Bodies in Heart. F. Mehlen—p. 1051.
***The Scandinavian Disease. J. Christensen—p. 1054.

"The Scandinavian Disease."—Johanne Christiansen found in Berlin that agranulocytosis following the administration of amidopyrin preparations was referred to as "the Scandinavian disease." She has come to the conclusion that the "pyramidon-terror" is strictly limited to Scandinavia, and to Denmark in particular. She suggests that the faulty nutrition of her countrymen may give rise to allergic susceptibility to otherwise harmless substances.

Wiener Klinische Wochenschrift

Vienna vol. 51 September 16, 1938

- Human Anomalies and Eugenics. E. Pernkopf.—p. 967.
 Dislocation of Semilunar Cartilages. L. Böhler.—p. 972.
 Aneurysm of Coronary Arteries of Heart. H. Chiari.—p. 977.
 Operative Treatment of High Blood Pressure. W. Denk.—p. 979.
 Venous Thrombosis in Anterior Abdominal Wall. H. Eppinger.—p. 982.
 Interesting Cases of Cholera during Great War. M. Eugling.—p. 984.
 Rest and Energy Output. F. Hamburger.—p. 986.
 Prognosis of Valvular Defects. N. v. Jagic.—p. 987.
 Causal Organisms of Contagious Conjunctivitis. K. Lindner.—p. 989.
 Cutaneous Form of Periarthritis Nodosa. A. Matras.—p. 991.
 X-ray Therapy of Carcinoma. E. Mayer.—p. 994.
 Exposure of Internal Carotid Artery. O. Mayer.—p. 996.
 Acute Purulent and Chronic Iridocyclitis in Damaged and Undamaged Eye. J. Meller.—p. 998.
 Importance of Thalamus in Vision. O. Potzl.—p. 1001.
 Influence of Heredity and Pregnancy on Tetany. E. Risak.—p. 1004.
 Use of Antileprol in Dermatitis. G. Scherber.—p. 1006.
 Results of Total Thyroidectomy in Cardiac Cases. v. Schürer.—p. 1009.
 Comparison of Gonadotropic Factors in Mare's Serum with Prolan on Human Ovaries. H. Siegmund.—p. 1014.
 Simple Apparatus for Examining Amount of Air in Fatality following Air Embolism. A. Werkgarter.—p. 1017.
 Simulated Anosmia. L. Lohner.—p. 1019.
 Skin Conditions in Leukaemias and Allied States. A. Fuhs.—p. 1019.
 Subserous Fascia in Thorax. A. Hafferl.—p. 1022.
 Indications for Hemithyroidectomy. G. Hofer.—p. 1024.
 Chemistry for Medical Students. H. Lieb.—p. 1026.
 Structure of Lens. A. Fischner.—p. 1028.
 Osteomyelitis of Skull. F. Lang.—p. 1030.
 Exophthalmic Goitre. B. Breitner.—p. 1032.
 On Swimming and Drowning. K. Meixner.—p. 1035.
 Diabetes and Tuberculosis in Children. R. Priesel.—p. 1038.

Wiener Medizinische Wochenschrift

Vienna vol. 88 September 3, 1938

- Importance of Dermato-histology to Practitioner. S. Wolfram.—p. 943.
 Contribution on Mutual Effect of Simultaneous Diseases. M. Dobreff.—p. 945.
 Totalitarian View in Dental Medicine. W. Wagner.—p. 949.
 Pain and Prevention of Pain (Report of Neurological Congress in Paris, 1937).—p. 950.
 Remarks on Dr. E. Wesely's Contribution on Bronchography in No. 31, 1934. J. Sörgo.—p. 954.

Vienna vol. 88 September 10, 1938

- Formation of Hallux Valgus. C. Ewald.—p. 973.
 Asepsis under Limited Conditions. J. Riese.—p. 974.
 Surgical Indications and Treatment in Diabetes. F. Starlinger.—p. 978.
 Surgery of Basedow's (Graves's) Disease. H. Kunz.—p. 981.

Vienna vol. 88 September 17, 1938

- New Results in Investigations of Female Sex Hormones and their Practical Importance. L. Kraut.—p. 999.
 Ménière's Disease and Other Forms of Giddiness. F. Fremel.—p. 1003.
 *Recurrent Agranulocytosis. E. J. Matis.—p. 1006.

Recurrent Agranulocytosis.—This is a report on two cases in women, who apparently recovered completely from their original attacks of agranulocytosis, but who died seven months and two and a half years later, respectively, from a fatal recurrence of the disease.

SPECIAL JOURNALS

American Journal of Cancer

Lancaster vol. 34 September, 1938

- Observations on Chorion Epithelioma Testis with Case Record. S. McDonald, jun.—p. 1.
 Carcinoma of Kidney in Leopard Frog: Occurrence and Significance of Metastasis. B. Lucké.—p. 15.
 Leiomyoma of Oral Cavity. A. P. Stout.—p. 31.
 *Carcinogenic Activity, Structure, and Chemical Reactivity of Polynuclear Aromatic Hydrocarbons. L. F. Fieser.—p. 37.

Carcinogenic Hydrocarbons.—In the first part of this long critical review Fieser deals with the activity of the three best-known carcinogenic hydrocarbons (1:2:5:6-dibenzanthracene, 3:4-benzpyrene, and methylcholanthrene) and discusses the influence of the physical condition and dosage of the administered material, and of the species, strain, age, and sex of the animal upon the carcinogenic response. The second part provides information about the commercial sources of the same three hydrocarbons and the methods of preparation and purification. The third part contains a discussion of the relationship between chemical structure and carcinogenic activity, and the concluding part deals with the fate of carcinogenic hydrocarbons in the body, and with chemical properties and reactions which may be significant in regard to the carcinogenic activity.

Annals of Internal Medicine

Lancaster vol. 12 September, 1938

- Heart in Pulmonary Tuberculosis: Electrocardiographic Consideration. W. R. Leverton.—p. 285.
 Common Gastro-intestinal Emergencies and their Medical Aspects. G. B. Eusterman.—p. 306.
 Clinical Observations, Complications, and Treatment of Acute Upper Respiratory Tract Infections. A. V. Bock.—p. 317.
 Constitutional Factors in Arthritis, with Special Reference to Incidence and Role of Allergic Diseases. R. T. Pottenger.—p. 323.
 Affective Disorders in Medical Practice. T. P. Sprunt.—p. 334.
 Studies on Life Histories of Patients with Chronic Ulcerative Colitis (Thrombo-ulcerative Colitis), with Some Suggestions for Treatment. J. A. Bargen, R. J. Jackson, and J. G. Kerr.—p. 339.
 Quinine and Atebrin: Comparison. O. T. Brosius.—p. 353.
 *Coronary Artery Disease and Angina Pectoris: Present Status with Review of Some of Recent Literature. J. C. Brill.—p. 365.

- *Mechanism of Heat Loss and Temperature Regulation. E. F. Du Bois.—p. 388.
 Lymphatic Leukaemia of Twenty-five Years' Duration. C. W. McGowan.—p. 396.
 Paroxysmal Haemoglobinuria with Case Report. A. C. Woolter and B. S. Parks.—p. 402.
 Pericarditis with Effusion complicating Tularemia. D. D. Stoffer.—p. 407.

Coronary Artery Disease and Angina Pectoris.—The clinical pictures and the pathological findings in the various types of coronary artery disease and angina pectoris are reviewed and correlated. The differential diagnosis of atypical clinical forms of the conditions is discussed and the value of the available remedies considered.

Mechanism of Temperature Regulation.—An account is given of recent work on the balance between heat production and heat loss in the body. The importance of the part played by the factors concerned in heat loss in differing external conditions is indicated, and the importance of shivering, or tensing of the muscles, in accelerating heat production is stressed.

Annals of Otolaryngology and Rhinology

St. Louis vol. 47 September, 1938

- *Problem of Intranasal Medication. T. E. Walsh and P. R. Cannon.—p. 579.
 Explanation of Respiratory Failure sometimes occurring after Successful Tracheotomy. V. E. Neigus.—p. 608.
 Psychiatric Therapy in Dysphemia and Dysphonia: Stuttering, Psychophrenia, Aphonia, Falsetto. J. S. Greene.—p. 615.
 Incidence of Stuttering among Deaf. O. Backus.—p. 632.
 Recent Advances in Diagnosis and Treatment of Deafness. G. E. Shambaugh.—p. 636.
 Chordoma: Two Cases. R. F. Ridpath.—p. 649.
 Rhinophonia Macrostaphyla. C. H. Voelker.—p. 659.
 Tracheal Stenosis from Roentgen Therapy. L. H. Clerf and F. J. Purdy.—p. 666.
 Underlying Factors concerned in Otitic Hydrocephalus. H. L. Williams.—p. 670.
 Papilloma of Tonsil: Three Cases. I. Frank.—p. 715.
 Limitations of Bronchoscopy in Treatment of Tracheo-bronchial Tuberculosis. M. C. Myerson.—p. 722.
 Osteoma of Maxillary Sinus. A. G. Rawlins.—p. 735.
 Hiatal Hernia. H. J. Moersch.—p. 754.
 Diagnosis and Treatment of Ménière's Disease. S. H. Myer and D. Dederding.—p. 768.

- Sinus Thrombosis: IV, Venous Thrombosis. C. W. Irish.—p. 775.
Spontaneous Cerebrospinal Rhinorrhoea. S. A. Friedberg and T. C. Galloway.—p. 792.
Bronchiogenic Carcinoma: Case Report. H. B. Otton.—p. 795.
Case of Dysphagia due to Osteochondroma of Cervical Spine: Osteotomy: Recovery. S. Isbauer.—p. 799.
Carcinoma of Oesophagus with Unusual Clinical Manifestations: Case Report. P. P. Vinsen and J. P. Kimmsteil.—p. 804.
Some Experimental Studies of Peroral Catheterization of Common Bile Duct. C. J. Imperatori.—p. 807.
Certain Considerations on Dysphagia associated with Anaemia. L. Johnson.—p. 809.
Consideration of Some Causative Factors of Veretral Bronchitis. F. T. Hill.—p. 814.
Section, Battery, and Oxygen Unit for Bronchoscopic Operating Room. P. H. Hollinger and A. H. Andrews.—p. 824.
Treatment of Tuberculous Tracheo-bronchitis. F. W. Davison.—p. 826.
Very Unusual Case of Subcutaneous Emphysema caused by Foreign Body. L. Daily.—p. 831.
Sternal Subcutaneous Operation without Nasal Pack. A. C. Howe.—p. 836.
Case of Streptococcal Meningitis with Streptococcaemia: Recovery. A. Lewy.—p. 839.

Intranasal Medication.—There appears to be an increase in the incidence of so-called "lipoid pneumonia," a chronic lung condition which results from the prolonged use of oily sprays for nose and throat conditions. The authors studied in the lungs of rabbits the early changes which followed intranasal instillation of oils and watery solutions of antiseptics, astringents, and vasoconstrictors. The most suitable vehicle for intranasal medication is isotonic salt solution, as it causes no interference with ciliary activity. The mild silver proteins cause no apparent harm to ciliary activity, but their antiseptic value is doubtful.

Annals of Surgery

Philadelphia vol. 103 August, 1938

- *Heparin in Thrombosis. G. D. W. Murray and J. C. H. Best.—p. 163.
Experimental and Clinical Shock, with Special Reference to its Treatment by Intravenous Injection of Preserved Plasma. E. B. Mahoney.—p. 178.
*Operative Treatment of Communicating Hydrocephalus. W. E. Dandy.—p. 194.
Primary Malignancy of Jejunum and Ileum. A. L. Cameron.—p. 203.
Surgical Aspects of Lesions of Meckel's Diverticulum. N. A. Womack and R. B. Sargent.—p. 221.
Traumatic Rupture of Bile Ducts. K. M. Lewis.—p. 237.
*Clinical Significance of Pancreatic Reflux. R. Colp and H. Doubilet.—p. 243.
Studies on Renal Hypertension. W. A. Geer and L. R. Dravet.—p. 263.
Primary Carcinoma of Ureter. C. C. Higgins.—p. 271.
Fate of Tendon, Fascia, and Elastic Connective Tissue transplanted into Bone. G. Kernwein, J. Fahes, and M. Garrison.—p. 285.
Excision in Treatment of Ununited Fracture of Carpal Scaphoid (Navicular) Bone. A. J. Davidson and M. T. Horwitz.—p. 291.
Osseous System in Hodgkin's Disease. H. S. Abrams.—p. 295.
Sublingual Epidermoid Cysts. B. R. Shore.—p. 305.
Regeneration of Sensation in Transplanted Skin. H. R. McCarrroll.—p. 309.

Heparin in Thrombosis.—Purified heparin is non-toxic, both in animals and humans, and may be employed clinically in cases such as embolectomy and arterial suture where intravascular clotting presents a problem. Its use as a prophylactic against post-operative thrombosis is discussed. (See also *Journal*, November 12, p. 977.)

Communicating Hydrocephalus.—This is a description of the technique of additional procedures, such as removal of the plexus of the body of the lateral ventricles and fourth ventricle, which may be employed in cases in which removal of the glomus alone is insufficient to effect a cure.

Pancreatic Reflux.—The presence of amylase in the common bile duct is an index of pancreatic reflux. The common duct appears to be unaffected by the presence of pancreatic ferments, but these may cause acute cholecystitis in the gall-bladder.

Archiv für Dermatologie und Syphilis

Berlin vol. 178 1938 Heft 6

- Cholesterol Content of Superficial Layers of Skin in Seborrhoea and Psoriasis: Study of Biochemical Changes in Skin in Seborrhoea. A. Marchionini, E. Manz, and F. Huss.—p. 613.
Comparative Studies of Extracts obtained from Porpoise Skins, White and Pigmented. F. Schaaf.—p. 646.

- Isolated Mamillary Hyperkeratosis Follicularis and Parafollicularis. K. Holter.—p. 659.
Elephantias Tuberosus Myxoedema Circumscriptum in Basedow's Disease. A. Marchionini and D. Jahn.—p. 694.
*Animal Experiments in Fever Therapy of Syphilis. G. Borchers.—p. 705.
*Chemotherapy of Gonorrhoea. J. Kimmiz.—p. 722.
Case of Diffuse Subacute Benign Lymphogranulomatosis with Lupus Follisculis. P. Bonnet.—p. 732.
Case of Blastomycosis Pustulenta Profunda. A. Dosa.—p. 743.
Effect of Acid and Alkaline Diet on White Blood Cells in Skin of Mice. H. Trill.—p. 747.

Fever Therapy of Animal Syphilis.—The author discusses the rationale of the malarial treatment of neurosyphilis and the suggestion that the beneficial effects are mainly due to induced fever rather than to malaria *per se*. Fever is believed to produce its effect by stimulation of the production of immunity. He reviews the literature on the treatment of animal syphilis by artificially induced fever, and describes his own experiments. He concludes that fever alone is not effective in healing the lesions of rabbit syphilis, but that the action of salvarsan is reinforced by the addition of fever, especially when the two treatments are given on the same day.

Chemotherapy of Gonorrhoea.—The chemical composition of some derivatives of sulphanilamide and some facts and theories as to their action on the gonococcus and gonococcal infections are discussed. It is suggested that these preparations have a double action in arresting the growth of the organism and stimulating the defences of the host by an effect on the reticulo-endothelial system.

Archives of Internal Medicine

Chicago vol. 62 October, 1938

- Action of Digitalis in Compensated Heart Disease. H. J. Stewart, N. F. Crane, J. E. Deitrick, and W. P. Thompson.—p. 54.
*Action of Digitalis in Uncompensated Heart Disease. H. J. Stewart, J. E. Deitrick, N. F. Crane, and C. H. Wheeler.—p. 569.
Clinical Studies of Respiration. VII. Additional Observations concerning Validity of Results obtained with Body Plethysmograph. J. A. Green, L. W. Swanson, and R. H. Heeren.—p. 593.
Pneumonia complicated by Acute Pneumococcal Haemorrhagic Ulcerative Gastro-enteritis (Kieulafsky's Erosion): Two Cases. C. H. Sanford, J. D. Hughes, and J. Weems.—p. 597.
Diabetes Insipidus as Sign of Metastatic Involvement of Supra-optic-hypophyseal System. M. Bernstein, M. T. Moore, and D. B. Fishbach.—p. 604.
*Chemical Factors concerned in Formation of Gall-stones. R. E. Dolbart, K. K. Jones, and C. F. G. Brown.—p. 615.
Primary Carcinoma of Lung: Clinical and Pathological Study of 100 Cases. S. Koltelsky.—p. 636.
Gastro-enterology: Review of Literature from January, 1937, to June, 1938. C. M. Jones, T. V. Umy, E. B. Benedict, M. H. Clifford, and B. V. White.—p. 652.

Digitalis in Heart Failure.—Digitalis decreases the size of the heart and increases ventricular contraction. In the normal heart the decrease in size of the cavity of the ventricle, by reducing the capacity of the heart, reduces the cardiac output. In the diseased enlarged heart the decrease in ventricular capacity is relatively unimportant, and the effect of digitalis in increasing ventricular contraction is shown by an increase in cardiac output.

Formation of Gall-stones.—Gall-stones are common in the ox and hog but do not occur in the sheep and dog; human gall-stones placed in bile from the latter animals are dissolved. This solvent capacity appears to be related to the fatty acid content. Human bile has a very low content of fatty acids. It is suggested that the fatty acids of bile play a more important part in maintaining cholesterol in solution than do the bile acids.

Archives of Neurology and Psychiatry

Chicago vol. 40 August, 1938

- *Biopsy Studies of Cerebral Pathological Changes in Schizophrenia and Manic-depressive Psychosis. A. R. Ely and G. E. Reed.—p. 227.
*Sweat Secretion in Man: III. Clinical Observations on Sweating produced by Pilocarpine and Mecholyl. C. F. List and M. M. Peet.—p. 269.
Intracerebral Blood Flow: Experimental Study. N. C. Norcross.—p. 291.

- Mechanism of Alter-contraction: Further Studies M. R. Sapirostein, R. C. Herman, and I. S. Wechsler.—p. 300.
- *Intercellular Substance of Cerebral Cortex (Nissl's Cerebral Grey Matter): Physiological Significance A. E. Tait.—p. 313.
- Moro Reflex and Startle Pattern K. Goldstein, C. Landis, W. A. Hunt, and F. M. Clarke.—p. 322.
- Arnold-Chiari Malformation and its Operative Treatment. W. Penfield and D. F. Coburn.—p. 328.
- Distribution of Affected Nerve Cells in Case of Amyotonia Congenita, J. L. Conel.—p. 337.
- Thalamic Dysfunction: Report of Case in which Thalamic Syndrome was treated by Excision of Porencephalic Cyst H. L. Kozol.—p. 352.

Pathology of Schizophrenia.—Elvidge and Reed have studied the oligodendroglia in cerebral tissue removed at biopsy by brain puncture. Using silver impregnation methods they found swelling of the oligodendroglia in the white matter in cases of schizophrenia and manic-depressive psychosis. They suggest that these changes may indicate massive physiological disturbances in the associational and commissural pathways of the brain, and that a causal toxic or metabolic factor may be present in the psychotic state.

Sweat Secretion.—In their third article on sweat secretion List and Peet have studied the sweating produced by pilocarpine and mecholyl, especially with regard to the site of action of these drugs. Observing the responses in different nerve lesions, they conclude that these drugs stimulate the endings of cholinergic nerve fibres and that the sweating is not centrally produced.

Intercellular Substance of Cerebral Cortex.—Using the dark-field microscope, Tait has made observations on the intercellular substance of the cerebral cortex. Its physical and physiological characteristics are analogous to those of serum protein. It furnishes an embedding material for the cortical cells and is altered in pathological conditions, especially dementia paralytica, in which it is thinned and diminished in amount.

Archives of Otolaryngology

Chicago vol. 28 September 1938

- Evolution of Speech Organs of Man V. E. Negus.—p. 313.
- Diseases of Ventricle of Morgagni, with Special Reference to Pyocoele of Congenital Air Sac of Ventricle. A. O. Freedman.—p. 329.
- Cancer of Laryngopharynx. H. B. Orton.—p. 344.
- *Pathological Differentiation between Radiosensitive and Non-radiosensitive Malignant Neoplasms of Larynx. W. Harris and P. Klempner.—p. 355.
- Haemolytic Streptococcus Meningitis of Otitic Origin: Report of Recovery. P. Jacks.—p. 364.
- *Spontaneous Haemorrhage into Maxillary Sinus. S. S. Hall and H. V. Thomas.—p. 371.
- Lympho-epithelioma (Schminke Tumour). W. M. Fitzhugh.—p. 376.
- Influenza with Simultaneous Bilateral Spontaneous Pneumothorax and Subcutaneous Emphysema. A. H. Neilson and J. G. M. Bullowa.—p. 388.
- Congenital Dermoid Cyst and Fistula of Dorsum of Nose. E. W. Hagens.—p. 399.
- Bilateral Acoustic Neurofibromas. W. M. Craig and E. J. Steenrod.—p. 404.
- Paralysis of Inferior Oblique Muscle following Caldwell-Luc Operation. J. N. Novick.—p. 412.

Radiosensitivity of Malignant Neoplasms.—The author analysed the results obtained in a series of thirty-two successive cases of laryngeal carcinoma in which the only treatment was roentgen irradiation according to the principles of Coutard. Pieces of the tumours were sectioned and classified according to Broder's method. The authors conclude, contrary to accepted opinion, that for all practical purposes there are no pathological criteria which permit differentiation between radiosensitive and radioresistant laryngeal carcinomata if protracted fractional roentgen therapy has been used.

Haemorrhage into Maxillary Sinus.—Over a period of ten years the author has treated twelve patients with spontaneous maxillary sinus haemorrhage. Such cases are rare, and the only characteristic finding is evidence of active bleeding from the middle meatus on the involved side. The condition occurs as an occasional complication of hyperplastic maxillary sinusitis. In ten patients an external radical operation on the antrum was performed; in two the bleeding was controlled by antral lavage and did not recur.

British Journal of Ophthalmology

London vol. 22 October, 1938

- *Suppression of Vision in Squint and its Association with Retinal Correspondence and Amblyopia. T. A. B. Travers.—p. 577.
- *New Technique for Application of Radon Seeds to Sclera in Treatment of Glioma Retinae. H. B. Stallard.—p. 604.
- Cataract associated with Hereditary Retinal Lesion in Rats. M. C. Bourne, D. A. Campbell, and M. Pyke.—p. 608.
- Hereditary Degeneration of Rat Retina. M. C. Bourne, D. A. Campbell, and K. Tansley.—p. 613.

Suppression of Vision in Squint.—Suppression does not always produce amblyopia; suppression only occurring when the other eye is fixing. Areas of suppression may be investigated by the colour test or the mirror-screen test. In normal correspondence the suppression is in the macular area, while in abnormal correspondence there is a larger area of suppression but not in the macular area. The grades of binocular vision enunciated by Worth are revised by the author. Simultaneous perception may develop normally or abnormally. If the former, it is succeeded by normal correspondence, true fusion, and stereoscopic vision. Abnormal development leads to abnormal correspondence.

Radon Seeds.—A new method of applying radon seeds to the sclera for the treatment of intraocular growths consists in stitching in the desired position a mould of dental stent containing the radon seeds.

Encephale

Paris vol. 33 May, 1938

- *Pearly Tumours. H. Askenasy.—p. 209.
- Emotional Delirium and Disseminated Sclerosis. Aubin and A. Barraut.—p. 239.
- Clinical Electro-encephalography: Technique and Results at Central Pathological Laboratory of Maudsley Hospital in London. J. Golse.—p. 244.

Pearly Tumours.—The structure of these tumours (cholesteatomas), their origin, and their clinical features are described. Six detailed case reports are given.

Paris vol. 33 June, 1938

- Mescaline Hallucinations and Psycho-sensorial Disorders of Chronic Epidemic Encephalitis. H. Ey and M. Rancoule.—p. 1.
- Modifications in Vestibular Chronaxie produced by Alcohol in Alcoholic Patients. C. Niemirów-Szczyt.—p. 26.
- Modifications in Vestibular Chronaxie in Rabbits under Influence of Alcohol. M. Brun.—p. 46.

Fortschritte der Therapie

Leipzig vol. 14 August, 1938

- Use of Local Anaesthesia in Internal Medicine. W. Schemensky.—p. 191.
- Progress in Therapy of Arthritis Deformans. W. König.—p. 399.
- Thyrotoxicosis and Ovarian Insufficiency. E. Regenbogen.—p. 407.
- Therapy of Primary and Secondary Inertia in Labour. E. Hoff.—p. 413.
- Raw Plant Juice in Treatment: I. E. Heun.—p. 417.
- *Treatment with Snake Venom. V. Hollrand.—p. 425.

Snake Venom.—Snake venom (from *Vipera amodytes*) was used for the treatment of rheumatoid arthritis in a series of seventy cases. Intracutaneous injections of from 1/100 to 5 mouse units were given weekly in increasing doses. The pain and relative immobility of the affected joints were diminished. Pain was relieved in cases of arthritis, sciatica, lumbago, and in senile arthropathy.

Leipzig vol. 14 September, 1938

- Emaciation and its Treatment. S. Lauter.—p. 419.
- Treatment of Diabetes with Depot Insulin. P. Koester.—p. 457.
- Methods of Decreasing Number of Injections in Treatment of Diabetes. H. Sohler.—p. 464.
- Raw Plant Juice in Treatment: II. E. Heun.—p. 467.
- Large Doses of Digitalis Intravenously in Dangerous Tachycardiac Conditions. R. Aschenbrenner.—p. 474.
- Final Results of "Immetal" Therapy in Genuine Arthrosis Deformans. H. R. Paas.—p. 481.

Human Biology

Baltimore vol. 10 September, 1938

- Development of Alveolar Arches in Normal and Abnormal Occlusion. M. S. Goldstein and F. L. Stanton.—p. 327.
- Contour Maps, Centre of Gravity, Moment of Inertia, and Surface Area of Human Body. A. P. Weibich.—p. 356.
- Effect of Contraception upon Human Fertility. G. W. Beebe and C. J. Gamble.—p. 372.
- Depressions, Weather, and Health. C. A. Mills.—p. 385.
- Variability of Nitrogen Excretion in Twenty-four-hour Periods as compared with that in Longer Periods. L. W. Sonzogn and M. Petzinger.—p. 409.
- Relationship between Height and Weight in Male and Female Infants between Ages of 2 Weeks and 1 Year. T. E. Rafter.—p. 409.
- Spousal Estimation of Emotionality. R. R. Willoughby.—p. 417.

Journal of Bacteriology

Baltimore vol. 35 August, 1938

- *Degeneration and Variation of Gonococci. W. A. Carter.—p. 111.
- Studies on Haemolytic Streptococci: V. Characteristics of Human and Animal Strains of Groups A and C. A. C. Evans and E. Verder.—p. 133.
- Nutrient Requirements of *L. delibruki* in Lactic Acid Fermentation of Molasses. H. R. Siles and L. M. Pruett.—p. 149.
- Absorption of Staphylococcus Bacteriophages by Enterococci. M. L. Ralston and E. J. Tiffany.—p. 155.
- Microbiology of Ureter Air: III. Improved Apparatus and Technique for Upper Air Investigations. B. E. Procter and B. W. Parker.—p. 175.
- Cotinine Stimulation of Yeast Growth fails to reveal Mitosis. O. W. Richards.—p. 157.
- Simple Method for Sterile Filtration of Small Amounts of Fluid. I. N. Ashchov.—p. 197.
- Nutrition of Promonic Acid Bacteria. H. G. Wood, A. A. Andersen, and C. H. Werkman.—p. 201.

Variation in Gonococci.—Serological typing of gonococci must take account of the fact that cultivation on artificial media causes a degenerative change with loss of type-specificity. Evidence is presented that gonococci also undergo this change in the body when the disease passes into its chronic stage.

Journal de Chirurgie et Annales de la Société Belge de Chirurgie

Brussels vol. 37 July-August, 1938

- Surgery of Lung (excluding Tuberculosis). O. Coquet and J. Govaerts.—p. 218.
- Regional Anaesthesia in Surgery of Lung. P. Santy.—p. 218.
- Result of Treatment of Abscess of Lung. P. Santy.—p. 220.
- Pulmonary Suppuration. de Fourmetraux.—p. 223.
- Notes on Surgery of Lung. R. Monod.—p. 224.
- *Role of Bronchoscopy in Surgery of Tumour and Abscess of Lung. A. Soula.—p. 233.
- Notes on Pulmonary Surgery. Lardennois.—p. 238.
- Surgical Repair of Nerves. L. Christophe and E. Laduron.—p. 242.
- Regeneration of Nerves. A. P. Dustin.—p. 242.
- Case of Regeneration of Median Nerve. Sauvage.—p. 247.
- Surgical Repair of Nerves. Olienick.—p. 248.
- Cases of Injury of Peripheral Nerves. P. Martin.—p. 250.
- Grasis of Marrow. J. Cahen.—p. 251.
- Stenosis of Axillary Artery following Wound of Thorax. J. Cahen.—p. 253.

Bronchoscopy.—Emphasis is laid on the value of collaboration between the bronchoscopist and the surgeon in the treatment of lesions of the lung. Bronchoscopy is indispensable for the establishment of an early and exact diagnosis in cases of broncho-pulmonary tumours, and is also useful during the course of lung operations.

Journal of Experimental Medicine

Baltimore vol. 68 August 1, 1938

- Unidentified Virus producing Acute Meningitis and Pneumonitis in Experimental Animals. T. Francis, jun., and T. P. Magill.—p. 147.
- Effect of Corticosterone and Related Compounds on Renal Excretion of Electrolytes. G. W. Thorn, L. L. Engel, and H. Eisenberg.—p. 161.
- Intraperitoneal and Intracerebral Routes in Serum Protection Tests with Virus of Equine Encephalomyelitis: I. Comparison of Two Routes in Protection Tests. P. K. Olitsky and C. G. Harford.—p. 173.
- Production of Experimental Osteomyelitis in Rabbits by Intravenous Injection of *Staphylococcus aureus*. R. H. S. Thompson and R. J. Dubos.—p. 191.

- *Sensory Neurone Degeneration in Vitamin Deficiency. Degeneration of Posterior Columns of Spinal Cord, Peripheral Nerves, and Dorsal Root Ganglion Cells in Young Pigs fed a Diet containing Thiamin (B₁) and Riboflavin but otherwise Deficient in Vitamin B Complex.—M. M. Wintrobe, D. M. Mitchell, and L. C. Kolb.—p. 207.
- Isolation of Blood Group A Specific Substance from Commercial Peptone. W. F. Goebel.—p. 221.
- Factors Influencing Persistence of Choriomeningitis Virus in Blood of Mice after Clinical Recovery. E. Traub.—p. 229.
- Passage of Rabbit-virulent Type III Pneumococci from Respiratory Tract of Rabbits into Lymphatics and Blood. R. Z. Schulz, M. F. Warren, and C. K. Drinker.—p. 251.
- Relation between Degree of Immunity of Mice following Vaccination with St. Louis Encephalitis Virus and Titre of Protective Antibodies of Serum. H. L. Hodges and L. T. Webster.—p. 263.
- Sensitization and Antibody Formation with Increased Resistance to Tuberculous Infection induced by Heat-killed Tubercle Bacilli. J. Freund and E. L. Orin.—p. 273.

Neurone Degeneration in Vitamin Deficiency.—An attempt to produce a condition akin to pernicious anaemia in young pigs had an unexpected and hitherto unexplained result. The dietary deficiency employed was the substitution for yeast of thiamin (vitamin B₁) and riboflavin, and its effect was a selective degeneration of the peripheral sensory neurone causing severe ataxia. In spite of symptomatic resemblances this condition differs in its morbid anatomy from tabes, pellagra, and subacute combined degeneration of the cord. An attempt is now being made to determine whether deficiency of any component of the B₁ complex is responsible.

Journal of Industrial Hygiene and Toxicology

Baltimore vol. 20 October, 1938

- *Heated Thermometer Anemometer. C. P. Yaglou.—p. 467.
- Use of New Equipment and Helium Gas in World Record Dive. Edgar End.—p. 511.
- Can Lead Poisoning cause Gastro-duodenal Ulcers? C. Casper.—p. 521.
- Methaemoglobinemia and its Measurement. D. O. Hamblin and A. F. Mangelsdorf.—p. 523.

Heated Thermometer Anemometer.—A new form of anemometer is described by which air velocities of 10 to 6,000 feet a minute can be quickly and accurately determined. In principle the bulb of a thermometer is heated by a surrounding electric coil, the voltage being recorded, and the registered temperature is compared with that of a similar thermometer not so heated. By means of tables (or a given equation) from the difference in readings in conjunction with the voltage used the velocity can be determined. The instrument is recommended for measuring air movement in rooms or in front of exhaust hoods where other kinds of instruments are inconvenient or impossible.

Journal of Laryngology and Otology

London vol. 53 October, 1938

- Observations on Pathology of Ménière's Syndrome. C. S. Hallpike and H. Cairns.—p. 625.
- Osteoclastoma of Frontal Bone in Hyperparathyroidism. R. P. Mathers and D. F. Cappell.—p. 656.
- Fatal Otic Cerebellar Abscess in Child of Four Months. W. S. Adams.—p. 668.
- Gangrene of Uvula. W. A. Anderson.—p. 671.

Journal of Urology

Baltimore vol. 40 August, 1938

- Renal Lipomatosis or Fatty Replacement of Destroyed Renal Cortex. J. B. Priestley.—p. 269.
- Automatic Bladder Lavage with Control of Factors of Time, Quantity, and Pressure. W. F. McKeena.—p. 276.
- Human Autonomic Pharmacology: XIII. Effect of Mecholyl and Prostigmin on Size and Tonus of Bladder. B. Greenberg, J. Loman, and A. Nyerson.—p. 280.
- Cystography, especially Pneumocystography, as Guide in Treatment of Vesical Neck Lesions. T. H. Sweetser.—p. 285.
- Heterotopic Bone Formation produced by Epithelial Transplants in Urogenital Tract of Dogs, Rabbits, Guinea-pigs, and Cats. A. C. Abbott, A. M. Goodwin, and E. Stephenson.—p. 294.
- Antipyretic Action of Intravenous Administration of Mercurochrome in Acute Pyelonephritis. J. L. Emmett.—p. 312.
- Mechanism of Action of Pyridium. F. L. Adair, H. Dunlap, and G. Wilmert.—p. 319.

- Effect of Short-wave Therapy on Guinea-pig Testis. F. Wilhelm and A. M. Schwartz.—p. 335.
Roentgen Visualization of Spermatocoele. S. E. Last.—p. 339.
Improved Suprapubic Trocar and Cannula. H. A. R. Kreutzmann.—p. 341.
Electroprostatectomy: Relief of Prostatic Abscesses and Acute Obstructive Prostatitis by Transurethral Prostatectomy. G. Timberlake.—p. 343.
Induction Motor Suction Pump for Drainage in Urological Cases. H. E. Stedman.—p. 348.
Convertible Non-traumatic Cysto-urethroscope. P. J. Riaboff.—p. 356.

Monatsschrift für Kinderheilkunde

Berlin vol. 75 September 29 1938 Heft. 4-6

- Dietetic Treatment of Alimentary Toxicosis in Infants of Three Months. W. Bayer.—p. 177.
Oily Milk. G. Frontali.—p. 189.
Mouth Wax Cerase and Tubercle Bacilli. Harnhausen and Stadler.—p. 202.
Importance of Carriers in Prophylaxis of Infectious Diseases. H. Kleinschmidt.—p. 224.
Dangers of Cardiac Puncture in Children. Klotz.—p. 238.
Mesenchymal Dysplasia and Pylorospasm. P. Kroege.—p. 247.
Rare Disease of Bone. H. Kubatsch.—p. 253.
Encephalitis as a Diagnosis in Infancy and Childhood. C. de Lange.—p. 264.
Tuberculosis of Lung in Older Children. E. Müller.—p. 286.
Dosage of Anti-diphtheric Serum. K. Noster.—p. 289.
Development of Cervical Tuberculosis. H. Opitz.—p. 294.
Peptic Ulcer and Umbilical Cord. A. Peiper and E. Hofmann.—p. 306.
Treatment of Rickets with Single Administration of Vitamin. H. Peter and R. Schürmer.—p. 318.
Round Shoulders and Pigeon Breast. K. Stolte.—p. 358.
Pathology and Treatment of Infantile Toxicosis. W. Tilg.—p. 364.
X-ray Diagnosis. H. Schönfeld.—p. 379.
Bone, Joint, and Muscle Disease. E. Hassler.—p. 390.

Revue Neurologique

Paris vol. 70 August, 1938

- *Tubular Meningitis: Contribution to Study of Nervous Affections by Yeast-like Fungi. J. de Buscher, H. J. Scherer, and F. Thomas.—p. 149.
Human Case of Rabies. J. Tinel.—p. 169.
Reflex Epilepsy. V. Pitha.—p. 178.

Tubular Meningitis.—The authors describe in detail the case of a young woman, aged 28, who showed symptoms of chronic meningitis over a period of five months. At necropsy the meninges showed a lymphocytic and plasma-cell infiltration with, in places, granulation tissue resembling that of a tuberculous reaction. This was associated with masses of round mycotic-like elements which were considered to belong to the torula group of mycotic parasites.

Paris vol. 70 September, 1938

- Descartes and Anatomy and Physiology of Nervous System. A. Souques.—p. 221.
Case of Pseudo-bulbar Paralysis with "Catatonic Syndrome" in Young Patient with Hypertension. R. Strauss.—p. 246.
Clinical Symptomatology of Olfactory Nuclei. N. Zand.—p. 258.

Surgery

St Louis vol. 4 September, 1938

- Technique of Nailing Fractures of Neck of Femur. C. Semb.—p. 321.
*Relief of Paroxysmal Hypertension by Excision of Pheochromocytoma. A. Brunschwig, E. Humphreys, and N. Roome.—p. 361.
Two Cases of Malignant Perineal Tumour simulating Inflammatory Lesions. R. M. Hosler and I. A. Murphy.—p. 371.
*Congenital Anorchia, with Report of Six Probable Cases of Monorchia. C. E. Rea.—p. 376.
Torsion of Uterine Adnexa. E. A. Ficklen.—p. 384.
Cause of Death in Bile Peritonitis. M. H. Manson and C. T. Eginton.—p. 392.
Subphrenic Abscess. W. A. Doidge and W. P. Warner.—p. 405.
Palmar Fascia in Connection with Dupuytren's Contracture. E. B. Kaplan.—p. 415.
Mixed Tumour of Parotid Gland with Metastasis. W. P. Montanus.—p. 423.
Lipiodol in Treatment of Persistent Faecal Fistula after Appendicectomy. S. N. Mendelsohn and L. H. Schriver.—p. 430.
Unusual Complication following Suboccipital Craniectomy. M. W. Thorner and R. A. Groff.—p. 434.

Relief of Paroxysmal Hypertension by Excision of Pheochromocytoma.—This article reviews eleven cases of paroxysmal hypertension due to retroperitoneal pheochromocytoma in which operative treatment was carried out successfully. Each case is described fully. An analysis is given of the adrenaline content of the tumours.

Congenital Anorchia.—Rea points out that congenital anorchia is a rare anomaly and that to date only twenty-nine unilateral and eleven bilateral cases have been reported. In this paper six cases of probable monorchia are presented, four left-sided and two right-sided. Three cases had an associated inguinal hernia, which was diagnosed before operation, and at operation all six cases had evidence of hernia.

Tohoku Journal of Experimental Medicine

Sendai vol. 33 August, 1938

- Studies on Changes in Tissue Protein and its Osmotic Colloid Pressure under Varying Conditions; IV. Tissue Protein and its Osmotic Colloid Pressure after Plasmapheresis (Ger.). S. Yamamoto.—p. 483.
Variation of Blood Gas Content in Rabbits poisoned with Peptone, and Suprarenals (Eng.). Y. Taneiti.—p. 489.
Functional Kidney Test by Sodium Ferrocyanide in Experimental Nephrosis (Ger.). G. Waga.—p. 496.
Examinations of Residual Air; II. Changes in Residual Air and Relations between Residual Air and Vital and Total Capacity in Artificial Pneumothorax (Ger.). T. Kikuti.—p. 512.
Influence of Some Constituents of Serum on Gas Metabolism of Tissue in vitro; II. Influence of Glucose on Tissue Respiration in vitro (Eng.). H. Yamamoto.—p. 525.
*Content of Methyl Glyoxal-like Substance in Urine of Healthy Mothers with Positive and Negative Arakawa's Reaction: Ninety-sixth Report of Peroxidase Reaction (Eng.). R. Orimo.—p. 545.
Relation between Urea Content in Human Milk and Arakawa's Reaction: Ninety-seventh Report of Peroxidase Reaction (Eng.). G. Sushara.—p. 558.
Urine Chlorine of Infants nursed with Human Milk of Different Arakawa's Reaction: Ninety-eighth Report of Peroxidase Reaction (Eng.). M. Iba.—p. 567.
Influence of Vitamin B₁₂ on Arakawa's Reaction and Inorganic Sulphate Content of Human Milk: Ninety-ninth Report of Peroxidase Reaction (Eng.). K. Yoshimo.—p. 576.
Concentration of Hydrogen Ions in Vitreous Body (Ger.). N. Oyama.—p. 586.

Methyl Glyoxal-like Substance in Urine.—A methyl glyoxal-like substance was present more often and in larger amounts in lactating mothers whose milk gave a negative Arakawa's reaction than in mothers whose milk gave a positive Arakawa's reaction, in spite of the fact that most of the mothers were healthy.

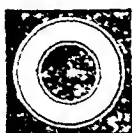
Sendai vol. 34 September, 1938

- Blood Picture in Scarlet Fever and its Fluctuation during the Course (Eng.). S. Kimura, S. Kokubo, and M. Shindo.—p. 1.
Comparison of Short-timed Peroxidase Reaction between Sato-Sekiya's Original Method and Tohoku Paediatric Method: Proposed New Technique (Eng.). T. Suyuki and S. Shiraishi.—p. 24.
Peroxidase-positive Erythrocytes and Normoblasts in Human Blood under Copper Peroxidase Reaction: Normal Erythrocytes made Peroxidase-positive: Further Morphological Evidence of Close Relation between Peroxidase and Haemoglobin (Eng.). T. Suyuki.—p. 32.
Mechanism of Purgings by Phenolphthalein (Ger.). S. Hitati.—p. 38.
Effect of Morphine Administration upon Output Rate of Epinephrine, Blood Sugar Level, and Blood Pressure in Normal and Tolerant Dogs (Eng.). T. Watanabe.—p. 52.
Effect of Morphine on Urinary Bladder (Ger.). S. Hitati.—p. 72.
Experimental Studies on Influence of Innervation on Exchange of Metabolic Products and Gases through Capillaries; I. Experiments on Normal Dogs (Ger.). T. Watanabe.—p. 78.
Exchange of Water and Proteins through Capillaries; II. Experiments on Dogs treated with Urane and Cantharides (Ger.). T. Watanabe.—p. 101.
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Influence of Chloralose upon Blood Pressure in Cats (Eng.). N. Sawawa.—p. 146.
Influence of Chloralose upon Pressor Effect of Splanchnic Stimulation and of Adrenaline (Eng.). N. Sawawa.—p. 155.
*Complement-fixation Reaction of Pleural Effusions (Ger.). Y. Tomita.—p. 162.
Metabolism of Lipids in Cancer and in Gastric and Duodenal Ulceration and Influence of Resection of Stomach thereon (Ger.). K. Maruta and K. Inawasiro.—p. 175.

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THE LANCET, October 29, 1938. Pages 983-927

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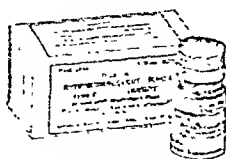
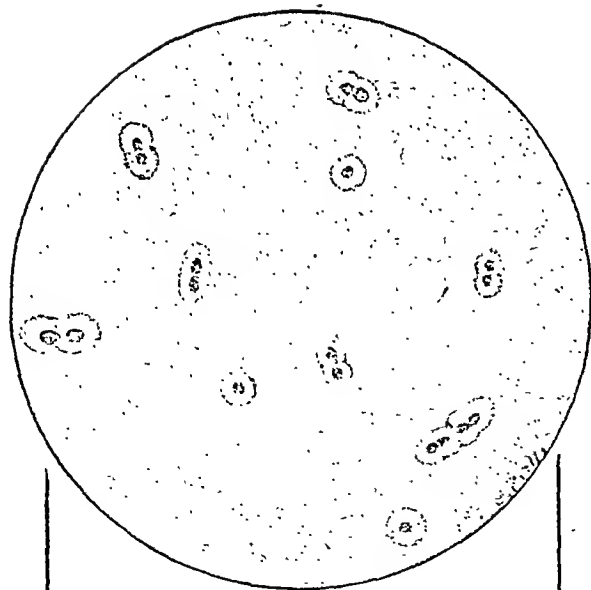
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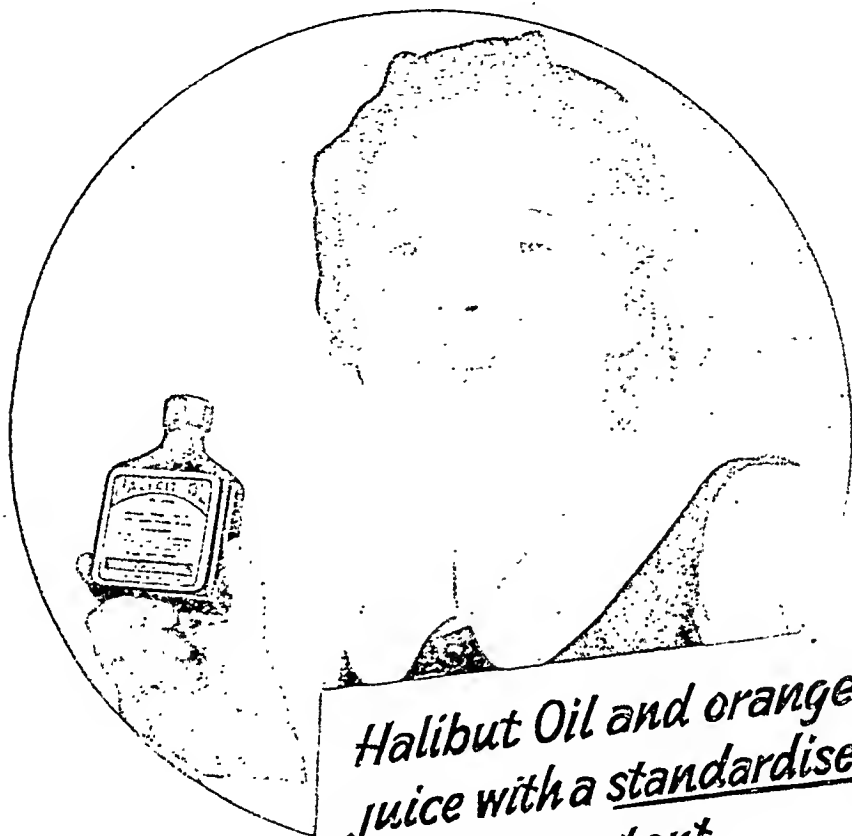
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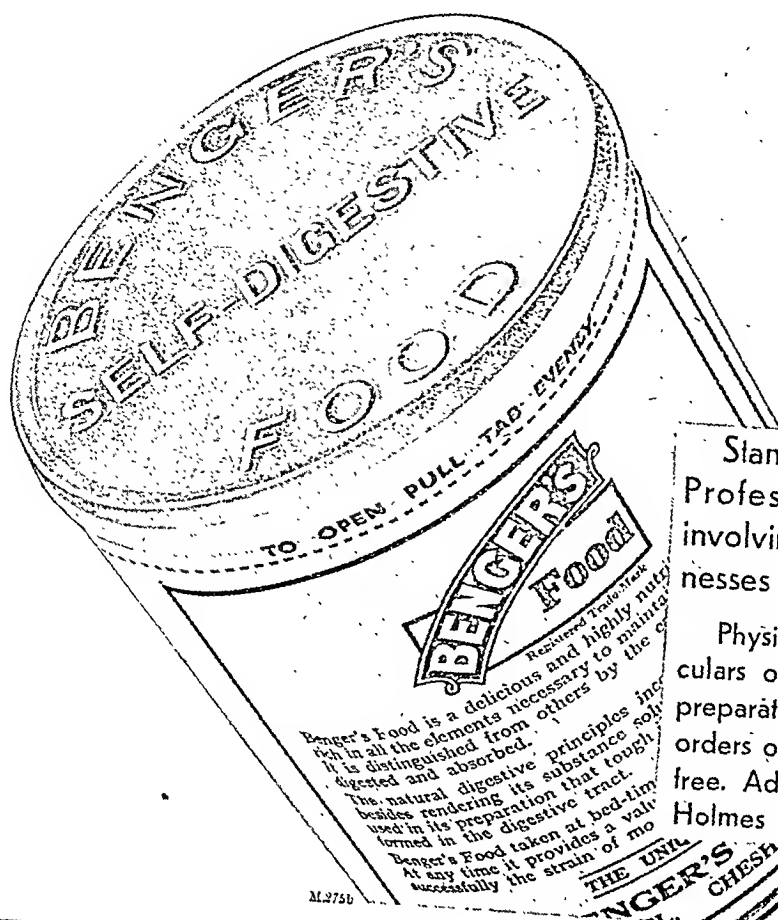
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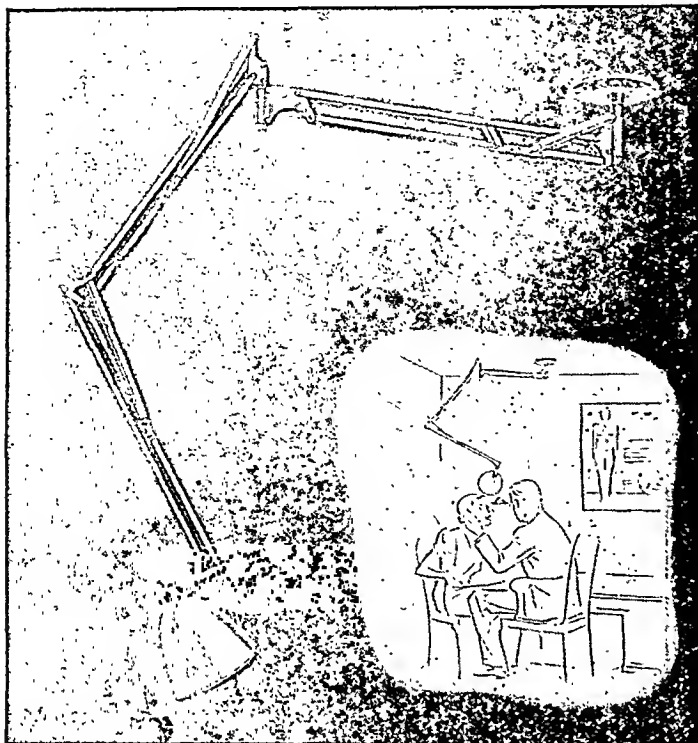
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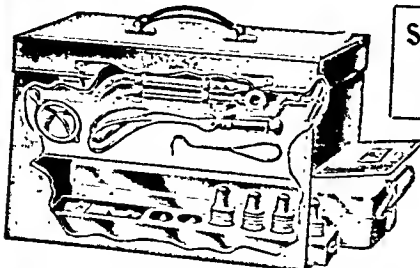
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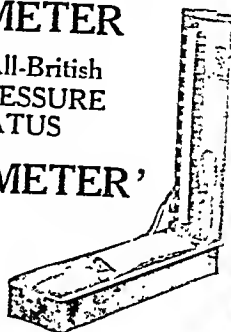
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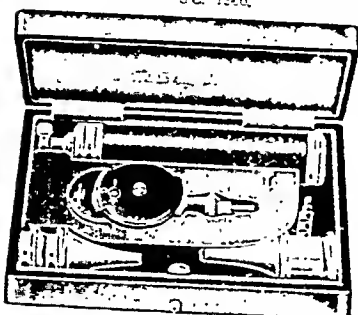
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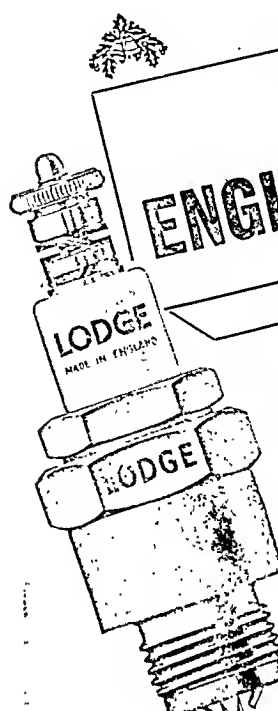
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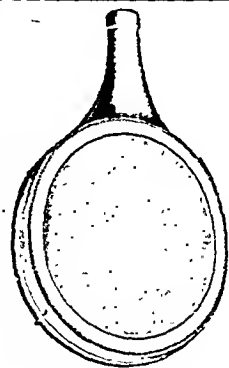
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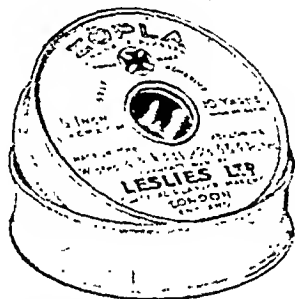
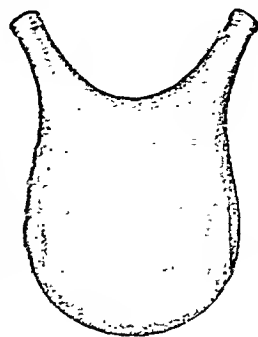
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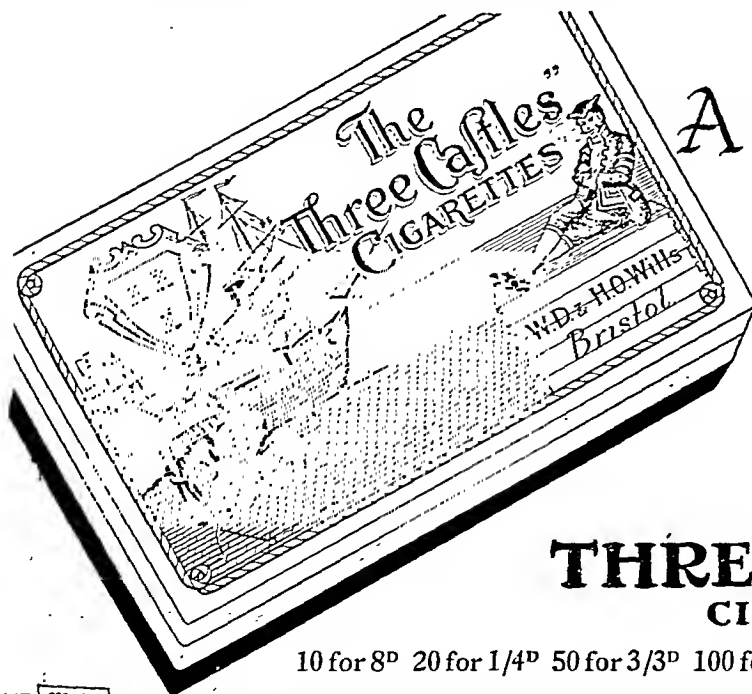
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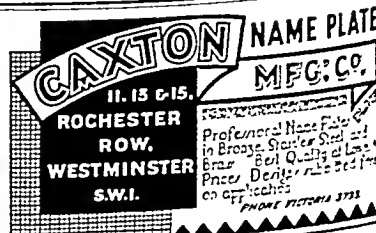
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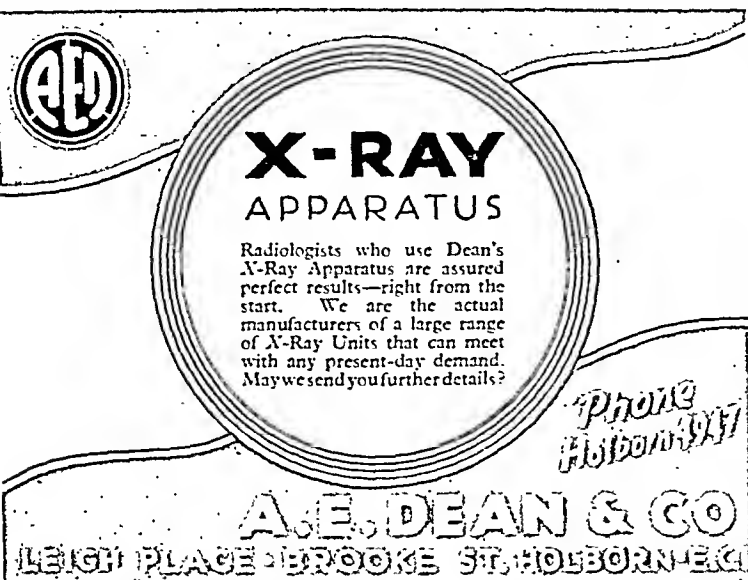
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Telephone: No. 6207 Barnwood.

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A convalescent home for the care and treatment of mild and recoverable nervous conditions in both sexes. The house is situated high up in 40 acres of grounds, 17 miles from London, at the termination of the Watford by-pass. One Medical Officer is in residence, and two others are in daily attendance. Fees from ten guineas a week, inclusive.
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Telephone: GATLEY 2231 (3 lines)

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CONVALESCENT HOME
at BOURNEMOUTH

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Detached Villas standing in 12 acres of ornamental grounds, with tennis courts, etc., which Voluntary, Temporary, or Certified Patients may visit by arrangement, for long or short periods. Terms very moderate.

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PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London."

Telephone: Rodney 2641-2642.

The above House is for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified, voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. Occupational therapy, physical drill, and other forms of modern treatment. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor drives are arranged when required. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week. Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

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Tel.: 64117. For terms, etc., apply to the Medical Superintendent.

WALLFORD HOUSE, UPPER HALL- ORD, SHEPPERTON. Established in 1841.

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THE GRANGE near ROTHERHAM.

A HOUSE licensed for the reception of a limited number of Ladies suffering from Nervous and Mental Disorders. Both certified and voluntary patients received. Approved for temporary Patients. This is a large country house, with beautiful grounds and park, five miles from Sheffield. Tel. No. 40030 Ecclesfield. Res. Phys.: GILBERT E. MOULD, L.R.C.P., M.R.C.S. Station: Grange Lane, L. & N.E. Ry.

THE MAUDSLEY HOSPITAL

DENMARK HILL, S.E.5.
Telephone: RODNEY 3841.

A CLINIC instituted by the London County Council for treatment of Nervous and Curable Mental Disorders. Voluntary patients only received. New Out-patients.—MEN: Mondays and Thursdays, 2 p.m. WOMEN: Tuesdays and Fridays, 10 a.m. 2 p.m. CHILDREN: Mondays and Fridays, 10 a.m. In-patients: (a) 235 beds (both sexes) in wards of separate rooms, including 35 beds in use as a King's College Hospital, which is in use as a temporary annexe of the Maudsley Hospital; (b) a special ward (including some private rooms) for those patients of each sex who are paying the full cost and are otherwise suitable. TERMS: £5 a week, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.

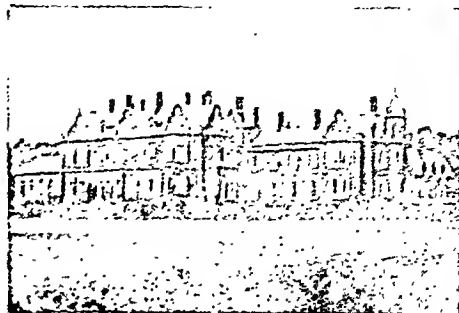
Terms include (with rare exceptions) all facilities of treatment, for which there are exceptional facilities, as there is a staff of Consultant Specialists and the Central Laboratory of London County Mental Hospitals is attached to the Maudsley. Inquiries of EDWARD MARSHALL, M.D., L.R.C.P., F.R.C.S., Medical Superintendent.

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Address: THE SECRETARY, Ruthin Castle, North Wales.

Telegrams: Castle, Ruthin. Telephone: Ruthin 66.

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Also completely detached villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, Recreation Hall with Badminton Court, and all indoor amusements, including Wireless and other Concerts, Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician, Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident, and visiting Consultants. An Illustrated Prospectus giving fees, which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

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Medical Superintendent: THOMAS TENNENT, M.D., M.R.C.P., D.P.H., D.P.M.

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This is a Reception Hospital in detached grounds, with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray room, an Ultra-Violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

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Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation Therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

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For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton), who can be seen in London by appointment.

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Cases of alcoholism and drug addiction are admitted.

This Hospital has every facility for complete investigation and treatment of the above conditions.

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As the Hospital is well endowed terms are exceptionally moderate, e.g., First Department, 3 to 30 guineas per week; Second Department, 2 and 2½ guineas per week. Voluntary and certified patients are received. Medical Certificates given anywhere in the British Isles are valid for admission of patients. For prospectus, necessary forms, and further information apply to:

Physician Sup: P. K. McCOWAN, J.P., M.D., F.R.C.P., D.P.M., Barrister-at-Law. Tel.: Dumfries 1119.

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Telephone: STAMFORD HILL 2685.

Telegrams: "SUBSIDIARY, LONDON."

Convalescent Home, KEARSNEY COURT, DOVER. For further particulars apply to the Medical Sup.

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17, Street Ashton-in-Makerfield

Phone: Ashton-in-Makerfield 7311.

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Apply, Dr. D. E. M. DOUGLAS-NORRIS
Telephone: Newport Pagnell 121.

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CHISWICK HOUSE PINNER, MIDDLESEX

Telephone: PINNER 234.

A Private Hospital for the Treatment and Care of Mental and Nervous Illnesses in both sexes.

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

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Douglas Macaulay, M.D., D.P.M.

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Church Stretton, Shropshire.

A PRIVATE HOME for the treatment of Gentlemen suffering from Mental and Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental and Nervous cases are received without certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930. Bracing hill country. (See Medical Directory, p. 2328.) Apply to the Medical Superintendent. Phone: 10 P.O. Church Stretton.

FENSTANTON,

CHRISTCHURCH ROAD,
Streatham Hill, S.W.2

A Private Home for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders. Certified, Voluntary, and Temporary Patients received. Large Mansions with 12 acres of grounds. (See Medical Directory, p. 2312.) Apply, Resident Physician. Telephone: Tulse Hill 7181.

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The house is gloriously situated in wooded grounds of 20 acres with magnificent views of the City and the Avon Valley. (See Medical Directory, p. 2322.)

For terms apply A. GRIFFITHS, M.A., D.M., B.Ch., D.P.M., Resident Physician. Telephone: Bathaston 8189.

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The central building makes the Mundesley Sanatorium the best equipped building in England for the cure of Tuberculosis. All the bedrooms have hot and cold running water, electric light, and wireless headphones. The public rooms are spacious and comfortable.

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GEORGE H. DAY,
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For all information apply
The Secretary,
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NORFOLK.**
Telephone: Mundesley 94 and 95
(2 lines).

The buildings face S.S.W. and are sheltered from the sea by a pine-clad ridge. The sunshine record and dry air complete a perfect site. The medical equipment is of the latest kind, and there is a day and night nursing staff.

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This Institution is situated in a beautiful and healthy locality within easy reach of London. It is fitted with every comfort. Patients can have Private Bedrooms and Special Nurses, as well as the use of General Sitting Rooms, at moderate rates of payment. Voluntary Patients can be admitted.

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The Director of the Ross Institute is always glad to interview medical men who would like information regarding the possibilities of a career overseas if they will be good enough to make an appointment to call on him. Enquiries may be addressed to

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Prospectuses containing full information may be obtained on application to Professor W. H. Wood, Dean of the Faculty of Medicine, The University of Liverpool.

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Candidates who have fulfilled the necessary conditions, and who desire to present themselves for Examination, must give notice in writing to the Secretary, Examination Hall, 8/11, Queen's Square, London, W.C.1, at least twenty-one days before the date of the Examination, transmitting at the same time such certificates as may be required by the Regulations of the Board.

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Applications (twelve copies) must be received not later than first post on December 14th, 1938, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars should be obtained.

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The Senate invite applications for the UNIVERSITY CHAIR OF MEDICINE tenable at UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL. Salary £2,000 a year.

Applications (twelve copies) must be received not later than first post on January 16th, 1939, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars should be obtained.

GUY'S HOSPITAL DENTAL SCHOOL.

Applications are invited for the WHOLE-TIME POST OF DENTAL RESEARCH FELLOW, the appointment to begin as soon after January 1st, 1939, as possible. Preference will be given to a biochemist who is prepared to undertake work on dental diseases. The appointment will be for two years in the first instance with the possibility of reappointment. The stipend will be at the rate of £400 per annum.

Applications, accompanied by the names of three persons to whom reference may be made, should be submitted not later than December 31st, 1938, to the Dean, Guy's Hospital Medical School, S.E.1, from whom further particulars regarding the appointment may be obtained.

MIDDLESBROUGH EDUCATION COMMITTEE.

APPOINTMENT OF ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly qualified men for a position as Assistant School Medical Officer in connexion with the medical inspection and treatment of school children, and such other duties as may be required by the Education Committee. The person appointed will be generally responsible to the School Medical Officer.

Commencing salary £500 per annum (provided the successful candidate has had not less than three years' postgraduate experience), rising by annual increments of £25 to £700 per annum. The Committee may at their discretion take into account previous experience as an Assistant School Medical Officer in determining the amount of the commencing salary. The successful candidate will be required to devote his whole time to the duties of the office. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass satisfactorily a medical examination. The appointment will be terminable by two calendar months' notice on either side.

Forms of application may be obtained on application to the Director of Education, Education Offices, Woodlands Road, Middlesbrough, to whom completed forms should be returned not later than Monday, December 12th, 1938.

Canvassing in any form will disqualify.
PRESTON KITCHEN.

Town Clerk's Office Town Clerk,
Municipal Buildings, Middlesbrough.
November 19th 1938.

COUNTY BOROUGH OF BOURNEMOUTH.

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER (Male).

Applications for the above are invited from duly registered Medical Practitioners, who should be single and under 40 years of age and hold a Diploma of Public Health.

The person appointed may be required to undertake any public health work, but special experience of infectious diseases, including immunization, is desirable.

Board, lodging, and laundry will at present be provided at the hospital for infectious diseases, and for these a deduction of £100 per annum will be made from the salary, which will commence at £500 and rise by annual increments of £25 to a maximum of £700, less 5 per cent. deduction for superannuation purposes.

Application forms can be obtained from the Medical Officer of Health, Town Hall, Bournemouth, to whom they must be returned, with copies of three recent testimonials, not later than the first day of December 10th 1938.

Canvassing of any kind will be a disqualification.
Town Hall, HERBERT ASHLING,
Bournemouth Town Clerk.
November 18th. 1938.

BRITISH POSTGRADUATE MEDICAL SCHOOL.

There are three vacancies for HOUSE SURGEONS to the SURGICAL UNIT, B.M.A. Postgraduate Medical School, Hammer Lane, Hospital. The appointments are for six months and are not renewable. Salary £105 per week, with board, residence, and laundry. Dates to commence on January 1st, 1939.

Duties are mainly in General Surgery, but one appointment is to the Department of Trauma and Orthopaedic Surgery. Applicants must have held a previous House appointment.

Applications, with copies of testimonials, should be sent to the Dean, British Postgraduate Medical School, Duncane Road, Shepherd's Bush, London W.12, to arrive not later than the first post on Monday, December 12th 1938.

COUNTY COUNCIL OF DURHAM ASSISTANT WELFARE MEDICAL OFFICER

The County Health Committee invite applications for an Assistant Welfare Medical Officer (woman) at a commencing salary of £600 per annum, rising by annual increments of £25 to £700 per annum. Travelling allowance will be paid by the County Council in accordance with a scale to be approved from time to time.

The appointment will be held subject to three calendar months' notice on either side, and to the following conditions:

(1) The officer appointed must be a registered medical practitioner between the ages of 25 and 55 years, must devote the whole of her time to the duties of the office, and must not engage in private practice.

(2) She should either have had a previous appointment as Medical Officer of an ante-natal clinic, with the approval of the Minister of Health or have had at least three years' experience in the practice of her profession and special experience of practical midwifery and ante-natal work. The holding of a Diploma in Public Health will be deemed an additional qualification for the post.

(3) She will be subject to the directions of the County Medical Officer of Health.

(4) She will be required to reside in Durham City, or such other place as required by the Council.

(5) She must be prepared to undertake any duties in connection with the Maternity and Child Welfare Services of the County Council, including attendance at Birth Control Clinics.

(6) She must be prepared, if called upon, to act as locum tenens in other members of the medical staff in the County Medical Officer of Health.

(7) The appointment will terminate on marriage.
(8) The candidate appointed will be required to pass the County Council's medical examination and will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, endorsed "Assistant Welfare Medical Officer," with copies of not more than three recent testimonials, must be addressed to the County Medical Officer of Health, Shire Hall, Durham, and must be received by him not later than Saturday, December 10th, 1938.

J. K. HOPE,
Shire Hall, Clerk of the County Council,
Durham.
November 21st, 1938.

COUNTY COUNCIL OF DURHAM DEPUTY COUNTY MEDICAL OFFICER OF HEALTH.

The County Health Committee invite applications for the appointment of a Deputy County Medical Officer of Health at a salary of £960 per annum. Reasonable travelling and out-of-pocket expenses will be paid by the County Council.

Applicants must be duly registered medical practitioners, holding a degree or diploma in Public Health, and the gentleman appointed will be required to devote the whole of his time to the duties of the office and to reside in the City of Durham or other approved centre. The appointment will be held subject to three calendar months' notice on either side.

He will be expected to undertake any duties required of him by the Council bearing on the public and medical services of the County, and will be under the administrative control of, and be responsible to, the County Medical Officer of Health for his duties.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to a medical examination as required by the Council for the purposes of the Act, and the statutory contribution to the Superannuation Fund under that Act will be deducted from the salary.

Applications, marked "Deputy County Medical Officer of Health," together with copies of not more than three recent testimonials, must be sent to the County Medical Officer of Health, Shire Hall, Durham, not later than Saturday, December 10th, 1938.

J. K. HOPE,
Shire Hall, Clerk of the County Council,
Durham.
November 21st, 1938.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE.

During 1938 and 1939, the Secretary of State for the Colonies proposes to select a number of Medical Officers to fill vacancies, the majority of which will occur in Tropical Africa and Malaya.

QUALIFICATIONS.—Candidates must be British subjects of European parentage, under 35 years of age, and must possess a medical qualification registrable in the United Kingdom. Preference will be given to candidates who have held Hospital or Public Health appointments, or who have special knowledge of anaesthetics, radiology, surgery, medicine, ophthalmology, gynaecology and midwifery, diseases of the ear, nose and throat, venereal diseases, etc.

SALARY.—Initial salaries vary from £600 to £700, and rise by increments to a maximum of between £1,000 and £1,200.

PRIVATE PRACTICE.—Private practice is not allowed as of right, but in the case of some appointments it is permitted on certain conditions.

QUARTERS.—In Tropical Africa, free quarters, or an allowance in lieu, are provided. In Malaya, quarters are provided at an annual rental not exceeding 6% of the officer's salary.

PASSAGES.—Free first-class passages are provided on first appointment and when proceeding on and returning from leave. Assistance is also given towards family passages.

TERMS OF APPOINTMENT.—The appointments are pensionable, subject to a probationary period which varies from two to three years.

COURSES OF INSTRUCTION IN TROPICAL MEDICINE AND HYGIENE.—Selected candidates will normally be required to attend a course of instruction leading to the Diploma in Tropical Medicine and Hygiene before proceeding overseas.

DUTIES.—Although Medical Officers are appointed in the first instance for general service, there are opportunities for work in special branches of medicine and surgery, in public health, and in medical research.

Further particulars and forms of application may be obtained from the Director of Recruitment (Colonial Service), 8, Buckingham Gate, London, S.W. 1.

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry at the end of March, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list. Marriage Allowance is paid under the same conditions as for other Naval Officers.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W. 1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1939.

COUNTY BOROUGH OF BRIGHTON. BRIGHTON MUNICIPAL HOSPITAL.

Applications are invited from duly qualified men for the post of **SECOND RESIDENT ASSISTANT MEDICAL OFFICER** at the Brighton Municipal Hospital.

Candidates must be single men, and preference will be given to those holding an F.R.C.S. or who produce evidence of having had practical surgical experience in a recognized hospital, as the appointment is primarily for surgical work, although not entirely so.

The appointment is for one year, but the person appointed will be eligible for appointment for a further year.

Salary £375 per annum, together with residential allowances valued for the purposes of superannuation at £150 per annum.

Forms of application, conditions of appointment, and list of duties may be obtained from the undersigned, which forms, duly completed and accompanied by copies of testimonials, must be returned to the Medical Superintendent not later than Wednesday, December 14th, 1938.

Canvassing the Committee, either personally or by letter, will be considered a disqualification for appointment.

S. J. FIRTH,

Medical Superintendent.

Brighton Municipal Hospital,

Elm Grove, Brighton 7.

November, 1938.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing for undermentioned position. Experience in resident appointment in general hospital for at least six months desirable. Married quarters not available. No accommodation for a woman.

COLINDALE HOSPITAL, The Hyde, Hendon, N.W.9.

ASSISTANT MEDICAL OFFICER (Class 1). Salary £350-£25-£425, with board, lodging, and washing.

Experience in the treatment of pulmonary tuberculosis essential.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, County Hall, S.E.1, returnable by December 12th.

Canvassing disqualifies.

LONDON COUNTY COUNCIL.

ASSISTANT DISTRICT MEDICAL OFFICERS Required for Undermentioned Districts.

(1) AREA I, DISTRICT K (SOUTH POPLAR)—Provisional salary £350.

(2) AREA VIII, DISTRICT D (PART SOUTH-WARK)—Provisional salary £212 10s. (inclusive of payment for use of doctor's surgery for Council's patients).

(3) AREA X, DISTRICT G (WOOLWICH, NORTH OF RIVER)—Provisional salary £75 (inclusive of payment for use of doctor's surgery for Council's patients).

Persons appointed required to reside in or near districts.

Application form, with further particulars, obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division 2 (A), County Hall, S.E.1.

Canvassing disqualifies.

LONDON COUNTY COUNCIL.

CONSULTANT AND SPECIALIST SERVICES.

PART-TIME OBSTETRICIAN AND GYNAECOLOGIST (one position) required for duty at HACKNEY HOSPITAL and ST. LEONARD'S HOSPITAL, Shoreditch. Salary £800.

Officer responsible, subject to administrative control of Medical Superintendents, for obstetric and gynaecological work at these hospitals. Required to live within reasonable distance of hospitals, to visit them daily and as required.

Application forms (stamped addressed foolscap envelope necessary) from Medical Officer of Health (S.D.6), County Hall, Westminster Bridge, S.E.1, returnable by December 19th. Women eligible. Canvassing disqualifies.

CITY OF BRADFORD.

CITY SANATORIUM—GRASSINGTON.

ASSISTANT MEDICAL OFFICER required for a period of one year.

Salary £175 per annum, plus board-residence.

Form of application may be obtained from the Medical Officer of Health, Town Hall, Bradford, and should be returned to the undersigned not later than December 12th, 1938.

N. L. FLEMING, Town Clerk.

Town Hall, Bradford

November 25th, 1938.

AMENDED ADVERTISEMENT. METROPOLITAN BOROUGH OF GREENWICH.

JUNIOR ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER.

The Council of the Metropolitan Borough of Greenwich is prepared to receive applications from registered Medical Practitioners for the appointment of Junior Assistant Maternity and Child Welfare Medical Officer in the Borough of Greenwich.

Applicants must not be more than 45 years of age, must have had experience in connexion with Maternity and Child Welfare work generally, must be Registered Medical Practitioners who, prior to April 1st, 1930, had held the appointment of Medical Officer of an Ante-natal Clinic with the approval of the Minister of Health, or who, subsequent to qualification, have had at least three years' experience in the practice of their profession and special experience of practical midwifery and ante-natal work. The possession of the Diploma in Public Health and resident obstetric experience will be considered additional qualifications. The person to be appointed will act generally under the direction and supervision of the Medical Officer of Health, who is the Administrative Medical Officer of the Maternity and Child Welfare Services.

The salary will be at the rate of £500 per annum, rising by annual increments of £25 to a maximum of £700 per annum, but in the event of the successful candidate possessing the Diploma in Public Health the commencing salary will be increased to £550 per annum.

The successful candidate will be required to reside in the neighbourhood of the Borough Council's Maternity Home, to devote the whole of his or her time to the service of the Council, and not to engage in private practice.

The appointment will be subject to the provisions of the Council's Superannuation Scheme and will be terminable by three months' notice in writing on either side.

Applications must be made on forms, to be obtained from the undersigned, stating age, qualifications, and experience, and accompanied by copies of not more than three recent testimonials, must be sealed up and endorsed "Junior Assistant Maternity Medical Officer," and reach me not later than 12 o'clock noon on Monday, December 19th, 1938.

Canvassing members of the Council, either directly or indirectly, will be a disqualification.

Town Hall, Greenwich, S.E.10.

December 2nd, 1938.

D. J. REASON, Town Clerk.

SURREY COUNTY COUNCIL.

BOTLEYS PARK COLONY

(Certified Institution for Mental Defectives), near Chertsey, Surrey.

APPOINTMENT OF FIRST ASSISTANT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners (male) for the whole-time appointment of Resident First Assistant Medical Officer at the above-mentioned Institution.

Commencing salary £400, rising by annual increments of £25 to a maximum of £500 per annum, with £50 extra if in possession of a degree or diploma in Psychological Medicine. In addition, emoluments of board, lodging, etc., will be provided, valued for superannuation purposes at £150 per annum. Should the successful candidate be married, he will receive the value of the emoluments in cash and be provided with a house on the estate, for which a rental of £45 per annum will be charged.

The appointment will be subject to the provisions of the Asylums and Certified Institutions (Officers' Pensions) Act, 1918, and to the Council's Staffing Regulations. The person appointed will be required to undergo a medical examination.

Applications, on forms to be obtained from the Medical Superintendent, Botleys Park, Chertsey, must be completed and returned to the Medical Superintendent not later than December 17th next.

DUDELEY AUKLAND,

November 22nd, 1938. Clerk of the Council.

BOROUGH OF HOVE.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from registered medical practitioners under the age of 40 for the above whole-time appointment. The duties will be of a general nature but special experience is necessary in Maternity and Child Welfare and Infectious Diseases, and applicants should possess the Diploma of Public Health.

The salary will be £500 per annum, rising by annual increments of £25 to £700 per annum, together with a car allowance of £50 per annum. The successful candidate will be required to pass a medical examination and to contribute to the Superannuation Fund.

Applications on the prescribed form, in be obtained from the undersigned, together with copies of three recent testimonials, must be received not later than Monday, December 19th, 1938.

Town Hall, W. JERMYN HARRISON,

Hove, November, 1938.

Town Clerk.

CITY OF LEEDS PUBLIC HEALTH DEPARTMENT.

ST. JAMES'S HOSPITAL.
(1,330 Beds.)

RESIDENT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners (male) for the post of Resident Medical Officer at the St. James's Hospital, Leeds. Applicants must have had previous resident experience in a General Hospital.

Under the present scale of salaries of the Corporation the commencing salary for the post is £350 per annum, and the maximum £450 per annum, with annual increments of £25, subject to satisfactory service. The first increment will take effect on April 1st following the completion of twelve months' service. Board, residence, and laundry are provided, these emoluments being valued for superannuation purposes at £120 per annum.

The person appointed will be required to pass a medical examination and to contribute to the Superannuation Fund established under the Local Government and Other Officers' Superannuation Act, 1922.

The appointment will be terminable by six months' notice.

Applications, on a form to be obtained from the undersigned, together with copies of three recent testimonials, and endorsed "Resident Medical Officer," must be received at the Public Health Department, 12, Market Buildings, Vicar Lane, Leeds 1, not later than 10 a.m. on Wednesday, December 14th, 1938.

Canvassing in any form, either directly or indirectly, will be considered a disqualification.

J. JOHNSTONE JERVIS,
Medical Officer of Health

BUCKINGHAMSHIRE COUNTY COUNCIL.

TWO ASSISTANT COUNTY MEDICAL OFFICERS OF HEALTH.

Applications are invited from registered Medical Practitioners, not over forty years of age, holding a registrable qualification in Public Health, Sanitary Science, or State Medicine, to act as Assistant County Medical Officer of Health and Assistant School Medical Officer of Health.

The duties will pertain mainly to School Medical Inspection and Maternity and Child Welfare work, but there will be opportunities for the investigation of sanitary conditions generally.

The salary is £600 per annum, rising, subject to satisfactory service, by annual increments of £25 to a maximum of £700 per annum.

The successful applicants will be required to pay contributions under the Local Government and Other Officers' Superannuation Act, 1922, and to pass a medical examination as to physical fitness, the final appointment being subject thereto.

Particulars and conditions of application, which can be set out on the form of application, which can be obtained from the undersigned.

Application, on the prescribed form, accompanied by copies of not more than three recent testimonials, which will not be returned, should be addressed to the Clerk of the Bucks County Council, and delivered at the County Hall, Aylesbury, not later than 11 a.m. on Saturday, December 17th, 1938, marked "Assistant Medical Officer."

County Hall, Aylesbury, GUY R. CROUCH,
November, 1938. Clerk of the Bucks County Council

BOROUGH OF WIMBLEDON.

DEPUTY MEDICAL OFFICER OF HEALTH AND DEPUTY SCHOOL MEDICAL OFFICER.

Applications are invited for the above appointment from qualified and registered medical practitioners under 35 years of age, having at least three years' experience since qualification in Public Health work is necessary.

The Officer appointed will be required to reside in the Borough, to devote his whole time to the official duties, and to work under the direction of the Council's Medical Officer of Health.

The commencing salary is £650, rising by annual increments of £25 to a maximum of £750 per annum. The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the passing of a medical examination.

Application forms can be obtained from the Medical Officer of Health, Town Hall, Wimbledon, to whom they must be returned, with copies of three recent testimonials, not later than 10 a.m. on Monday, December 19th, 1938.

HERBERT EMERSON SMITH, T.L.B.,
Town Hall, Wimbledon, S.W.19
November 29th, 1938.



Appointments for Medical Officers in the ROYAL AIR FORCE

Medical men are invited to apply for Short Service Commissions in the Royal Air Force. Candidates must be registered under the Medical Acts and be not more than 31 years of age on entry.

The period of service is 3 years—extendible to 5 years. A gratuity of £400 or £1,000 is payable at the termination of 3 or 5 years respectively. Permanent commissions are awarded in a number of cases. These offer a pensionable career with the opportunity of extra leave on full pay for specialised study. Applicants who hold—or are likely to hold—post-graduate appointments in civil hospitals may, on joining the Royal Air Force, be seconded until the termination of their appointments (for a period not exceeding one year). An antedate of commission up to twelve months is allowed for appointments held at approved hospitals.

*Fuller information can be obtained from The Director
of Medical Services, Air Ministry, Kingsway, London.*

LEICESTERSHIRE COUNTY COUNCIL.

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH AND DISTRICT MEDICAL OFFICER OF HEALTH.

Applications are invited for the joint whole-time appointment of an Assistant County Medical Officer of Health for the Administrative County of Leicester and Medical Officer of Health for the Rural District of Barrow-upon-Sear in the said County at a salary of £800 per annum, with a travelling allowance of £140 per annum. Office accommodation and clerical assistance will be provided by arrangements to be agreed upon by the appointing Authorities. The estimated total population of the Sanitary District is 38,340, the acreage of the area being 54,604.

Applicants, who should not be over forty-five years of age, must be duly qualified and registered male medical practitioners with experience in Public Health duties and must hold the Diploma in Public Health or its equivalent. The Officer appointed will be required to reside at such place in or adjacent to the Sanitary District as shall be approved. As regards the duties of an Assistant County Medical Officer of Health the Officer will act under the general control of the County Medical Officer of Health and will be required to perform such duties as may from time to time be prescribed. As regards his duties as District Medical Officer of Health the Officer will be subject to the sole control and direction of the Local Sanitary Authority.

The joint appointment is subject to the approval of the Minister of Health and the Board of Education and also, so far as the Office of District Medical Officer is concerned, to the provisions of the Sanitary Officers (Outside London) Regulations, 1935. The joint appointment will be one under the Local Government Superannuation Act, 1937, and the selected candidate will be required to pass a medical examination. The joint appointment will be determinable by three months' written notice on either side, subject so far as the office of the District Medical Officer of Health is concerned to the consent of the Minister of Health.

Forms of application, together with a list of duties, may be obtained from the undersigned and, accompanied by copies of not more than three recent testimonials, should be returned to him not later than December 13th, 1938.

Canvassing, directly or indirectly, will be deemed a disqualification.
County Offices, LUCAS E. RUMSEY,
Grey Friars, Clerk of the County Council,
Leicester, November 21st, 1938.

COUNTY BOROUGH OF TYNEMOUTH

ASSISTANT MEDICAL OFFICER (Female).

MATERNITY AND CHILD WELFARE.

Applications are invited from duly qualified and registered female Medical Practitioners under 40 years of age for the post of Assistant Medical Officer in the County Borough of Tynemouth Public Health Department. The duties will be in connection with the Maternity and Child Welfare Scheme. Candidates should possess a Diploma in Public Health, and preference will be given to those having special experience in the conduct of ante-natal and venereal diseases clinics.

The salary will be £500 per annum, rising by annual increments of £25 to a maximum of £760. The officer appointed will be required to devote her whole time to the duties of the post, particulars of which, together with forms of application, may be obtained from the undersigned.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1932, and the successful candidate will be required to pass a medical examination.

Applications, together with copies of three recent testimonials, must reach the undersigned not later than 10 a.m. on December 9th, 1938.

Canvassing, either directly or indirectly, will be a disqualification.
Town Clerk's Office, FRED G. EGNER,
14, Northumberland Square, Town Clerk.
North Shields
November, 1938.

AYR COUNTY COUNCIL.

HAEMATOLOGICAL TECHNICIAN.

Applications are invited from experienced LABORATORY TECHNICIANS for the above post. The person appointed will be required to work under the County Obstetrician, and the duties will consist in routine haemoglobin investigations and blood counts as required upon all patients attending the County Ante-natal Clinics and Maternity Hospitals. Salary will be at the rate of £240 per annum subject to deduction for superannuation.

Applications, stating age, sex, experience, and present appointment, along with copies of three recent testimonials, to be submitted to the Medical Officer of Health County Buildings, Ayr, before December 15th, 1938.

COUNTY BOROUGH OF SOUTH SHIELDS.

ASSISTANT SCHOOL MEDICAL OFFICER (JUNIOR)

Applications are invited from fully qualified and registered medical women for the post of Assistant School Medical Officer, at a salary of £500 per annum, rising by annual increments of £25 to £700 per annum.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1932, and the successful candidate will be required to pass a medical examination.

The person appointed will be under the administrative control of the Medical Officer of Health, and she must devote her whole time to the duties of the post and must not engage in private practice.

Forms of application may be obtained from the Medical Officer of Health, Stanhope Road, South Shields.

Applications, with copies of three recent testimonials, should be received at my office not later than 5 p.m. on December 14th, 1938, marked "Appointment of Assistant School Medical Officer".

Education Department, V. C. CARTER,
Town Hall, South Shields. Secretary.

COUNTY BOROUGH OF DERBY.

DERBY CITY HOSPITAL.

ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Assistant Resident Medical Officer (male) at the above Hospital of 300 beds. This Hospital provides treatment for acute medical and surgical cases, obstetrics and children's diseases, etc.

Candidates must be registered in medicine and surgery.

The appointment is for a period of six months; two months' notice of termination of duties may be given on either side. The successful applicant will be required to commence duties on January 1st, 1939.

Salary at the rate of £200 per annum, with board and residence.

Applications, stating age, experience, and accompanied by three recent testimonials, should be sent to the undersigned as soon as possible.

GORDON LILICO,
Medical Officer of Health.
Public Health Department,
1, Derwent Street, Derby.

BOROUGH OF HESTON AND ISLEWORTH.**Appointment of
ASSISTANT MEDICAL OFFICER OF HEALTH
AND SCHOOL MEDICAL OFFICER.**

Applications are invited from duly qualified medical men with a Public Health qualification for the position of Assistant Medical Officer of Health and School Medical Officer.

Candidates will be required to carry out medical inspection of school children, bacteriological work, child welfare work, administer dental anaesthetics, and perform such other duties as may be allotted by the Medical Officer of Health.

The person appointed will be required to devote his whole time to the duties, to reside in the Borough, and will not be allowed to engage in private practice. The salary will be at the rate of £500 per annum, rising to £700 per annum by annual increments of £25.

A deduction of 5 per cent will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the appointment will be subject to medical examination.

Copies of the application form and terms of appointment can be obtained from the Medical Officer of Health, 92, Bath Road, Hounslow.

Applications, accompanied by copies of not more than three recent testimonials, enclosed in a sealed envelope endorsed "Assistant Medical Officer," must be delivered to the undersigned not later than noon on Friday, December 16th, 1938.

Council House, Hounslow. HAROLD SWANN, Town Clerk.

**BOROUGH OF EALING.
ASSISTANT MEDICAL OFFICER OF HEALTH.**

Applications are invited from duly qualified medical men with a Public Health qualification for the position of Assistant Medical Officer of Health.

A candidate must have had at least three years' experience in the practice of his profession. The person appointed will be required to carry out medical inspection of school children and child welfare work and perform such other duties as may be allotted as Assistant to the Medical Officer of Health and School Medical Officer.

He will be required to devote his whole time to the duties, and will not be allowed to engage in private practice. The salary will be at the rate of £600 per annum, rising by £25 per annum to £700.

A deduction of 5 per cent will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in connection therewith. Canvassing will be a disqualification.

Copies of the application forms and terms of appointment can be obtained from Dr. THOMAS ORR, Medical Officer of Health, Town Hall, Ealing, W.5, to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than December 15th.

Town Hall, Ealing, W.5. R. H. WANKLYN, Town Clerk.

BOROUGH OF BERMONDSEY.

Applications are invited from fully qualified and registered Medical Practitioners (Women—Widows or Single) for the position of ASSISTANT MEDICAL OFFICER for Maternity and Child Welfare.

The salary will be at the rate of £600 per annum, rising by two annual increments of £50 to £700 per annum and be subject to deductions under the Council's Superannuation Acts. The person appointed will be required to pass satisfactorily a medical examination. Candidates must not have reached their 35th birthday on the date of their application. Preference will be given to applicants having special experience in the care of women and children. The person appointed will be required as a routine duty to give lectures on hygiene to audiences both of school children and of adults, and to devote the whole of her time to the work of the Council. Further particulars of the duties can be had on application to the Medical Officer of Health.

Applications on forms to be obtained from the undersigned and accompanied by copies of not more than three recent testimonials, must be delivered not later than December 16th, 1938.

Municipal Office, Spa Road, Bermondsey, S.E. 16. FRANCIS J. R. MOUNTAIN, Town Clerk.
December 2nd, 1938.

**SOUTH LONDON HOSPITAL FOR WOMEN,
Clapham Common, S.W.4.**

Applications are invited from medical women as CLINICAL ASSISTANT FOR GYNAECOLOGICAL OUT-PATIENTS, to attend on Monday afternoons. Applications, with testimonials, to be sent to the Secretary at the Hospital.

BOROUGH OF EALING.**ASSISTANT MEDICAL OFFICER.**

Applications are invited from duly qualified medical men (single) with a Public Health qualification for the position of Assistant Medical Officer.

A candidate must have had experience in the treatment of cases of infectious disease at an Isolation Hospital. The duties will include the medical care of patients in the Ealing and Brentford and Chiswick Isolation Hospital, South Ealing, and the medical inspection and treatment of school children at schools and health centres in the Borough of Ealing.

The person appointed will reside at the Isolation Hospital, where furnished rooms and board will be provided.

He will be required to devote his whole time to the duties and will not be allowed to engage in private practice. The salary will be at the rate of £450 per annum, rising by £25 per annum to a maximum of £550, plus board and residence, as indicated above and valued at £150 per annum.

A deduction of 5 per cent will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in connection therewith. Canvassing will be a disqualification.

Copies of the application forms and terms of appointment can be obtained from Dr. THOMAS ORR, Medical Officer of Health, Town Hall, Ealing, W.5, to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than December 15th.

Town Hall, Ealing, W.5. R. H. WANKLYN, Town Clerk.

CITY OF MANCHESTER.**BOOTH HALL HOSPITAL FOR CHILDREN
(760 Beds).**

The Public Health Committee invites applications from registered medical men for the post of RESIDENT ASSISTANT MEDICAL OFFICER at the above-named hospital.

The salary for the appointment is £200 per annum, with board, residence and laundry in addition, subject to the Manchester Corporation conditions of service.

The appointment will be made in the first instance for a period of six months, renewable for a further six months, but not renewable thereafter.

Full information and forms of application may be obtained from the Medical Officer of Health, Town Hall, Manchester, 2, and applications for the post must be received by him not later than December 10th, 1938.

Town Hall, Manchester, 2. R. H. ADCOCK, Town Clerk.
November 28th, 1938.

CITY OF SALFORD.**ASSISTANT RESIDENT MEDICAL OFFICER,
HOPE HOSPITAL (1,150 Beds).**

Applications are invited for the post of Assistant Resident Medical Officer (male) at Hope Hospital, Salford. The appointment will be for six months in the first instance (to commence at the end of January, 1939), at £200 per annum, renewable for a further period of six months only at £225 per annum, plus board, residence, and laundry in each case. Further particulars and form of application may be obtained from the Medical Officer of Health, 143, Regent Road, Salford 5, Lancs, to whom it should be returned not later than December 10th, 1938.

H. H. TOMSON, Town Clerk.

**THE EAST HAM MEMORIAL HOSPITAL,
Shrewsbury Road, E.7. (104 Beds.)**

The General Committee invites applications for the post of HONORARY RADIOLOGIST.

Applications, stating age and full particulars, together with copies of three testimonials, should reach the undersigned on or before December 14th. Candidates will be expected to send copies of their applications and testimonials to and call upon Members of the Honorary Medical Staff.

REGINALD PERRY, Secretary.

**KING GEORGE HOSPITAL,
Ilford (near London). (207 Beds.)**

ASSISTANT CASUALTY OFFICER AND HOUSE SURGEON to SPECIAL DEPARTMENTS (male) required for a period of six months. Salary at the rate of £100 p.a.

Forms of application may be obtained from the undersigned, to whom they should be returned, duly completed, as soon as possible.

G. AUSTIN HEPWORTH, Secretary and Superintendent.

THE LONDON HOMOEOPATHIC HOSPITAL

(Incorporated by Royal Charter).
Gt. Ormond Street and Queen Square,
Bloomsbury, W.C.1.
(200 Beds.)

The Board of Management invite applications for the appointment of REGISTRAR, Candidates must possess a registrable University degree and are required to show evidence of the knowledge of the theory and practice of Homoeopathy.

It is further required that the successful candidate must be or become a member of the British Homoeopathic Society.

The appointment, which is an annual one, is renewable on the recommendation of the Medical Committee, carries an Honorarium of £150 per annum, and entails attendance at the Hospital not less than two hours daily.

Selected candidates will be required to attend a meeting of the Medical Committee for interview.

Applications, stating age, qualifications and experience, should be sent on or before December 31st, 1938, addressed to the undersigned, to whom further particulars may be obtained.

L. J. KNOWLES, Secretary.

**ROYAL FREE HOSPITAL
Gray's Inn Road, W.C.1.**

Applications are invited from duly qualified registered medical practitioners for the post of ANAESTHETIC REGISTRAR at the above hospital for one year from February 1st, 1939, with option to apply for reappointment for subsequent years.

The post is a non-resident one and carries a remuneration of £150 per annum.

Candidates should have had experience in the forms of anaesthetics, including dental work. They should submit applications, with copies of three recent testimonials, stating age and qualifications, to the undersigned on or before January 7th, 1939.

RICHARD T. BARTLEY, Secretary.

**THE MIDDLESEX HOSPITAL AND
MEDICAL SCHOOL,
London, W.1.**

Applications are invited for the post of OTOLOGICAL REGISTRAR. The appointment will be for one year from January 1st, 1939, and the holder will be eligible to apply for reappointment, and may retain office for three consecutive years. Salary £300 per annum.

Further particulars may be obtained from the Secretary-Superintendent, to whom applications with copies of not more than three testimonials must be sent by noon on Wednesday, December 14th, 1938.

S. R. C. PLIMSOLL, Secretary-Superintendent.
November 28th, 1938.

**THE LONDON CHEST HOSPITAL
Victoria Park, E.2.
(Bus, Tram and Rly., Cambridge Heath L. and N.E. Rly.)****SURGICAL REGISTRAR (Male)
(Part-time).**

Applications are invited for the above post. Four sessions a week, Tuesday and Friday mornings, essential. Appointment is for one year. Honorarium £100 per annum.

Applications, with copies of three testimonials, should be sent to the undersigned on or before Tuesday, December 6th, 1938.

THOMAS BROWN, Secretary.

**THE HOSPITAL FOR WOMEN
Soho Square, W.1**

Applications are invited for the post of HONORARY CLINICAL ASSISTANTS to HONORARY SURGEONS IN CHARGE OF OUT-PATIENTS. The appointments will be for attendance at one or two out-patient sessions per week for a period of six months, commencing January 1st, 1939. Sessions are held at 1.45 every week-day except Saturday.

Applications must reach the undersigned on Monday, December 12th, 1938.

J. P. HEMING, Secretary.

**THE NELSON HOSPITAL, MERTON, S.W.13
(84 Beds)**

RESIDENT HOUSE SURGEON (male, married) required January 1st, 1939, for duty in connection with Men's and Children's wards, share casualty work. Appointment for one year in first instance. Salary at rate of £175 per annum plus usual allowances and fees earned.

Candidates must be British by birth and registration. Applications, with copies of recent testimonials, should be sent to the Secretary on or before December 17th, 1938.

ESSEX AND COLCHESTER MENTAL HOSPITALS.**SEVERALLS MENTAL HOSPITAL.**

Applications are invited for the post of **MEDICAL SUPERINTENDENT** at Severalls Mental Hospital, Colchester. Applicants must be registered under the Medical Act, and have had previous Mental Hospital experience, and be not more than 45 years of age. Salary £1,100, rising by annual increments of £50 to £1,350 per annum, with unfurnished house, coal, firewood, light, garden produce, washing, carfare, and upkeep of garden.

A reduction will be made from the salary in accordance with the Asylum Officers' Superannuation Act 1909.

Copies of not more than three recent testimonials must be sent with the application, so as to reach the undersigned on or before December 22nd, 1938.

The appointment is subject to three months' notice on either side.

Direct or indirect canvassing will disqualify any applicant.

Forms of application must be obtained from the undersigned.

H. H. GEPT.

Clerk to the Committee of Visitors
66, Duke Street, Colchester.
November 22nd, 1938.

CHESHIRE COUNTY MENTAL HOSPITAL, PARKSIDE, MACCLESFIELD.

Male **ASSISTANT MEDICAL OFFICER** required, not over 30 years of age and single. Previous mental hospital experience not essential. Salary £350, rising annually by £25 to £450, with board, apartments and laundry, valued at £100, subject to deductions under the Asylum Officers' Superannuation Act 1909.

The successful candidate will be expected to obtain the D.P.M. (which can be with it an addition of £50 per annum to the salary stated), as soon as possible after appointment. There is every scope for original research, the hospital having a modern laboratory and full equipment for the latest methods of treatment.

Time will be arranged for attendance of lectures at Manchester University.

Preference will be given to candidate with laboratory experience.

Applications, stating qualifications, with copies of three recent testimonials, to be sent to the Medical Superintendent, to be received as soon as possible.

GLASGOW ROYAL CANCER HOSPITAL AND RADIUM INSTITUTE.**RADIUM OFFICER.**

Applications are invited for the post of Radium Officer at the above Institution, which is recognized by the National Radium Commission. Commencing salary £50.

Applications (14 copies) giving particulars of qualifications and previous experience, and accompanied by not more than three recent testimonials, to be lodged with the undersigned on or before December 20th.

H. MUIR LAWSON, C.A.,

Secretary and Treasurer.

156, St. Vincent Street,
Glasgow, C.2.

BIRMINGHAM UNITED HOSPITAL (Medical School).**THE CENTRE HOSPITAL.**

Edgbaston. (500 Beds.)

Applications are invited from fully qualified candidates for the post of **RESIDENT ANAESTHETIST**. Salary £70 per annum, with full residential emoluments.

Applications, stating age, experience, qualifications and nationality, with copies of recent testimonials, should be forwarded at once to the undersigned, not later than December 10th, 1938.

The Centre Hospital, G. HURFORD, Secretary.

COSSHAM MEMORIAL HOSPITAL, Kingswood, Bristol.

A vacancy will occur at the beginning of the year for a **RESIDENT MEDICAL OFFICER**. Salary £120 per annum, with board and laundry; to remain for six months in the first instance.

Applicants (male) should be of British nationality, fully qualified, and registered.

Applications, with copies of recent testimonials, to be sent to the Secretary.

COSSHAM MEMORIAL HOSPITAL, Kingswood, Bristol.

The Managing Body invite applications for the post of **HONORARY ANAESTHETIST**. Small honorarium, not later than December 10th, 1938.

Applications to the Secretary.

KING EDWARD VII HOSPITAL, WINDSOR. (200 Beds.)

Two **HOUSE SURGEONS** required beginning January. Applicants must be fully qualified men or women and unmarried.

Salary at the rate of £120 per annum, together with board, residence and laundry.

Applications, stating age, qualifications and experience, accompanied by testimonials, should be sent to the undersigned not later than December 7th. The appointments are recognized by the Royal College of Surgeons of England for the six months' training required of candidates before admission to the final examination for the Fellowship.

A. E. CHURCHER, Secretary.

HOUSLOW HOSPITAL, Staines Road, Middlesex.**HOUSE PHYSICIAN AND CASUALTY OFFICER.**

Applications are invited from male registered practitioners of British nationality for the above post. The appointment is for six months, from 1st February 1939, with eligibility for appointment for a further period. Salary £100 p.a. with board, residence and laundry.

Applicants, with copies of three recent testimonials, should be sent to the undersigned not later than 1st post on Tuesday, December 20th.

A. MOWBRAY BARKER, Secretary.

HARLOW WOOD ORTHOPAEDIC HOSPITAL, near Mansfield, Notts. (155 Beds. Two Residents.)

Applications are invited for the posts of **TWO HOUSE SURGEONS** (male), one to commence on January 1st, 1939, and the other to commence on February 1st, 1939. The appointments are for six months in the first instance. Salary is at the rate of £100 per annum, with board, residence and laundry.

Applications, stating age, qualifications and experience, with copies of testimonials, should be received by the Secretary not later than December 12th, 1938.

LINCOLN COUNTY HOSPITAL.

Wanted **SENIOR HOUSE SURGEON**, male, unmarried. Salary at the rate of £250 per annum, rising to £300 per annum at the conclusion of six months' approved service. Board, residence, and washing will also be provided.

Every candidate for the appointment must be registered under the Medical Act.

Applications, stating age and other particulars, with copies of not more than three testimonials, are to be sent to the undersigned from whom further particulars may be obtained.

ARTHER MOORE, Secretary-Superintendent.

Lincoln, November 26th, 1938.

ROYAL SOUTH HAMPS & SOUTHAMPTON HOSPITAL (296 Beds).

Applications are invited for the following appointments:

ONE HOUSE PHYSICIAN, ONE CASUALTY OFFICER.

for the six months commencing January 1st, 1939, each at a salary of £150 per annum, with board, lodging, and laundry. Candidates must be male and unmarried.

Applications, accompanied by not more than three testimonials, should be sent to the undersigned not later than Monday, December 5th.

S. W. BARNES,

House Governor and Secretary.

ROYAL VICTORIA HOSPITAL, Folkestone (155 Beds.)

The Committee of Management invite applications for the posts of two **HOUSE SURGEONS**, duties to commence on January 1st, 1939. Salaries £120 per annum, together with board, apartments and laundry.

Applications, with copies of not more than three recent testimonials, should be sent to the undersigned not later than December 12th, 1938.

SECRETARY-SUPERINTENDENT.

November 23rd, 1938.

BIRKENHEAD MATERNITY HOSPITAL, Grange Mount.**HONORARY OBSTETRICIAN.**

There is a vacancy for an **Honorary Obstetrician** on the staff of the above Hospital. Applications, stating age, qualifications, experience and present appointments, are invited. All applications must be accompanied by copies of three recent testimonials, and reach the Chairman not later than Dec. 31st, 1938. Applicants may be of either sex.

ROYAL HALIFAX INFIRMARY.

Hospital recognized by the Royal College of Surgeons (England).

Wanted, a **THIRD HOUSE SURGEON** as Casualty Officer in charge of Fracture Clinic. (Male, unmarried.) Candidates must be duly qualified and registered. The appointment will be for six months from January 1st, 1939. Salary, including all services required in connexion with Paying Patients' Ward, £150 per annum, with residence, board and laundry. The Resident Staff consists of Resident Surgical Officer and three House Surgeons. The Hospital contains Maternity and Paying Patients' Blocks. Also a Pathological Department, a large Eye, Ear, Nose and Throat Department, Radiological Department, and Radium Clinic.

Particulars of the duties may be obtained from the undersigned, to whom applications, stating age and nationality, together with testimonials, should be sent.

November 24th, 1938. **A. MIDDLEY, Secretary.**

ROCHFORD ISOLATION HOSPITAL (235 Beds.)**APPOINTMENT OF JUNIOR ASSISTANT MEDICAL OFFICER.**

Applications are invited from duly qualified and registered Practitioners for the above post. Candidates must be male and unmarried. The appointment is for twelve months and is not renewable. Salary at the rate of £250 per annum, plus the usual emoluments. Applicants should have held a resident hospital post, not necessarily in a fever hospital.

The Hospital is modern, offers good opportunities for the study of infectious diseases, and has a well-equipped Laboratory.

Applications, stating age, nationality, experience, etc., together with copies of two recent testimonials, to be sent to the undersigned, not later than Friday, December 16th, 1938.

Isolation Hospital, T. W. A. GREENHALGH, Rush Green, Clerk to the Board.

HULL ROYAL INFIRMARY.

Applications are invited for the post of **SECOND CASUALTY OFFICER** (male), vacant December 30th.

Salary £150 per annum, plus board, residence and laundry.

In addition to carrying out duties in the Casualty Department the officer appointed will act as House Surgeon to one of the Honorary Assistant Surgeons, and will thus be eligible for promotion to a more senior post when a vacancy occurs.

The appointment will be for a period of six months, but will be determinable at any time by one month's notice on either side.

Applications, giving particulars of age, experience and nationality, together with copies of testimonials, should be addressed to the undersigned.

R. J. CARLESS,

November 25th, 1938. House Governor.

ROYAL MANCHESTER CHILDREN'S HOSPITAL.

Pendlebury, near Manchester. (232 Beds.)

RESIDENT HOUSE SURGEON.

Applications are invited for the post of **Resident House Surgeon** for a period of six months, commencing February 1st, 1939. Salary £100 per annum. Candidates having previous experience in the administration of anaesthetics will be given preference.

Applications, stating qualifications and past experience, together with testimonials, to be sent to the undersigned not later than Thursday, December 29th, 1938.

Canvassing, directly or indirectly, may disqualify. By Order.

H. HEARDMAN, Secretary.

NORFOLK AND NORWICH HOSPITAL, Norwich. (440 Beds.)

Applications are invited for the post of **HOUSE SURGEON** to the ORTHOPAEDIC DEPARTMENT. Salary £120 per annum, with board, residence, and laundry. Candidates (male) must be unmarried and must possess registered qualifications.

Applications, stating age, nationality, etc., together with copies of testimonials, should be forwarded to the undersigned not later than Tuesday, December 13th, 1938.

FRANK INCH,

House Governor and Secretary.

Friday, December 2nd, 1938.

CHelsea HOSPITAL FOR WOMEN, Arthur Street, S.W.3.

There is a vacancy for a REGISTRAR AND RADIUM OFFICER (Gynaecological). Candidates must be Graduates in Medicine of a recognized university, or Fellows or Members of one of the Colleges of Physicians of London, Edinburgh, or Ireland, or Fellows of one of the Colleges of Surgeons of England, Edinburgh, or Ireland. They must be registered under the Medical Act and engaged in consulting practice only. There is an honorarium of £75 per annum.

Applications are invited for the above post and must be sent to the undersigned, accompanied by copies of three testimonials, not later than Wednesday, December 7th.

GEO. W. COOLING,
Secretary.

DREADNOUGHT SEAMEN'S HOSPITAL, Greenwich, S.E.10.

JUNIOR PATHOLOGIST,
Devonport Pathological Laboratory.

The Committee of Management of the Seamen's Hospital Society invite applications for this post. The appointment in the first instance will be for one year at a salary of £400 per annum, but the elected candidate will be eligible for re-election for a second year.

Applications, stating age and experience, with copies of not more than three recent testimonials, to be sent in on or before Friday, December 9th, to the undersigned.

Seamen's Hospital, F. A. LYON,
Greenwich, S.E.10 Secretary.

LONDON CHEST HOSPITAL, Victoria Park, E.2.

(Bus, Tram and Rly., Cambridge Heath,
L.N.E. Rly.)

REGISTRAR, EAR, NOSE AND THROAT
DEPT. (MALE). PART-TIME.

Applications are invited for the above post. The appointment will be for a period of one year.

Honorarium £50 per annum.
Applications, with copies of three testimonials, should be sent to the undersigned immediately.
THOMAS BROWN, Secretary.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.11. (135 Beds.)

CASUALTY OFFICER (male, unmarried) required. The appointment is for six months, commencing on January 1st, 1939. Salary £120 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered. Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to undersigned on or before December 7th, 1938.

W. S. RANDOLPH BISS,
Secretary-Superintendent.

HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W.3. (Out-Patient Department, Camden Town, N.W.1.)

A vacancy is declared in the office of OPHTHALMIC SURGEON TO OUT-PATIENTS. Candidates must be Fellows of the Royal College of Surgeons, England, and are required to call upon members of the Honorary Medical Staff of the Hospital.

Applications, stating age, qualifications, and experience, with copies of three testimonials, should reach the undersigned by December 16th, from whom full particulars may be obtained.

KENNETH A. F. MILES,

HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W.3.

Applications are invited from single medical men for the post of HOUSE SURGEON for six months, vacant January 1st next. Salary £100 per annum.

Applications on the prescribed form, with copies of three testimonials to be returned to the Secretary by December 10th.

EAST HAM MEMORIAL HOSPITAL, Shrewsbury Road, E.7. (104 Beds.)

Applications are invited for the post of HOUSE SURGEON AND CASUALTY OFFICER (male) for six months commencing January 1st. Salary at the rate of £120 per annum, with board, residence and laundry.

Applications, stating age, nationality, experience, and full particulars, together with copies of three recent testimonials, should reach the undersigned by December 14th.

REGINALD PERRY, Secretary.

NATIONAL HOSPITAL, QUEEN SQUARE, W.C.1.

RESEARCH FELLOWSHIP.

By the generosity of a private donor a FULL-TIME RESEARCH FELLOWSHIP has been created for the investigation of DISORDERS OF MUSCLE at the National Hospital, Queen Square, London, W.C.

The Fellowship will be open to graduates in science or medicine and is of the value of £500 per annum, tenable for one year in the first instance.

Applicants should state their previous experience and the method of investigations they propose to adopt.

Further particulars may be obtained from the Secretary, National Hospital, Queen Square, W.C.1, and applications should reach him by January 15th, 1939.

ROYAL MASONIC HOSPITAL, Ravenscourt Park, W.6.

A post of RESIDENT MEDICAL OFFICER (male), preferably with M.R.C.P. qualification, will be vacant on January 1st, 1939. Salary at the rate of £300 per annum, with board, residence, and laundry. The appointment is for twelve months. Candidates must be registered, and must have held resident appointments in General Hospitals.

The Institution (145 beds at present, but to be increased) is primarily for paying patients of both sexes of moderate means usually unable to afford ordinary Nursing Home treatment, etc.

Applications, stating full particulars, to be sent on or before Monday, December 5th, 1938, to the Honorary Secretaries, from whom further information may be obtained.

HOSPITAL FOR TROPICAL DISEASES.

RESIDENT MEDICAL SUPERINTENDENT.

The Committee of Management of the Seamen's Hospital Society invite applications for this post, falling vacant on January 1st, 1939. The appointment will be tenable for two years. Minimum commencing salary £250 p.a., with board, residence and laundry. Candidates must be male, single, and legally qualified and registered. Membership of the Royal College of Physicians and some knowledge of tropical medicine is desirable, but not essential.

Applications, stating age, with copies of not more than three recent testimonials, to be sent on or before December 7th, 1938, to

D. A. C. PRICE,
Hospital for Tropical Diseases, Secretary,
25, Gordon Street, W.C.1.

HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars.

The Committee of Management will shortly appoint an additional member of the HONORARY STAFF. Candidates should be either Members of the Royal College of Physicians (London) or Fellows of the Royal College of Surgeons (England).

Applications, with testimonials in support, must be sent before December 12th to L. Mundy, Secretary to the Hospital for Diseases of the Skin, 71, Blackfriars Road, S.E.1, from whom any further information may be obtained.

VIOLET MELCHETT INFANT WELFARE CENTRE.

Flood Walk, Chelsea, S.W.3.

Applications are invited for the position of MEDICAL OFFICER in charge of WEEKLY ANTE-NATAL and POST-NATAL CLINIC. Wednesdays, 2 to 4 p.m.; £11s. 6d. per session. Good experience essential.

Applications, with full particulars and three testimonials, should be sent to the Hon. Secretary by December 9th, 1938.

KING'S COLLEGE HOSPITAL.

The Committee of Management invite applications for the post of ASSISTANT PHYSICIAN.

Applications, with copies of three testimonials, should be sent before December 10th to the House Governor, King's College Hospital, Denmark Hill, S.E.5, from whom particulars of the duties may be obtained. Candidates must be Members or Fellows of the Royal College of Physicians of London.

ST. JOHN'S HOSPITAL, LEWISHAM, S.E.13.

Applications are invited for the resident appointment of HOUSE SURGEON (male) tenable for six months from January 1st, 1939, at a remuneration of £100 p.a. Applications, with copies of testimonials, should be received by the undersigned not later than Tuesday, December 13th.

J. C. GILBERT,
Secretary-Superintendent

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1.

A vacancy exists for a MORBID ANATOMIST AND SEBAG-MONTEFIORE RESEARCH FELLOW.

The appointment is whole-time and is resident.

The appointment in the first place is for one year, but is renewable. Initial salary according to experience, but not less than £600 per annum.

The successful candidate will be required to take up his duties in March, 1939, or subsequently by arrangement.

Candidates must be registered Medical Practitioners and trained in Pathological Anatomy and Histology.

Applications, accompanied by copies of not more than three testimonials given specially for the purpose, must be delivered to the undersigned not later than Monday, January 30th, 1939.

Candidates must be prepared to appear before the Joint Committee at their meeting on Wednesday, February 1st, 1939, at 4.45 p.m.

Forms of application and details of the appointment will be supplied on application.

HERBERT F. RUTHERFORD,
November, 1938. Secretary

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1.

The post of CLINICAL PATHOLOGIST will be shortly vacant. Salary £750 per annum.

The appointment is whole-time and non-resident. Facilities, within certain limits, will be given to private pathological practice.

The successful candidate will be required to take up his duties preferably on March 1st, 1939.

Candidates must be registered Medical Practitioners with special experience in bacteriology and clinical pathology.

Applications, accompanied by not more than three testimonials given specially for the purpose, must be delivered to the undersigned not later than noon on Monday, December 19th, 1938.

Candidates must be prepared to appear before the Joint Committee on Wednesday, December 21st, 1938, at 4.45 p.m.

Forms of application and details of the appointment are obtainable from the undersigned.

HERBERT F. RUTHERFORD,
November, 1938. Secretary

ST. PETER'S HOSPITAL FOR STONE ETC., Henrietta Street, Covent Garden, W.C.2.

The appointment of CLINICAL ASSISTANTS to the undermentioned members of the Honorary Staff, who attend the Out-patients' Department at the times indicated, will be considered at an early date. A fee of five guineas becomes payable to the funds of this Hospital on appointment, and applications should reach the undersigned on or about Tuesday, December 6th.

| | | |
|-------------------------|------------|---|
| Mr. John Sandrey | Mondays | 3.0 to 6.0 p.m. |
| Mr. Alban Andrews | Tuesdays | 2.0 to 5.0 p.m. |
| Mr. Ogier Ward | Wednesdays | 3.0 to 7.0 p.m. |
| Mr. F. J. F. Barrington | Thursdays | 3.0 to 7.0 p.m. |
| Mr. R. Ogier Ward | Fridays | 9.30 to 11.30 a.m. (women and children) |

| | | |
|-------------------|---------|-------------------------------------|
| Mr. Alban Andrews | Fridays | 3.0 to 6.0 p.m. (male out-patients) |
|-------------------|---------|-------------------------------------|

| | | |
|------------------|-----------|-----------------|
| Mr. John Sandrey | Saturdays | 2.0 to 6.0 p.m. |
|------------------|-----------|-----------------|

BEECHY ROGERS,
Secretary

THE ROYAL CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham Road, London, S.W.3.

Applications are invited for the post of ASSISTANT SURGEON to the Hospital. Candidates must be Fellows of the Royal College of Surgeons, England, or Masters of Surgery of a recognized British University.

The appointment is made subject to Rules and Conditions laid down by the Charter of Incorporation, details of which can be obtained from the Secretary.

Applications (eighteen copies), with copies of not more than three recent testimonials, should be sent to the undersigned by not later than the first post on Monday, December 19th, 1938.

CLEMENT COBOLD, Secretary

ST. PAUL'S HOSPITAL FOR UROLOGICAL AND SKIN DISEASES, Endell Street, London, W.C.2.

Applications are invited for the post of HOUSE SURGEON. Candidates must be qualified and registered. Salary £100 per annum, with board-residence. The appointment is for six months in the first instance, and the holder is later eligible for the post of Resident Medical Officer. During his appointment as House Surgeon the duties involve work in the surgical wards and in the Out-patient Department.

Applications, with copies of recent testimonials, to be submitted not later than December 15th, 1938. The successful candidate will be required to take up duty about the end of December.

J. P. KEY CHISLETT,
Secretary

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumshugh Gardens, Edinburgh).

(a) British Islands

| Town or District | Town or District | Town or District |
|---|---|--|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(contd.) | CONTRACT PRACTICE—(contd.) |
| ABERTYSSWG MEDICAL AID SOCIETY (Medical Officer) | MID-RHONDDA MEDICAL AID SOCIETY (Assistant Medical Officer) | OAKDALE, MON. (Medical Officer for Medical Aid Association) |
| BLAENAVON MEDICAL SOCIETY (Medical Officer) | NEATH AND DISTRICT (Medical Aid Association) | PUBLIC HEALTH |
| GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme) | OGMORE VALLEY GLAMORGAN (Brynham Colliers Medical Aid Society) (Workmen's Medical Scheme) | COUNTY OF Roxburgh. (Assistant Medical Officer of Health) |
| LLWYNPIA, CLYDACH VALLEY, PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme) | | WIGTOWN, COUNTY COUNCIL (Assistant Medical Officer of Health) |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch |
|--|--|--|--|--|--|
| NEW SOUTH WALES (All Friendly Society Appointments) | The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W. | VICTORIA (All Institute or Medical Dispensaries) | The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society, Hall Albert St., East Melbourne, Victoria | WESTERN AUSTRALIA (Contract and Locum Practitioners) | The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia. |
| QUEENSLAND (Brisbane Associate Friendly Societies Institute) | The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17. | | | | |

November 30, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

ROYAL UNITED HOSPITAL, BATH. HONORARY SURGICAL REGISTRAR.

Applications are invited for the post of Honorary Surgical Registrar.
Candidates must be Graduates in Surgery of a University of Great Britain or the British Empire.
Applications, stating age, qualifications and full particulars of experience, together with a copy of three testimonials, should be addressed to the undersigned on or before December 15th.
J. LAWRENCE MEARS,
November 19th, 1938. Secretary-Superintendent.

DARLINGTON MEMORIAL HOSPITAL. (200 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN AND CASUALTY OFFICER (vacant on December 31st), male, British nationality, fully qualified. Salary offered, £150 per annum, with board, residence, and laundry.
Applications, giving full particulars, stating age, qualifications, etc., etc., to be addressed to the undersigned.
ARTHUR RIDDLE, A.C.S.I.,
Secretary-Superintendent.

ROYAL UNITED HOSPITAL, BATH. HONORARY ANAESTHETIST.

Applications are invited from registered general practitioners for the post of Honorary Anaesthetist.
Applications, stating age, qualifications and full particulars of experience, together with a copy of three testimonials, to be addressed to the undersigned by December 15th. Other particulars may be obtained on application to—
J. LAWRENCE MEARS,
November 19th, 1938. Secretary-Superintendent.

ST MARY'S HOSPITALS. Manchester.

ONE HOUSE SURGEON for the WHITWORTH STREET WEST HOSPITAL (Maternity) and THREE for the WHITWORTH PARK HOSPITAL (two Gynaecological Department and one Children's Department); each for a period of six months from February 1st next. Salaries at the rate of £50 per annum, with board and residence.
RESIDENT ANAESTHETIST, to reside at the Maternity Branch and to give morning sessions in the Gynaecological and Children's Departments, for a period of twelve months from February 1st next, at a salary at the rate of £100 per annum, with board and residence. Successful candidates will be eligible for admission to the examination of the Examining Board in England for the Diploma in Anaesthetics, providing he has also held an appointment as House Physician or House Surgeon at a recognized general hospital for six months.
Applications, with copies of three testimonials, to be sent to the undersigned on or before December 13th.

A. R. WISE,
Superintendent and Secretary.

THE ROYAL INFIRMARY, SHEFFIELD.

The Board of Management invite applications for the post of OPHTHALMIC HOUSE SURGEON.
The salary attached to the post is £120 per annum, with board and residence.
The successful applicant will be expected to take up his duties on January 1st, 1939.
The Ophthalmic Department contains 69 beds and an Out-patient Department which is open daily.
Applications, with copies of testimonials, to be sent forthwith to the General Superintendent and Secretary.
November 11th, 1938.

PONTEFRAC T GENERAL INFIRMARY (YORKS)

JUNIOR RESIDENT MEDICAL OFFICER (male, unmarried), duly qualified registered Medical Practitioner. Commencing salary £150 per annum, with residence, board, and laundry.
The appointment to date for six months from January 1st, 1939.
Applications, stating age, with testimonials and nationality to be sent to the undersigned at once.
DAVID J. RICHARDS,
Secretary-Superintendent.

VICTORIA HOSPITAL FOR SICK CHILDREN. Hull (Incorporated).

The Board of the above hospital requires a RESIDENT HOUSE SURGEON (lady), also a RESIDENT HOUSE PHYSICIAN (lady), at a salary of £120 each, with board, residence, and laundry, to take up duties on January 1st, 1939.
Applications, with copies of recent testimonials, stating age, qualifications, and other particulars, to be sent to the Secretary not later than December 15th, 1938.

VICTORIA HOSPITAL, BLACKPOOL. (152 Beds.)

HOUSE PHYSICIAN (Male) REQUIRED.
There are four resident Medical Officers. Appointment is for six months. Salary at the rate of £150 per annum, with board, residence, and laundry.
Applications, with copies of three recent testimonials, should be sent to the
GENERAL SUPERINTENDENT.

(Appointments continued on p. 52)

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THESE luxurious deliciously satisfying smokes. 50's or 100 at 6/3 per 100; 58/6 per 1,000, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90 Piccadilly, London, W.1. (GRO. 1529.)

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THE finest combination ever discovered of Choice Natural Tobaccos. Every pipeful an indescribable pleasure 12/6 per 1 lb. tin, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

DOCTOR, RETIRED, MARRIED, CAN receive PAYING GUEST or CHILDREN of parents abroad. Select, healthy situation. Cheshire Area.—Address, No. 757, B.M.A. House, Tavistock Square, W.C.1.

JAFFA ORANGES, CASE 150, FINEST JUICY, 18s. Case 80, large seedless grapefruit, 18s. Case, half oranges, half grapefruit, 19s. Box 42 lbs. finest Newtown Pippins, 17s. 6d. Carriage paid. Cash with order. Ideal Christmas gift. Send for Christmas price list.—SUNRISE FRUIT, N.J.3, Pierhead, Liverpool.

NATIONAL ADOPTION SOCIETY, 4, BAKER STREET, W.1, Telephone: Welbeck 7211, OFFERS ASSISTANCE in the legal adoption of illegitimate and orphan babies into suitable family life. Chairman, THE LADY GWENETH CAVENTISH.

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M.I.S.C.—THESE DESIGNATORY letters after a CHIROPODIST'S name indicate that he or she is a MEMBER of the INCORPORATED SOCIETY OF CHIROPODISTS. Founded 1912. Patron: His Grace the Duke of Portland, K.G., P.C., G.C.V.O. The Society is a Recognized Qualifying Body of the Board of Registration of Medical Auxiliaries, and its Panel of Examiners in Medical Subjects is approved by the Royal College of Physicians and Royal College of Surgeons of England respectively. The regulations of the Society PROHIBIT Members from advertising, but names and addresses of chiropodists in the district who are Members of the Society, and also information regarding training for Membership, may be obtained from the Secretary, Incorporated Society of Chiropodists, 21, Cavendish Square, London, W.1. (Tele., Langham 3228.)

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PARTY TO SAAS-FEE (6,000 FT.), SWITZER- land, December 28th-January 11th, 16 gns. Winter Sports certain. Splendid skiing and ski school.—Large ice-rink adjoining hotel. Magnificent scenery; brilliant sunshine. Largest hotel entirely reserved for families and adults; separate hotel for public schoolboys. Dr. and Mrs. C. F. Fothergill with the party. Write for prospectus.—DR. FOTHERGILL, Chorley Wood. Phone 24.

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WANTED IMMEDIATELY, MALE ASSIS- TANT, British, outdoor, with view, for mixed practice, pleasant district, N.W. (Early Work light. Salary according to qualifications and experience. Usual bond. Excellent prospects for suitable man.—Address, No. 677, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, OUTDOOR ASSISTANT, mixed practice, 7 miles centre of Manchester. Salary £325 p.a., plus £50 p.a. car allowance, and all found.—Address, No. 752, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view to Partnership. Good salaries offered. State particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED IMMEDIATELY, ACTIVE married ASSISTANT, to live at sunny Good house; seven miles from Manchester. Salary £150, rent and rates, £50 car allowance.—Address, No. 827, B.M.A. House, Tavistock Square, W.C.1.

WANTED NOW, FOR SHORT TERM, Protestant outdoor ASSISTANT, under 31, graduate with surgical experience or F.R.C.S. Good-class practice in residential northern district. State age, nationality, experience. Own car necessary, allowance.—Address, No. 784, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, ASSISTANT, outdoor, single, male, English or Scot., in attractive N.E. of E. town. Salary £300 p.a., with board and lodging; £50 car allowance. Own car and interview essential. No view.—Address, No. 800, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR ASSIS- TANT, male, unmarried. South Coast town. Commencing salary £300 p.a., plus £50 car allowance.—Address, No. 794, B.M.A. House, Tavistock Square, W.C.1.

WANTED SOON, KEEN YOUNG INDOOR ASSISTANT, single, preferably Scot., to work with busy West End doctor. Private and panel practice. Post offered good scope to right man, who must have hospital experience and good knowledge of general practice. Salary £350 per annum, on progressive scale according to receipts. Car expenses allowed. Ultimate partnership could be arranged with right man. References required.—Address, No. 829, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR MALE ASSISTANT, recently qualified, for a good middle-class practice near a city, West of England. Salary £350 per annum, car provided. View to partnership later. State nationality.—Address, No. 785, B.M.A. House, Tavistock Square, W.C.1.

WANTED, OUTDOOR MALE ASSISTANT, large married or single, experienced, for partnership practice, East Coast town. Salary £350, partnership later to suitable man. In all found. Partnership later to suitable man. Interview required. Commence duties January 1st.—Address, No. 756, B.M.A. House, Tavistock Square, W.C.1.

WANTED FOR GOOD-CLASS COUNTRY town practice with modern hospital, well-qualified outdoor ASSISTANT. Resident appointments and midwifery experience essential. Early partnership to suitable man. Salary £500 p.a. and £50 car allowance.—Address, No. 822, B.M.A. House, Tavistock Square, W.C.1.

WANTED, EXPERIENCED MALE ASSIS- TANT, outdoor, Protestant, January. Panel and private practice; Scotland. Partnership later to suitable man. £400, plus £50 car allowance. State experience.—Address, No. 786, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR ASSISTANT TO THREE doctors, with view, well-established practice. Middlesex. Salary £300 p.a. and car allowance.—Address, No. 751, B.M.A. House, Tavistock Square, W.C.1.

WANTED, OUTDOOR ASSISTANT, WITH early view, in mixed practice thirty miles from London. Good house and salary to suitable man; all facilities and conveniences available.—Address, No. 762, B.M.A. House, Tavistock Square, W.C.1.

WANTED. EXPERIENCED MALE ASSISTANT. January 1st, West Riding City, loc at branch surgery. Salary £350 plus £75 car allowance. All found—Address, No. 790, B.M.A. House, Tavistock Square, W.C.1.

WANTED. YOUNG WELL-QUALIFIED ASSISTANT for increasing practice on outskirts of important city in the South Coast. Small panel. Prospects for man capable of maintaining present rate of increase and standard of work. Salary £350 p.a., keen and car allowance—Address, No. 625, B.M.A. House, Tavistock Square, W.C.1.

WANTED—PART-TIME WORK BY POST. Graduate working D.M.R.E. Surgeries or electrotherapeutic, private or institutional. Experienced; accustomed end-of-class practice. London or within 50 miles—Address, No. 790, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT WANTED FOR GENERAL PRACTICE in N. London. Salary £400 p.a. and partnership (one-third share at first) in three months' time. The income of the practice is £3,000 p.a., and there is a parcel of 4.500—Address, No. 619, B.M.A. House, Tavistock Square, W.C.1.

EVENING SURGERIES AND PART-TIME WEEK-END WORK. without residence, required by Postgraduate working for higher examinations. Excellent London hospital experience—Address, No. 706, B.M.A. House, Tavistock Square, W.C.1.

INDOOR ASSISTANT REQUIRED. SINGLE Large industrial practice, North-East coast. Good salary for suitable man, with view to partnership. Car provided—Address, No. 772, B.M.A. House, Tavistock Square, W.C.1.

M.B. Ch B. GLASGOW. FEMALE AGED 32. desires outdoor ASSISTANTSHIP country or suburban practice. Hospital and general practice experience. Available for interview now—Address, No. 755, B.M.A. House, Tavistock Square, W.C.1.

OUTDOOR MALE ASSISTANT WANTED immediately, young, recently qualified, for general practice, South Coast town. Salary £450, including car allowance. Reply with full particulars. Interview essential—Address, No. 792, B.M.A. House, Tavistock Square, W.C.1.

PERMANENT ASSISTANT FOR LONDON immediately. Suitable for married man—Address, No. 759, B.M.A. House, Tavistock Square, W.C.1.

QUALIFIED FEMALE ASSISTANT required for PART-TIME HELP in surgery, S.W. London, under two miles from Hyde Park Corner. Divan sitting-room and light offered for two evening surgeries. Possibility of more work and salary later—Address, No. 831, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS

LONDON EX-H.P. I.I.S. AND RESIDENT obstetric officer, extensive G.P. experience, good appearance, own car, requires LOCUMSHIP or SHORT ASSISTANTSHIP. Commence immediately. Excellent references—Address, No. 782, B.M.A. House, Tavistock Square, W.C.1.

LOCUM WORK, OR OUTDOOR ASSISTANTSHIP wanted by experienced G.P. accustomed to both good-class private practice and industrial. Excellent testimonials. Lond Hospital, Abstrainer, Ch. of Eng. Own car—Write, Doctor, c/o The Spinney, Norwood Road, Iver Heath, Bucks

LOCUM WORK WANTED BY EXPERIENCED elderly general practitioner. Small practice, mental home. Interview; references. Active; well received. Drive car—Write, Doctor, c/o The Spinney, Norwood Road, Iver Heath, Bucks

M.D. (LOND.) WOULD BE GLAD OF LOCUM WORK. Free Dec. 1st. Own car. Experienced. £58. weekly, with travelling expenses—Address, No. 826, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS

LADY REQUIRES POST AS HOUSEKEEPER. Well acquainted with working of doctor's household. References—Address, No. 788, B.M.A. House, Tavistock Square, W.C.1.

WANTED. DISPENSER-SECRETARY FOR suburban and rural partnership near Liverpool. No mixed dispensing. Knowledge of typing essential. Particulars of experience and references required before interview—Address, No. 776, B.M.A. House, Tavistock Square, W.C.1.

A LADY DISPENSER BOOKKEEPER SUP- plied immediately, on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparations for Examination—Write, wife, or phone (Bayswater 0609) Secretary, 7, Westbourne Park Road W.2

A COURSE OF TRAINING IN DISPENSING and Pharmacy is given at GORDON HALL SCHOOL OF PHARMACY and Secretary-Dispensers can be supplied to Doctors. Sessions January, April and September—Apply, Principals, School of Pharmacy, Drayton House, Gordon Street W.C.1. Phone: Euston 3930

Readers frequently desire to refer to advertisements concerning Appliances, Preparations, etc., which have appeared in earlier issues of the Journal.

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British Medical Journal,
B.M.A. House,
Tavistock Square,
London, W.C.1.

Phone: EUSTON 2111.

DISPENSER-SECRETARY. GENTLEWOMAN. requires POST with firm of doctors. Hall qualification; sound knowledge of nursing, quick and efficient, has had eight years' experience general practice—Address, No. 765, B.M.A. House, Tavistock Square, W.C.1.

DISPENSING CAREER FOR YOUNG LADIES FULL TRAINING for Apothecaries Hall Certificate. Enrolments every three months—Apply, The Principal, Central School of Pharmacy, 24, Moreton Street, London, S.W.1. Telephone: Victoria 1641.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeur-Dispensers, are invited to write, wife, or phone Temple Bar 5858. THE DISPENSER'S BUFEAL, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

LADY (YOUNG) DISPENSER WITH APOTHE- caries Hall Certificate seeks permanent position. Experienced bookkeeping and able to drive car. South of England preferred—Address, No. 823, B.M.A. House, Tavistock Square, W.C.1.

PHYSICIAN AND SURGEON, 25 YEARS' varied experience home and abroad, seeks ADMINISTRATIVE or CLINICAL APPOINTMENT. Energetic. Alternatively, practice where personality important and part capital acceptable out of income—Address, No. 793, B.M.A. House, Tavistock Square, W.C.1.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 55, Eccleston Square, S.W.1. (Telephone: Victoria 2222). Supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

YOUNG LADY DESIRES POST AS DIS- PENSER, eight years' experience dispensing. Able to drive car and keep books—Eileen O. Pickford, 10, Derby Lodge, Finchley, N.3

PARTNERSHIPS

WANTED. A THIRD PARTNER IN AN old-established practice in a country town in Midlands. Cash receipts over £6,000 a year. Must have good surgical experience. Preferably a Cambridge graduate, but not essential—Address, No. 710, B.M.A. House, Tavistock Square, W.C.1.

WANTED A THIRD PARTNER IN AN old-established practice, south coast. Cash receipts over £5,000 a year. One-fifth or one-tenth share offered at two years' purchase. Midwifery experience essential. Opportunities for appointment on staff of small hospital. Short preliminary assistantship required—Address, No. 774, B.M.A. House, Tavistock Square, London, W.C.1.

ENERGETIC M.R.C.S. L.R.C.P. WANTS PARTNERSHIP. Share worth £1,200 upwards. Country or country town with good house and garden. Preliminary Assistantship essential. Free reply—Address, No. 773, B.M.A. House, Tavistock Square, W.C.1.

EASTERN COUNTIES—FIFTH PARTNER required in well-established and increasing mixed-class practice in town and country districts. Hospital appointment assured. Books audited. Good house available. Initial share approx. £1,250, with further increase. Two years' purchase. Preliminary assistantship 6 months. Must have done good hospital appointments—Address, No. 623, B.M.A. House, Tavistock Square, W.C.1.

FOURTH PARTNER REQUIRED VERY shortly in old-established practice in country town eighteen miles London. A share worth approximately £1,000 gross, for disposal at two years' purchase. The incoming partner should be aged 25 to 35 years and should have held House appointments. Modern local hospital—Address, No. 775, B.M.A. House, Tavistock Square, W.C.1.

HALF-SHARE IN OLD-ESTABLISHED steadily increasing practice in flourishing Midland town. Average cash receipts for past three years £3,633 p.a. Panel 3,000. Premium £3,000. Pleasantly situated house £2,200, or rent £100 p.a.—Address, No. 621, B.M.A. House, Tavistock Square, W.C.1.

LADY PARTNER REQUIRED, OLD-ESTAB- lished Ladies' Mental Home. Resident, with full maintenance. Capital required—Address, No. 760, B.M.A. House, Tavistock Square, W.C.1.

PARTNER WANTED FOR MIXED GENERAL practice near Birmingham. Panel 4,700. One-third share available two years' purchase. Married man preferred. Capital essential. Gross receipts £3,500—Address, No. 757, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP SHARE WORTH NEARLY £1,500 p.a. gross, accountants' figures, in very sound old-established practice in Northern town offered to young English graduate, capable of minor surgery, at 1½ years' purchase—Address, No. 695, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP WANTED BY GERMAN Jewish doctor. M.D. Heidelberg, L.R.C.P. and S. Edinburgh. Age 32 years. Long hospital and G.P. experience. Five years in this country—Address, No. 755, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP, YIELDING ABOUT £1,200 (triple), offered in mixed practice in large Kentish town thirty miles London. Applicant must be well qualified, with experience—Apply Address, No. 761, B.M.A. House, Tavistock Square, W.C.1.

SALE OF LAND.

CITY OF LIVERPOOL.

HOUSING ACT, 1936.

Site for Doctor's and Dentist's Residences, Woolfall Heath Estate, Knowsley.

The Housing Committee of the Liverpool Corporation are prepared to consider TENDERS for the purchase of two sites, each containing about 800 square yards, situated in close proximity to the proposed shopping centre, on the Woolfall Heath Estate, Knowsley.

The site will be sold on a lease of 999 years, and, if required, the purchase monies may be commuted into annual ground rents.

Particulars can be obtained at the office of the Director of Housing, Blackburn Chambers, Dale Street, Kingsway, Liverpool, 2, where a plan showing the sites is available for inspection.

Tenders should be delivered through the post at the office of the Town Clerk, Municipal Buildings, Dale Street, Liverpool, 2, on or before 12 o'clock noon on Monday, December 12th, 1938, the envelope to be endorsed "Tender, Doctor's/Dentist's Site, Woolfall Heath Estate."

Municipal Buildings, W. H. BAINES,
Liverpool, November, 1938. Town Clerk.

APPOINTMENTS.—Contd.

PRINCE OF WALES HOSPITAL, PLYMOUTH.

Incorporating South Devon and East Cornwall Hospital, Greenbank Road; Royal Albert Hospital, Devonport; Central Hospital, Lockyer Street.

Applications are invited for the post of HONORARY ASSISTANT SURGEON to the Hospital (the Honorary Surgical Registrar is a candidate for the post).

Candidates must be Masters of Surgery at a University of the United Kingdom or Fellows of the Royal College of Surgeons of England or of Edinburgh.

Applications and testimonials must reach the undersigned, from whom the rules and regulations governing the appointment may be obtained, on or before December 24th, 1938.

Personal canvassing disqualifies, but candidates may send copies of their application and testimonials to the members of the Board.

ARTHUR R. CASH,
General Superintendent.

November 30th, 1938.

ROYAL BUCKINGHAMSHIRE HOSPITAL, Aylesbury. (112 Beds.)

Applications are invited for the posts of SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (male) for six months beginning January 1st, 1939. Salaries £200 and £150 p.a. respectively, with full board, residence in own flat, and laundry.

Previous Hospital experience is desirable. Opportunity will be afforded to undertake all branches of medical and surgical practice, including anaesthesia, and to work with London consultants.

Selected candidates will be required to attend for interview by the Medical Committee on Friday, December 16th, 1938.

Applications must reach the undersigned by Monday, December 12th, 1938.

F. G. DAWES, Secretary.

WORTHING HOSPITAL.

Applications are invited for the post of SURGEON to the Hospital. Candidates must be Fellows of the Royal College of Surgeons of England or Masters in Surgery of a British university. They should not be engaged in general practice and must reside within easy access to the Hospital.

Applications, with not more than three testimonials (copies only), together with the names of persons to whom reference can be made, should be sent to the Secretary-Superintendent of the Hospital, from whom further particulars may be obtained. They should be received not later than December 17th, 1938.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2. (160 Beds.)

HOUSE PHYSICIAN required January 1st, 1939. CASUALTY OFFICER required January 1st, 1939. Some Dermatological work in addition.

Six months appointment. Salary at the rate of £100 per year, with board, lodging, and laundry in kind.

Applications must be made on forms to be obtained from the undersigned, and be sent in, with copies of not more than three testimonials, on or before December 7th, 1938.

CHARLES H. BESSELL,
November 14th, 1938. Secretary.

THE GENERAL INFIRMARY AT LEEDS. (673 Beds.)

Applications are invited for the post of FULL-TIME ASSISTANT in the new X-RAY DIAGNOSTIC DEPARTMENT.

The commencing salary will be at the rate of £400 p.a., and the Federated Superannuation Scheme for Nurses and Hospital Officers will apply.

Candidates must be duly registered Medical Practitioners, with special experience in Radiological work, and should possess a Radiological Diploma.

Applications, accompanied by copies of recent testimonials, stating age, qualifications, etc., should be sent to the undersigned not later than December 9th, 1938.

S. CLAYTON FRYERS,
House Governor and Secretary.

THE ROYAL HOSPITAL, WOLVERHAMPTON (Incorporated under Charter).

Applications are invited for the post of REGISTRAR to the FRACTURE and ORTHOPAEDIC DEPARTMENT.

The Hospital contains 300 beds and is recognized by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must possess one of the higher qualifications in Surgery.

The post is a non-resident one, and the appointment will be, in the first place, for twelve months. Salary £400 per annum.

Applications, with copies of testimonials, to be forwarded to the undersigned, from whom further information may be obtained.

W. H. HARPER,
November 22nd, 1938. House Governor.

THE WEST NORFOLK AND KING'S LYNN GENERAL HOSPITAL. (112 Beds.)

RESIDENT SURGICAL OFFICER.

Applications are invited for the above post, which will become vacant on January 9th, 1939. Salary £300 per annum.

The duties include much operative work, and preference will be given to a candidate holding the F.R.C.S. Eng. diploma.

Applications, stating nationality, age, together with copies of recent testimonials, should be sent to the undersigned.

JOSEPH E. SEARJEANT, F.R.C.S.,
House Governor and Secretary.

THE PRINCESS BEATRICE HOSPITAL, Earl's Court, London, S.W.5. General Hospital (81 Beds.)

RESIDENT SURGICAL OFFICER (male) required for a period of six months in the first place from January 1st, 1939, eligible for re-election. Salary at the rate of £200 per annum, with board, residence, and laundry (together with £25 to cover all duties during the six months relating to private patients). Previous resident experience and F.R.C.S. essential.

Applications, with copies of three recent testimonials, should be received by the Secretary not later than 9 a.m., Monday, December 5th, 1938.

THE PRINCESS BEATRICE HOSPITAL, Earl's Court, London, S.W.5. General Hospital (81 Beds.)

Applications are invited for the appointment of HONORARY ASSISTANT SURGEON to the Ophthalmic Department of The Princess Beatrice Hospital. Candidates must be F.R.C.S. Eng. and engaged in consulting practice only.

Applications, together with copies of three recent testimonials, should be received by the Secretary by the first post on December 5th, 1938.

YORK COUNTY HOSPITAL. (204 Beds.)

Applications are invited for the post of HOUSE SURGEON for a period of not less than six months. Salary £150 per annum, with board, residence and laundry.

Applications, stating age and previous experience, together with copies of not more than three recent testimonials, to be sent to the undersigned not later than 9 a.m. on Monday, December 5th, 1938.

J. R. MACKRILL, Secretary.

MAIDENHEAD HOSPITAL, BERKSHIRE. (56 Beds.)

Applications are invited for the posts of HON. GYNAECOLOGIST and HON. DERMATOLOGIST respectively.

Applications, with copies of recent testimonials, should be received by the undersigned by December 17th, 1938.

R. J. FANNING,
Superintendent-Secretary.

WEST LONDON HOSPITAL, Hammersmith, W.6. (219 Beds.)

Required, ONE HOUSE PHYSICIAN and THREE HOUSE SURGEONS (males). These appointments are tenable for six months from January 1st next, subject to one month's notice on either side. The duties of the House Physician include some work in the Neurological and Dermatological Departments. The duties of one House Surgeon include some work in the X-ray Therapy Department, another some work in the Gynaecological Department, and the third some work in the Ear, Nose and Throat and Ophthalmic Departments. For this last appointment it would be desirable that candidates should be reading for the D.L.O. Salary at the rate of £100 a year, with full board and lodgings.

Candidates must be registered under the Medical Act.

Applications (which must be on printed forms obtained from me) must reach me not later than first post on Thursday, December 15th. Selected candidates will be required to call upon each member of the Medical Staff as directed; to be in attendance at a Meeting of the Medical Council at 4.30 p.m. on Friday, December 23rd, and at the House Committee Meeting at 5 p.m. the same day, when the appointments will be made.

H. A. MADGE,

Secretary.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL, Shooters Hill, London, S.E.18. General Hospital (112 Beds.)

The Board of Management invites applications from suitably qualified male candidates for appointment as CASUALTY OFFICER for six months from January 1st, 1939. The remuneration will be at the rate of £100 per annum, plus board, residence, and laundry. The candidate appointed will act as deputy for the Resident Surgical Officer, with consequent opportunities for major surgery.

The closing date for the receipt of applications (which should be made on the prescribed form obtainable from the undersigned) is Monday, December 12th, 1938, and short-listed candidates will be invited to meet the Appointments Committee (at the Hospital) on Thursday, December 15th, at 4.45 p.m.

R. S. G. HUTCHINGS,

Secretary.

WEST HAM HOSPITAL FOR NERVOUS AND MENTAL DISORDERS, Goodmayes, Ilford, Essex.

Applications are invited for a Male JUNIOR ASSISTANT MEDICAL OFFICER at the above Hospital. Candidates must be unmarried.

The commencing salary is at the rate of £350 p.a. annum, rising by annual increments of £25 to a maximum of £450 per annum, together with emoluments consisting of board, laundry, and attendance. The value for superannuation purposes at £150. The person appointed will also be paid, in addition to his salary, the sum of £50 p.a. per annum on obtaining the Diploma of Psychological Medicine.

The appointment is subject to the provisions of the Asylum Officers' Superannuation Act, 1909, Class 1, and to a satisfactory medical examination.

The Hospital is situated ten miles from London and experience. Applications, stating age and experience, accompanied by copies of three recent testimonials, must reach the Medical Superintendent not later than December 12th, 1938.

THE WILLESDEN GENERAL HOSPITAL, Harlesden Road, N.W.10.

OUT-PATIENT DEPARTMENT CLINICAL ASSISTANTS (HONORARY).

Applications are invited for appointment to the following sessions:—

GYNAECOLOGICAL—Thursday mornings

SURGICAL—Friday afternoons

MEDICAL—Friday mornings

Applications should be forwarded to the Secretary, from whom further details of the appointments may be obtained, and should be received not later than first post on Tuesday, December 13th, 1938.

November 28th, 1938.

THE WILLESDEN GENERAL HOSPITAL, Harlesden Road, N.W.10.

Applications are invited from fully-qualified and registered candidates (unmarried) for the appointment of a Resident Officer, to hold the appointment of CASUALTY OFFICER for a period of three months, from January 1st, 1939, followed by six months' appointment as HOUSE SURGEON (Total nine months.)

Salary at the rate of £100 per annum. Applications to be received by the Secretary not later than first post on Thursday, December 15th, 1938.

November 28th, 1938.

BIRMINGHAM UNITED HOSPITAL**FULL-TIME ASSISTANT TO THE RADIO-LOGICAL DEPARTMENT.**

Applications are invited for the above post. The appointment is for one year, the holder being eligible for re-election.

Salary £400 p.a. to £450 p.a. according to experience.

Candidates must be registered Medical Practitioners and must possess a Diploma in Radiology.

Applications must be sent to the undersigned from whom all further particulars can be obtained, stating age, experience, and qualifications, with copies of recent testimonials, not later than December 17th.

G. HURFORD, Secretary.

Birmingham United Hospital

The Centre Hospital,

Edgbaston, Birmingham, 15.

November 29th, 1938

NEWCASTLE-UPON-TYNE CITY MENTAL HOSPITAL.

Gosforth, Newcastle-upon-Tyne

A Male ASSISTANT MEDICAL OFFICER (Locum Tenens), under 35, is required for a period of 10 to 12 weeks from January 6th, 1939.

Salary 7 guineas per week, with usual residential allowances.

Form of application may be obtained from the Medical Superintendent.

November 24th, 1938.

ROYAL CORNWALL INFIRMARY.

Truro (180 Beds)

SENIOR HOUSE SURGEON wanted for January 1st, 1939. Salary £150 per annum, with board, residence, laundry, and attendance. Previous Hospital experience essential.

Applications, stating age, nationality and experience, to be forwarded to the undersigned.

A Junior House Surgeon will be appointed on March 1st, 1939.

Truro. W. E. GRENFELL, Hon. Secretary

November 22nd, 1938

NORTHERN COUNTIES CHEST HOSPITAL.

A vacancy will shortly exist at the Northern Counties Chest Hospital, Beecroft Road, Newcastle-upon-Tyne, 4, for an HONORARY

MEDICAL OFFICER for one afternoon (Thursday) session weekly, of approximately two (2) hours' duration (2-4 p.m.). Preference will be given to applicants engaged solely in consulting or hospital practice. Applications should reach the Secretary of the Hospital by December 12th, 1938.

Truro. W. E. GRENFELL, Hon. Secretary

November 22nd, 1938

BIRMINGHAM MATERNITY HOSPITAL

HOUSE SURGEON (man or woman) wanted for nine months from February 1st, 1939 (three months in Hospital, three months on District, and three months in Hospital). Salary to be at the rate of £75 per annum.

Applications, with full particulars and copies of testimonials, to be sent not later than December 9th to Mr. C. A. S. 45, Newhall Street, Birmingham 3.

Truro. W. E. GRENFELL, Hon. Secretary

November 22nd, 1938

SOUTHEND-ON-SEA GENERAL HOSPITAL.

215 Beds. Eight Residents. Hon. Specialist Staff of Twenty Members.

Applications are invited for the post of

HOUSE SURGEON.

including work in the Ear, Nose and Throat Department. Salary £100 p.a., with board, residence, and laundry. The appointment is for six months from January 1st, 1939.

Applications, with copies of two recent testimonials, should be received by the undersigned not later than December 15th.

This post is recognized by the Royal College of Surgeons

P. H. CONSTABLE,

Secretary.

VICTORIA HOSPITAL, BLACKPOOL.

(162 Beds.)

HOUSE SURGEON (Male) REQUIRED TO SURGICAL UNIT, 2.

The appointment is recognized by the Royal College of Surgeons of England in connexion with the Final Fellowship Examination.

There are four resident Medical Officers. Appointment is for six months. Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, with copies of three recent testimonials, should be sent to the

GENERAL SUPERINTENDENT



A New B.M.A. Specialist Publication

BRITISH HEART JOURNAL

The first issue of this new quarterly Journal, jointly edited by Dr. Maurice Campbell and Dr. Evan Bedford, assisted by an Editorial Board appointed by the Cardiac Society, will be published in January, 1939. The new periodical will include matter dealing with everyday diagnosis and treatment of patients and will, therefore, be of value to the general practitioner as well as to the cardiologist to whom it will have an obvious appeal.

An announcement of the contents of the forthcoming number will appear in due course.

ISSUED BY THE BRITISH MEDICAL ASSOCIATION

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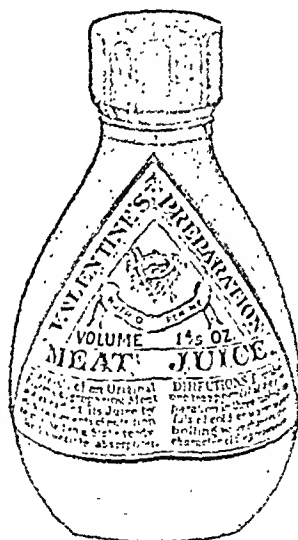
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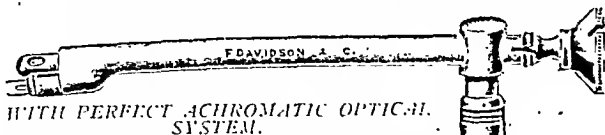
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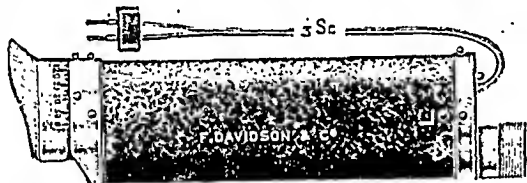


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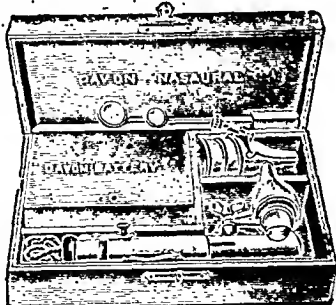
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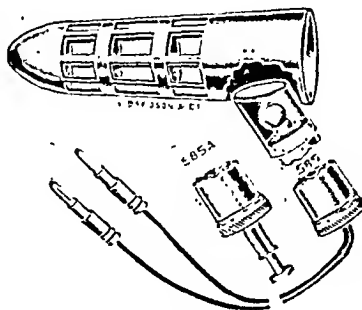


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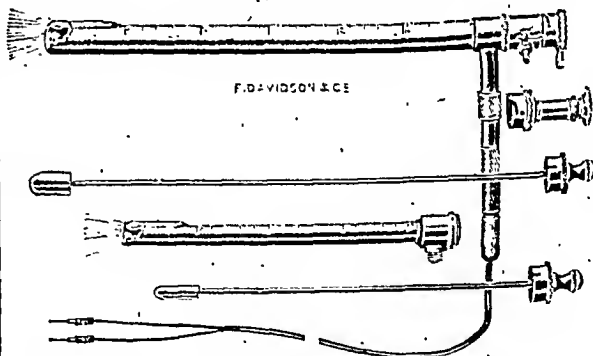


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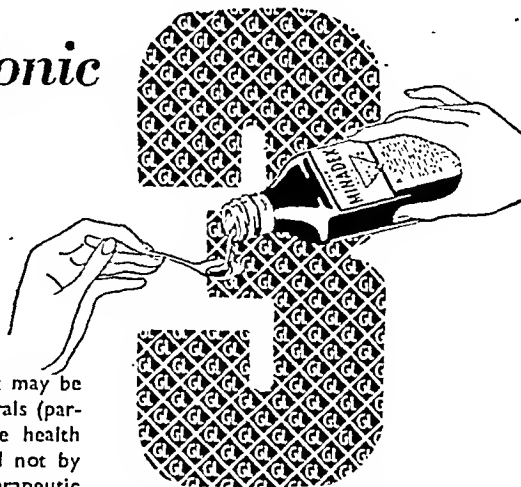
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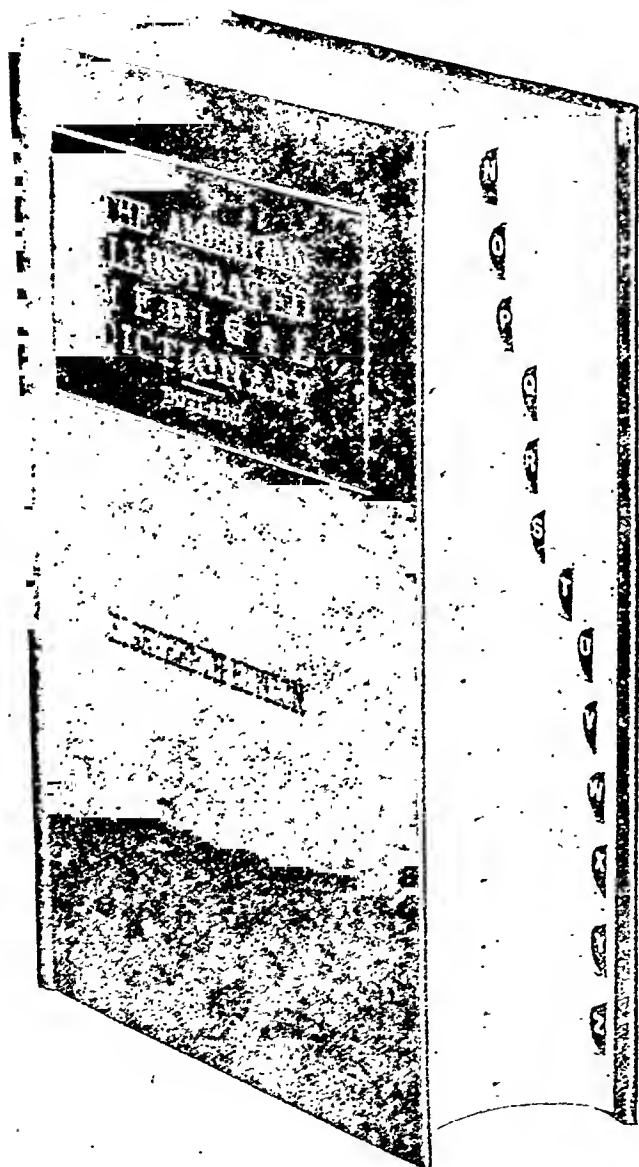
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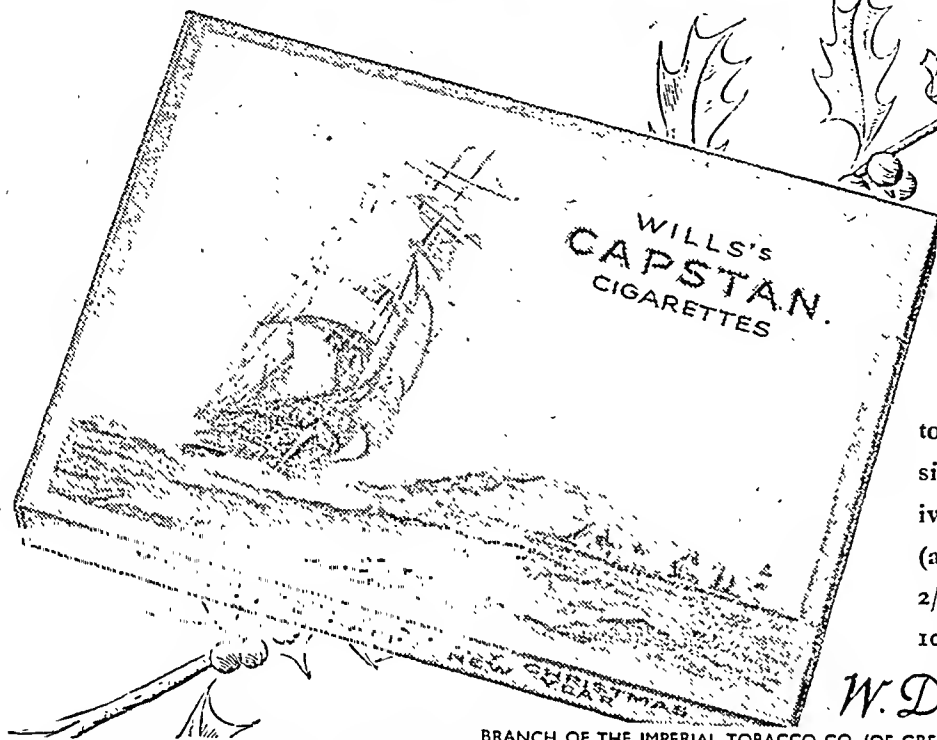
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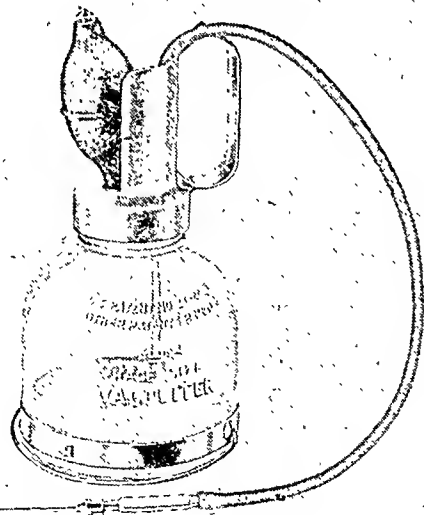


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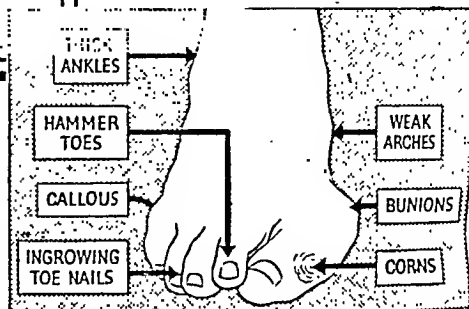
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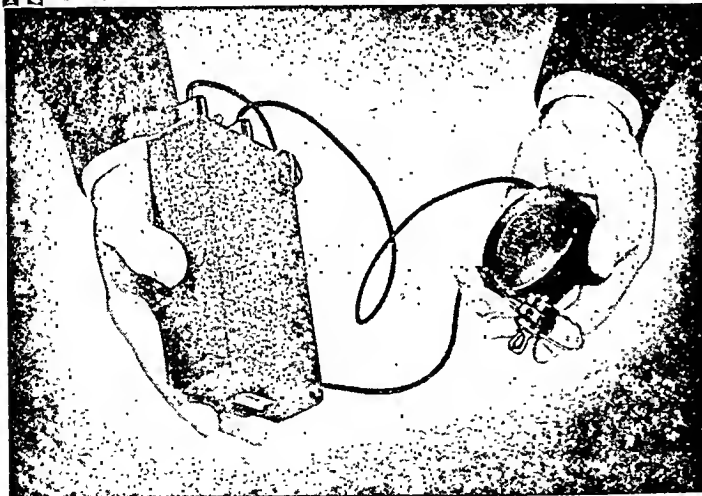


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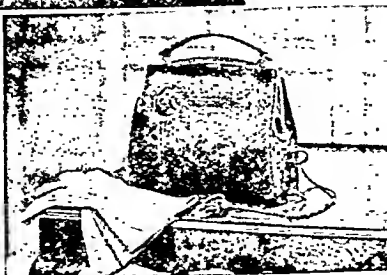
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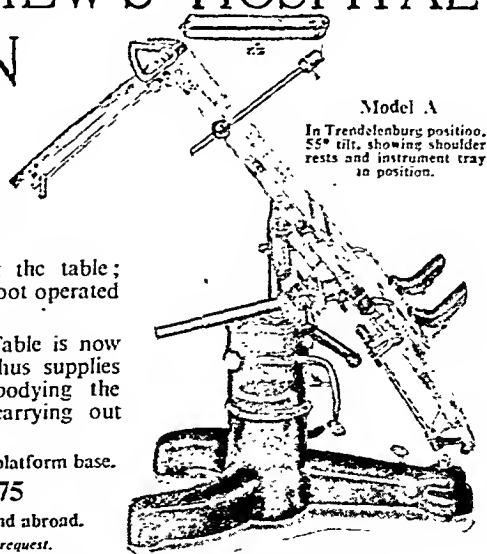
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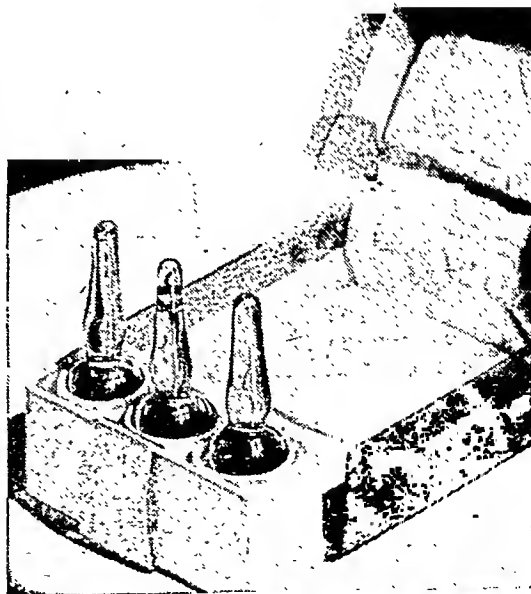
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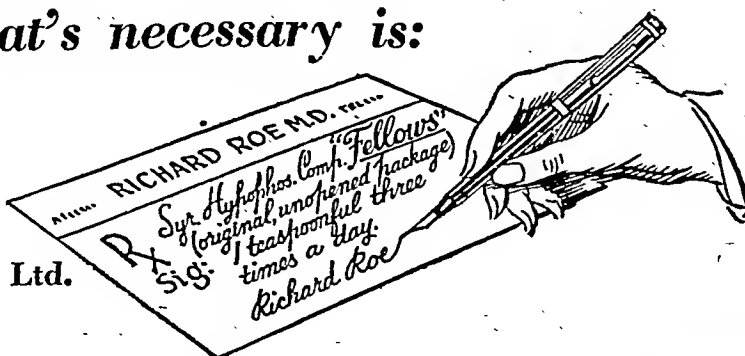
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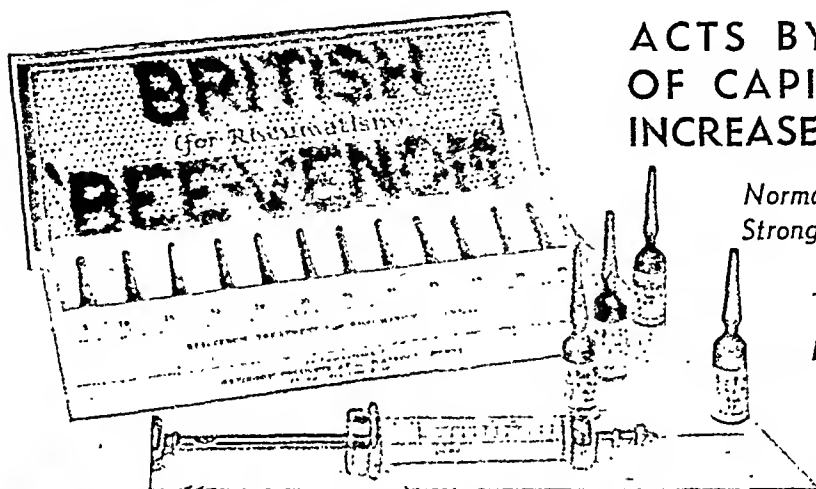
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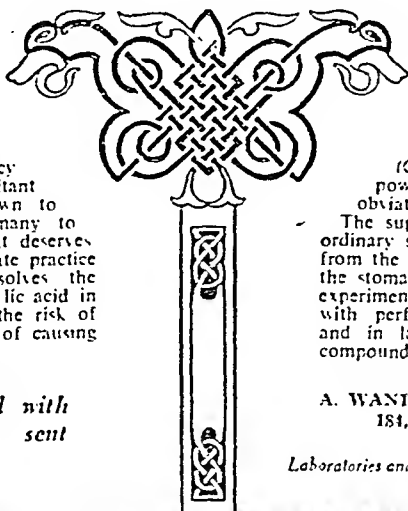
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AMONG the many and diverse analgesics which have been evolved by modern chemical research, acetyl-salicylic acid retains its reputation as one of the safest and most effective. Its tendency to liberate salicylic acid—the irritant properties of which are well known to physicians—has, however, caused many to hesitate to employ it as widely as it deserves. Exhaustive trial in hospital and private practice proves that "Alasil" definitely solves the problem of administering acetyl-salicylic acid in an effective form, being free from the risk of irritating the stomach or bowels or of causing general reactions.

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In "Alasil" the desirable therapeutic effects of acetyl-salicylic acid are well exhibited by its calcium acetyl-salicylate moiety, while the presence of "Alocol" (Colloidal Hydroxide of Aluminium), a powerful gastric sedative and antacid, obviates any tendency to gastric irritation. The superior absorbability of "Alasil" over ordinary salicylate compounds and its freedom from the risk of liberating free salicylic acid in the stomach have been well proved by careful experimentation. "Alasil" can be prescribed with perfect safety to patients of all ages and in larger doses than ordinary salicylate compounds.

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M253

THE VACCINE TREATMENT OF PNEUMONIA

P. S. I. VACCINE

(WYNN'S FORMULA)

EVANS

The outcome in pneumonia is largely decided during the first 48 hours and specific treatment is of little, if any, value after the third day. The importance of early specific treatment whether by serum or vaccine is therefore urged.

Vaccine has the enormous advantage that it can be carried in the bag and injected without delay. True lobar pneumonia is less common in many districts than a mixed infection pneumonia, so serum is only available for possibly one-third of all pneumonias.

P.S.I. Vaccine (Evans) is made according to the formula given in the B.M.J., December 22nd, 1934, 1159, and contains in each cc:—

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|----------------------|---|---|-------------|
| <i>Pneumococci</i> | - | - | 200 million |
| <i>Streptococci</i> | - | - | 200 " |
| <i>B. influenzae</i> | - | - | 200 " |

P.S.I. Vaccine (Evans) is issued in

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| 1 cc. ampoules | - | - | 2/6 | 10 cc. rubber-capped bottles | 15/- |
| 5 cc. rubber-capped bottles | 8/6 | 25 cc. | " | " | 25/- |

Prepared at THE EVANS BIOLOGICAL INSTITUTE

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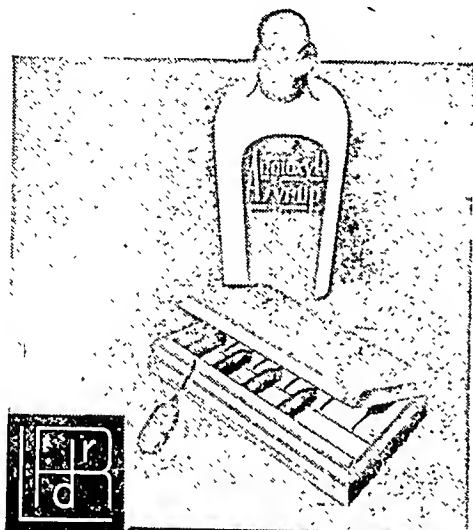
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Pancreatin, gr. 5.

Equals Iodine, gr. $\frac{1}{2}$.

One thrice daily, before meals.

One twice daily, between meals, on two or three days each week.

For full particulars see B.M.J., Oct. 2nd, 1937, p. 660

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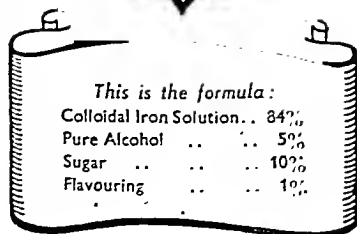
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THE BRITISH DRUG HOUSES LTD. LONDON N1

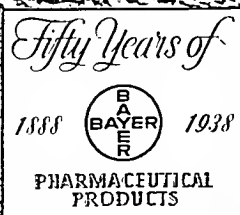
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In many instances the efficiency of an antiseptic varies according to the circumstances in which it is employed, and it therefore follows that few preparations are capable of responding to the many and varied demands arising in every day practice.

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Probably 70% of all cases of
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ANTIPNEUMOCOCCIC SERA

TYPES 1, 2, 4, 5, 7 AND 8

WITH A RESULTANT SAVING of over 4,000 lives
annually in England and Wales.

IN RECENT YEARS an average of 10,000 deaths per year have been attributed to lobar pneumonia alone.

Calculating from the known relative frequencies of the individual pneumococcus types, and from the mortality rate when no serum is given, 22,500 cases and 6,700 deaths are caused by Types 1, 2, 4, 5, 7, or 8, pneumococci.

19 out of every 31 deaths can be avoided* by adequate specific serum therapy, administered during the first four days of illness; in other words, more than 4,000 of these deaths are preventable.

Potent, refined and concentrated "Antipneumococcic Sera Lederle" are available in the following packages:

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A survey of the literature indicates that the types enumerated here are responsible for more than 70% of all cases of pneumococcic infection, no matter how manifested (lobar or bronchial pneumonia, empyema, etc.).

*Horsfall, F. L., Canadian Pub. Health J., October, 1937.

A Product of *Lederle Laboratories Inc.*, NEW YORK, distributed in England by:—

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Pediatricists

approve these purées

A range of Strained Foods giving maximum nutritive values

THE nutritional value of vegetable purées for infants and soft diet cases is receiving the endorsement of the medical profession to a very marked degree.

Hitherto the difficulties and deficiencies of home preparation—inefficient sieving and destructive oxidation—not to mention the tedium and labour involved—have hindered practical application, but the introduction of a complete range of strained foods by H. J. Heinz Co. Ltd. has been universally accepted as the solution of this problem.

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The vegetable and fruit purées of H. J. Heinz Co. Ltd. are prepared under conditions of the most scrupulous care with special reference to minimising mechanical loss of mineral salts and other soluble nutriment. The edible portions are washed and trimmed and then cooked under light steam pressure until in perfect disposition for comminution by extrusion and cutting. All mineral salts, vitamins and other soluble nutriment are retained, while harsher fibres, if any, are so reduced as to be non-irritant. The raw materials are purchased when and where seasonal and regional conditions of growth are most favourable, and only fresh gathered vegetables of the highest quality are used.

After the straining process the purée is adjusted to a proper solid content convenient for marketing. Absorbed air is removed and sealing *in vacuo* follows in specially prepared enamel-lined containers. The process concludes with high-temperature sterilisation.

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★ Fully explanatory literature and samples gladly sent on request.

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|  | PROTEIN | 4.8 |
| | CARBOHYDRATES | 6.8 |
| | CALCIUM | 0.012 |
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A typical example of the high nutritive values retained in Heinz Strained Foods. (Figures show percentages on the wet basis)

NOTE: Glass containers are not used owing to the deteriorating effect of light on vitamin content and on the palatability of the products.

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TOMATOES
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APPLE SAUCE
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COD LIVER OIL

DOSAGE AND VITAMIN CONTENT

—THE OFFICIAL RULING

Many practitioners have found that their patients still believe it necessary to take large doses of cod liver oil, and in consequence resort to other liver oils of uncertain origin and widely varying vitamin content. Reference, however, to the latest Addendum (1936) of the British Pharmacopoeia shows that the standard dosage for cod liver oil is very much smaller than conventionally supposed, and, moreover, that a definite vitamin content and origin are specified.

The ruling on vitamin content is that each gramme of cod liver oil shall contain not less than 600 International Units of Vitamin A and not less than 85 International Units of Vitamin D. Given this content, the minimum dose of cod liver oil is fixed at 15 minims (a quarter teaspoonful) three times a day.

The advantages of being able to prescribe a cod liver oil which is guaranteed to conform to this ruling of the British Pharmacopoeia are obvious. The smaller dose is readily acceptable by the patient, which fact makes it unnecessary to resort to other liver oils whose vitamin contents are uncertain both as to origin and efficiency and which have none of the proved food values of cod liver oil.

'SevenSeas' Cod Liver Oil is guaranteed to conform to the British Pharmacopoeia requirements, and it has the additional advantage of being made from absolutely *fresh* livers. The small dose of cod liver oil now needed and the pleasant taste of 'SevenSeas' Cod Liver Oil arise from the fact that 'SevenSeas' trawlers

are equipped to render the oil on board, immediately the fish are caught. This is possible only with cods' livers, owing to their high percentage of oil. It cannot be done with the livers of other fish.

In the case of 'SevenSeas' High Potency Oil, the dosage is reduced to a matter of drops only, for this oil has a guaranteed vitamin content of four times British Pharmacopoeia standard. It is not concentrated or fortified in any way, but is obtained simply by selection from fresh cod livers with a naturally high vitamin content. This High Potency Oil should be of particular interest to practitioners wishing to prescribe for patients who cannot assimilate fat or have a tendency towards acidosis.

All 'SevenSeas' oil is thoroughly tested before being issued to the public. It is prepared and packed in strict conformity with British Pharmacopoeia requirements. Samples of the High Potency Oil, the Standard Oil, and the High Potency Oil in capsules will be sent on request.

HOW WHOLE WHEAT CRISPBREAD BENEFITS HEALTH

WHEAT has always been Man's first choice among the cereals, whenever climatic conditions did not prevent his getting it. That remains true of all bread, either white or wholemeal, either soft or biscuit-crisp. And Vita-Weat, the wheaten crispbread with the WHOLE of the wheat left in it, has advantages which entitle it to a very high place among the staple foods of the world.

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Bread is the 'energy component' and Vita-Weat, since it contains only 3 per cent. of water, has a fuel-value nearly twice that of ordinary bread—according to the *Practitioner* its calorie value is 2,132 per lb.

Each section of such a crispbread—each 'slice,' so to speak—has a calorie value of 37. That is to say, that in meeting what is probably the greatest requirement of a national staple food Vita-Weat is almost twice as effective as the softer kinds of wheaten bread.

Starch and Digestion

A crispbread, obviously, calls for a more thorough chewing than a soft 'crumb' bread and salivation is therefore more healthily promoted. The starches and cellulose in Vita-Weat are also 'converted' into a more digestible form by the special processes which go to make a good crispbread—just as toast and crust have become greatly more digestible than bread in its quite 'unconverted' starchy form. While *all* the wheat-berry is used the bran and fibre are thoroughly disintegrated.

The result is, therefore, that the weight which quantities of 'unconverted' starch places on the digestion is almost entirely eliminated where Vita-Weat has been prescribed.

VITA-WEAT AND ITS ADVANTAGES

In addition to these great advantages of superior fuel-value and digestibility Vita-Weat retains the 'protective' elements of the wheat-berry which are frequently rejected in the 'refining' of white flours. Proteins, vitamins and minerals in which bread is normally deficient are present and the 'balance' of this crispbread as a food is therefore increased. The use of Vita-Weat can be shown to be especially desirable in cases of mild anaemia, liability to infection, lack of appetite, poor digestion, diabetes, obesity and as a food of 'protective' value to the teeth.

A little booklet has been prepared for the medical profession briefly summarising the medical case for a whole wheat crispbread and it will gladly be sent post free to any doctor on application to Peek Frean & Co. Ltd., Keeton's Road, London, S.E.16

Vita-Weat

THE BRITISH WHOLE WHEAT CRISPBREAD



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BRAND DRESSING .. always indicated in

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Write for sample and literature

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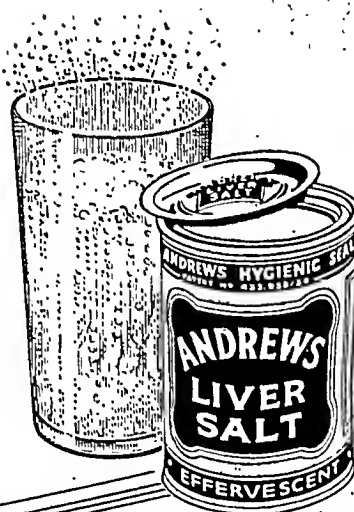
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Partly owing to the considerable amount of sputum inevitably swallowed by the patient in bronchial affections (especially in children) disorders of the digestive organs may be produced.

A suitable diet and a free daily evacuation tend to prevent these disorders.

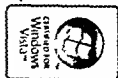
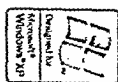
Andrews Liver Salt by its effervescence freshens the mouth (often so dry in bronchitis) and by its antacid reaction counteracts gastric catarrh. By producing an easy evacuation, safe even in the presence of myocardial degeneration, it removes the organisms introduced by the swallowed sputum.



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Dec. 10, 1938

THE BRITISH MEDICAL JOURNAL

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Vitamins A, B₁, B₂ and D Calcium and Phosphorus Liver and Malt Extracts

IN ONE PALATABLE PRODUCT

ABBOTT'S HALIVER MALT with Viosterol is biologically standardised for vitamins A, B₁, B₂ and D. Each teaspoonful is equivalent in vitamin A potency to at least one teaspoonful of high grade cod-liver oil; in vitamin D potency to five drops of Viosterol in Oil. In vitamins B₁ and B₂, three teaspoonful are equivalent to at least one cake of moist, compressed yeast. The liver extract in this preparation is a standardised extract and contains the necessary factors for the production of mature red blood corpuscles. The pure barley malt extract supplies diastase and a number of valuable nutritive substances. ● Each fluid ounce of Haliver Malt with Viosterol contains not less than: 27,000 International units of vitamin A; 50 International units of vitamin B₁; 50 Sherman units of vitamin B₂; 7,000 International units of vitamin D; the equivalent of 5 grs. of mono-calcium phosphate; and the equivalent of ½ oz. of fresh, mammalian liver. ● Because the vitamin A and D content of this product is supplied by Haliver Oil (halibut-liver oil, Abbott) and Viosterol, Haliver Malt with Viosterol is entirely free from the disagreeable "fishy" taste to which so many patients object in malt preparations containing cod-liver oil. ● Abbott's Haliver Malt with Viosterol is supplied through pharmacies in 8-ounce and 32-ounce bottles. Requests for professional literature are invited.

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After The First Step
by S. F. Peter

ABBOTT'S HALIVER MALT
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Please send literature on Abbott's Haliver Malt with Viosterol to

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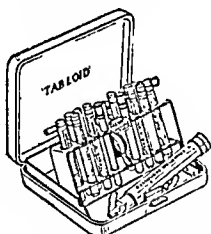
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ASEPTIC HYPODERMIC

POCKET-CASE, No. 7



Fits the pocket like a cigarette-case. Contains tubes of 'TABLOID' Hypodermic Products with an 'AGLA' Aseptic Hypodermic Syringe and needles.

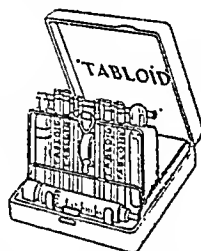
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Complete in Solid Silver Case, 110/-
In Aluminium Case, 30/-

TRADE MARK 'TABLOID' BRAND

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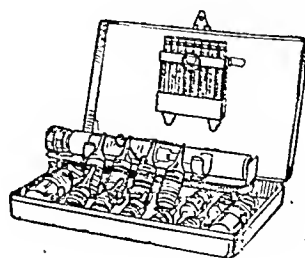
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REFINED DIPHTHERIA ANTITOXIN —GLOBULINS

High concentration has led to presentation of unit doses in LESS THAN HALF the usual volume of fluid.

Amount of protein is correspondingly reduced.

Liability to cause sickness and serum rash is lowered.

Although embodying these improvements the *Refined Antitoxin* is available at the same prices as the Concentrated Antitoxin.

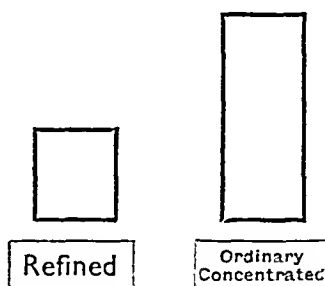


Diagram showing relative fluid volume of equivalent doses of *Refined* and Ordinary Concentrated Antitoxin.

Literature to Medical Men, on request

Prepared at

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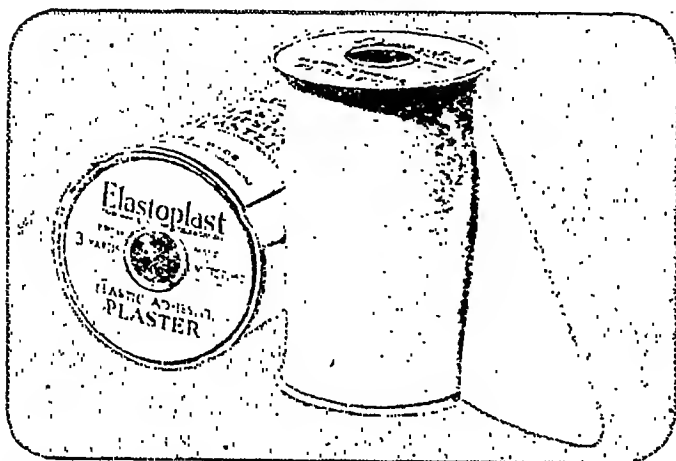
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'Elastoplast' *elastic adhesive* Plasters are rolled with the adhesive surface *inwards*;

they are clean to handle and to apply, and very convenient when short lengths only are required.

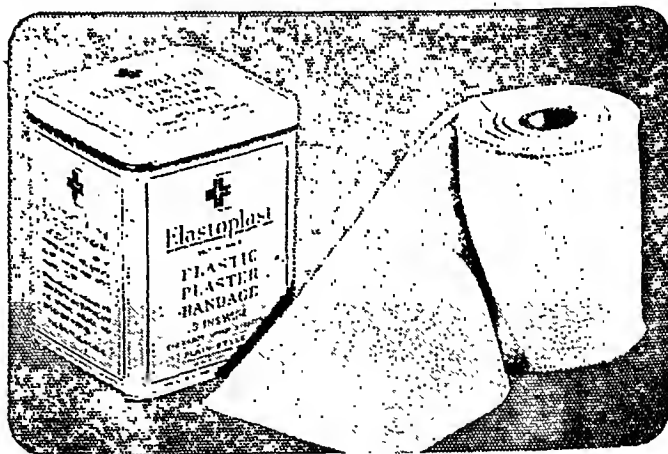


'Elastoplast' Plasters consist of lightweight cotton cloth, spread to the edges, flesh-coloured and rolled on snap spools. They are designed for use as plasters or as dressings for wounds, operation incisions, skin affections, etc. Supplied in all widths from $\frac{1}{2}$ " to 4", $\frac{5}{6}$ yards long when stretched.

'Elastoplast' *elastic adhesive* Bandages are rolled with the adhesive surface *outwards*

to conform with accepted bandaging technique

Made from heavy cotton cloth, selvedge-edged, rolled on card cores, they are suitable for use as bandages for varicose legs, sprains, dislocations, fractured ribs and other cases where complete encirclement of the limb or trunk, with compression, is necessary. Supplied in all widths from 2" to 6", $\frac{5}{6}$ yards long when stretched.



NOTE: If specially required, 'Elastoplast' Bandages can be supplied with the adhesive inwards.

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PHYSIOLOGY OF THE VOCAL MECHANISM*

BY

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The problems connected with the mechanism of voice form an interesting study which has hitherto received comparatively little attention from the laryngologist. He tends to rely upon one method of examination—that of inspection, forgetting that the larynx, like other organs, has a function which deserves investigation. The laryngoscope has become almost a fetish, and consequently in this respect laryngology has not kept pace with the sister science of otology, in which the functional examination of hearing is acknowledged to be as essential as inspection of the tympanic membrane. Surely voice production is as important as voice perception.

A Neglected Branch of Laryngology

There are other reasons for this neglect of the study of vocalization. The subject may be approached from so many angles that it is difficult to obtain a comprehensive and unbiased survey. Anatomy, physiology, phonetics, physics, music, psychology are only a few of the sciences involved in a study of voice.

Naturally enough, the literature of the subject is widely scattered. It is not easy to find a synopsis of present-day knowledge of the mechanics of voice. Paradoxical though it may seem, laryngology is strangely aphonic on vocal matters. In vain does one search the modern standard English and American textbooks of laryngology for information on the vocal mechanism and its disorders.

Before laryngology became so aggressively surgical its practitioners displayed considerable interest in speech and song. Morell Mackenzie, Semon, Lennox Browne, and others paid much attention to the problem, and their papers still deserve attention. To-day, speech and voice are again attracting general notice, and it is surely the duty of the laryngologist to make some further contribution to the subject, or at least to acquire some basic knowledge of the physics and the physiology of vocalization in order that he may render the best service to the patient who depends upon his voice for a livelihood.

The Conflict of Singing and Science

Many textbooks of physiology contain a chapter or section on the human voice, and another source of information is to be found in the writings of singers themselves, and of teachers of singing and of speech. Several small manuals have appeared in this country. But it is not easy to describe an art in terms of science. Some of those books show a lamentable lack of physiological knowledge. The best of them are the result of a collaboration of medical and vocal specialists, each contributing his share. Such co-operation is greatly to be desired, as there has long been an unfortunate conflict

between singers and scientists. The singer uses such terms as head voice, tone, register, etc., which mean nothing to the scientist; the scientist, on the other hand, may confuse the singer by concentrating too heavily upon the larynx as the vocal organ, forgetting the equally important factors of respiration and resonance.

Evolution of the Vocal Mechanism

As a unit of the vocal mechanism the larynx is highly evolved, and its performance is truly wonderful. The vocal cords are capable of delicate adjustment by means of numerous muscles, some sixty in number. Even in lowly forms of life one may find sound-producing mechanisms which are the precursors of the highly evolved human larynx.

That supreme vocalist of the insect world, the cicada, so well known in legend and fable, possesses a chitinous plate which is caused to vibrate by the rapid contractions of a powerful muscle, producing a note corresponding to a pitch of 660 cycles per second. The female cicada is dumb; only the male can sing (Baier, 1930).

Certain fishes have a vocal mechanism (Greene, 1924). In the Californian singing fish there is a swim-bladder having two compartments divided by a diaphragm with a small central aperture. On each side of the wall of the air sac is a large muscle controlled by a spinal nerve. Contraction of this muscle forces the air from one chamber to the other, and a sound is thus produced which appears to be purposive. The mechanism resembles that which enables the frog to emit his familiar croak. Birds have a highly specialized vocal organ, the syrinx, with pads at the bronchial bifurcation to act as vocal cords, while the upper larynx is also used in producing song (Haecker, 1898).

I mention these examples merely to show that the human larynx would appear to have a long ancestry so far as its vocal function is concerned.

The Development of Voice

As an introduction to the mechanics of the larynx itself and of the vocal mechanism of which it is but a part, it is necessary to say a few words regarding the development, range, and classification of the voice.

The newborn infant cries on a note approximating to 435 cycles per second, and as growth proceeds the vocal range extends until at the end of the first year it encompasses six half-tones, at the end of four years about an octave, and just before puberty about an octave and a half (Nadoleczny, 1926). A practical deduction from those facts is that the limited range of the child's voice should be more widely recognized by those who compose for children songs which are often ill adapted to their voices.

* The Annual Address delivered at the Central London Throat, Nose and Ear Hospital on October 21, 1938.

Vocal Changes at Puberty

At puberty the male larynx grows rapidly, each vocal cord increasing appreciably in length. The male voice at this stage undergoes the remarkable alteration known as "breaking," which may occupy six months to two years. The change may begin at 8 years of age or may be delayed as late as the eighteenth year.

In boys the vocal pitch falls by one-sixth at its upper limit and by an octave at its lower limit. In girls the change is much less pronounced, is more rapidly completed, and consists merely in a slight extension of the upper and lower limits. Hoarseness is common in boys, and in about 10 per cent. of cases there may be seen a slight redness and swelling of the vocal cords and laryngeal mucosa, which may lead to an erroneous diagnosis of laryngitis.

Various disorders of voice are apt to appear at puberty. For example, there is the persistent falsetto voice which is the result of an incomplete change. In other cases the vocal change is of perverse nature, and this may account for the occasional appearance of the female bass or the male soprano. No vocal change occurs in boys who have undergone early castration, an operation which was at one time largely practised in Italy.

The Classification of Voices

The adult voice is the result of the puberty change, and the voice may be classified, according to its range, as bass, baritone, or tenor in man, and as soprano, mezzo-soprano, and contralto in women. Among the races of Southern Europe there is a tendency to high male voices and low female voices; there the proportion of tenors and contraltos is greater than among Northern races, in which basses and sopranos predominate. Orientals tend to have voices of high pitch, which may account for the falsetto nature of Eastern song.

It is important for the laryngologist to ascertain the nature of his patient's voice, as a common cause of vocal troubles is the adoption of a range or tessitura unsuited to the voice. For example, one may find a baritone who believes that he is a tenor, and who is therefore subjecting his voice to the strain of singing too high a pitch range.

Range of the Human Voice

Taking into consideration all classes of voice, from the deep bass note of the Cossack choir to the shrill pipe of

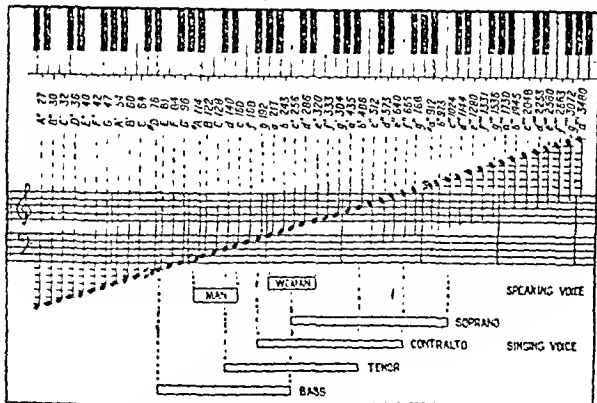


FIG. 1.—The vocal range in song and speech.

the coloratura soprano, the entire compass of which the human voice is capable may extend over five or even six octaves (Fig. 1). But such extremes are rare, and an

individual voice seldom extends over three octaves, while a range of two and a half octaves is more usual.

In speaking, a range of about an octave is used, and in dramatic speech about two octaves. The average pitch for speech is situated near the lower level of the singing range. In men it is about 140 cycles per second (*d* in music), in women about 243 cycles (musical *b*). The pitch of the speaking voice may be estimated by comparison with the note of the tuning-fork made for the purpose by Edlmann of Munich.

The Three Parts of the Vocal Mechanism

The larynx is only one part of a delicately adjusted combination of organs, all of which possess functions other than that of voice production. It must never be forgotten that the vocal mechanism is a triple alliance of respiration, phonation, and articulation, the last-mentioned being intimately associated with resonance. Treatment applied to the larynx will not remedy faulty breathing or ill-balanced resonance.

No study of vocal function is complete which does not take into account each of the three units which, coupled and adjusted to each other, constitute the vocal mechanism. Before discussing the part played by the larynx in this trilogy, let me say a few words regarding the respiratory and articulatory components of the mechanism.

The Respiratory Mechanism in Vocalization

The vital apparatus of respiration supplies the motive power of the vocal machine. But normal quiet breathing is an involuntary action, and in order to produce voice, a prolonged and controlled act of respiration is demanded. The best means of securing this has been a subject of controversy among teachers of singing from the earliest days of song.

The method most widely used is the whole chest or central breathing, or the old Italian method. Briefly stated, this consists in reinforcing and sustaining the upward expiratory movement of the diaphragm by contraction of the muscles of the abdominal wall. To some teachers this is known as "abdominal press."

The relative extent of costal and diaphragmatic movement may be studied by the pneumograph (Fig. 2). The excursions of tambours, connected with closed tubes encircling the thorax and abdomen, are recorded on a revolving drum. The records thus obtained vary con-

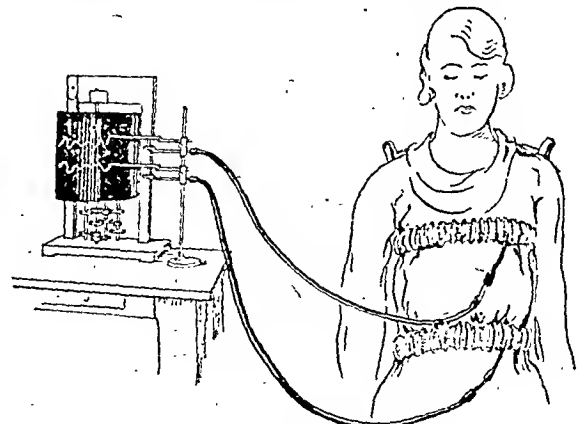


FIG. 2.—The pneumograph.

siderably. As a rule the prolonged expiration is well shown, the diaphragmatic release occurring slightly in advance of the descent of the ribs and cartilages.

The Method of "Rib Reserve"

My colleague, Dr. Robert Curry, and I recently took the opportunity of observing a method of breathing which, so far as we are aware, had not been investigated previously.

It consists in the use of the "abdominal press," but with the following modification. The lower part of the thorax is maintained in an expanded position during the entire act of speech. This is known as "rib reserve." The method is taught by various schools of speech and drama, and it is also recommended by certain teachers of singing. The artistic results appear to be satisfactory, and the method seems to demand no great effort from those who have practised the technique until it has become almost a reflex action. A third tambour connected with the upper part of the chest records the movements of this region, as in the accompanying tracing (Fig. 3), and demonstrates that in the upper costal region

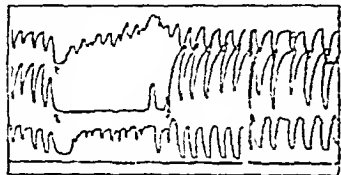


FIG. 3.—The technique of "rib reserve." The tracings, from above downwards, record upper thoracic, lower thoracic, and abdominal movements. Lower thoracic movement is arrested during the act of speech.

movement continues, while it seems to be held in check in the lower costal region.

It was interesting to observe that one of the subjects of our experiment, a trained exponent of the method (trained as a speaker but not as a singer), did not adopt the technique for singing, and when asked to speak a passage immediately after singing, found it difficult to return to the "rib reserve" method, although she was not conscious of any such difficulty (Fig. 4).

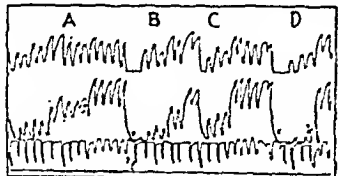


FIG. 4.—Effect of singing upon "rib reserve." Song is recorded at A, speech at B, C, and D. Only in the third act of speech (C) was control of the lower ribs regained.

It appears probable that the elevation of the ribs (and their maintenance in a raised attitude), usually attributed to the intercostal muscles, is partly effected by the serratus magnus muscle. Sir Charles Bell (1836) indicated the importance of this muscle in respiration. It possesses a double nerve supply, from the intercostal nerves and from the long or external thoracic nerve, derived from the fifth and sixth cervical segments. Bell named this nerve the "external respiratory nerve" to distinguish it from the internal respiratory or phrenic nerve.

Our results were confirmed by radiography, but it would take too long to describe them in further detail. Suffice it to say that the breathing mechanism must be studied by the laryngologist who would treat disorders of voice. An incorrect method of breathing is perhaps the chief cause of vocal failure.

The "Resonator" Mechanism

Before discussing the mechanical action of the larynx it is necessary to refer to that most important component of the vocal mechanism which, for want of a better term,

is known as the "resonator." Certain writers on the subject of voice go so far as to say that the vocal cords serve merely to regulate air pressure, the actual sound being produced in the paranasal sinuses. The air, blowing across the ostium of each cavity, is said to produce voice. But every laryngologist knows that the ostia are very small, and hidden behind the middle turbinal away from the main air current. Moreover, there is no proof that operative destruction of the walls of the sinuses has any effect on the voice. The strongest argument against the theory is that in song or speech the air does not pass out by the nose, save in the sounds *m*, *n*, and *ng*.

It cannot be denied that such terms as "head voice," "throwing the voice forward," are useful to the singer, but they do not describe what actually happens. The nasal sinuses cannot be regarded as the source of voice, and indeed the nasopharynx and nose cannot even act as "resonators," as the sound does not pass that way. As for the palate, it has been shown that in order to function as a sounding-board it would require to be of great size.

The two resonators are (1) the mouth and (2) the pharynx, and their acoustical features have been studied in great detail by many physicists since the days of Helmholtz. Coupled to the larynx, they act as a sort of loud-speaker horn; without the resonators the laryngeal note is

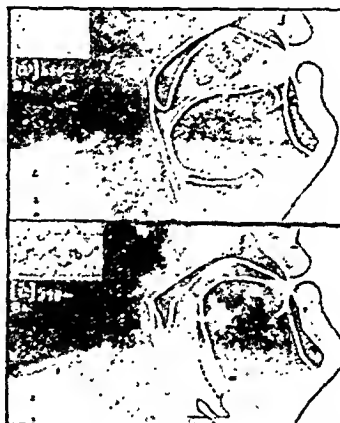


FIG. 5.—The buccal and pharyngeal resonators in singing the vowel *a* at 420 cycles and the vowel *i* at 170 cycles. Oscillograph record in corner. Note that in each case the nasopharynx is closed by the velum palati; also the great difference in conformation of the cavities on comparing the two films.

weak and indefinite. Brünings observed a case of attempted suicide in which the pharynx had been cut open, the great vessels escaping. When the patient spoke as the wound was held open he made only a weak bleating sound, but when it was closed and stitched he could produce normal speech.

The classical experiments of Müller on the excised larynx, made over 100 years ago, showed the importance of the co-operation of larynx and resonator, and quite recently Husson (1933) has indicated that various vocal defects may arise from imperfect adaptation of the resonators to the larynx. This also explains why the blowing of wind instruments has a deleterious effect on the larynx of the player. Few of those who play wind instruments have good voices, and many of them suffer from recurrent laryngitis.

The wide variations of the size and shape of the pharyngeal resonator are illustrated in the accompanying

x-ray film from Dr. Curry's work (1937), showing the comparison between the shape and size assumed in singing the vowel *a* at a pitch of 420 cycles and that for the vowel *i* at 170 cycles (Fig. 5).

The Problem of "Registers"

The term "register" has led to so much confusion that a definition is necessary. Garcia (1855) stated that a register was a consecutive series of vocal notes which the trained ear could distinguish from another series of notes, and that the quality of the voice changed in passing from one series to another. One of the problems which confront the singer is the elimination of any obvious change in passing from one register to another and the avoidance of a break in effecting the change, which is really a change of mechanism. The position of the larynx alters, as also do the tension and form of the cords. The latter change has given rise to the unfortunate terms "thick" and "thin" register. In the chest register the cords are thick, of weak tension, and the amplitude of vibration is large; in the so-called head register the cords are thin, strongly tensed, and have a small amplitude of vibration.

Three registers are usually distinguished, known as chest, middle, and head registers. The terms are in no case anatomical; they denote the sensations of the singer. He feels the notes of low pitch in his chest and those of high pitch in his head, but that does not mean that they are formed in these parts. It is purely a subjective sensation. By some authorities the head register ("Fistelstimme") has been termed falsetto, and this has led to some confusion. There is still another register for very high notes, known as the whistle register, produced only by some soprano voices. The whistle originates in a small elliptical gap in the anterior third of the glottis.

Mechanics of the Larynx

Let us now briefly consider the mechanics of the larynx itself in relation to voice. Certain adaptations of the pharynx and larynx are necessary in order to produce notes of various pitches, and those modifications are effected not only by the constrictors and other pharyngeal muscles but also by muscles causing (a) movement of the larynx as a whole and (b) movement of the laryngeal cartilages upon each other.

MOVEMENTS OF THE ENTIRE LARYNX

The act of inspiration exercises a downward pull upon the trachea and larynx, the normal tracheal tug. In expiration this pull is relaxed and the pharyngeal resonator is enlarged. This is obviously a passive movement.

The larynx is capable of movement to the extent of several centimetres in a vertical plane. It may be elevated by contraction of the thyrohyoid muscle and of those muscles which raise the hyoid bone (digastric, stylohyoid, etc.), and it may be lowered by the sternothyroid and omohyoid muscles. The downward movement is accompanied by a forward movement, and the pharynx is thus enlarged in a horizontal as well as in a vertical direction.

In the untrained singer the larynx rises as the pitch rises, and vice versa; in the trained singer this movement is reversed, and the larynx may actually descend as the pitch rises.

The descent of the larynx is intimately connected with the manoeuvre known to singers as "covering," which gives a more pleasing tone at certain pitches, owing to an increase of overtones. The downward movement of the larynx (a movement such as occurs in the initial stages of a yawn) occurs at a lower pitch in the closed vowels; that is, first

on *o* and *n*, then *e* and *i*, and finally on *a*. In other words, the larynx is lower in singing *n* than in singing *e*. As a rule the better trained the singer the less does the entire larynx move.

MOVEMENTS OF THE LARYNGEAL CARTILAGES

It is needless to describe to laryngologists the well-known action of the various laryngeal muscles, which act upon the cricothyroid and crico-arytenoid joints. The crico-arytenoid joint, with its curiously shaped articular surfaces, is capable of rotatory or sliding action, the latter being often forgotten in textbook descriptions.

Certain of the muscular actions do not concern joints. For example, the inferior constrictor of the pharynx, bestriding the wings of the thyroid cartilage, may by its contraction narrow the thyroid angle and thus assist to close the glottis. Further, the thyro-arytenoid, most important of all the laryngeal muscles, is to be regarded as an integral part of the vocal cord itself, as it can alter the form, the bulk, and the consistency of the vibrating cord, and so modify the pitch of the note. But obviously it cannot act alone. It is intimately associated with the cricothyroid muscle or external tensor.

The two synergic muscles are shown in the accompanying engraving from Müller's *Physiology*, published in 1832 (Fig. 6).

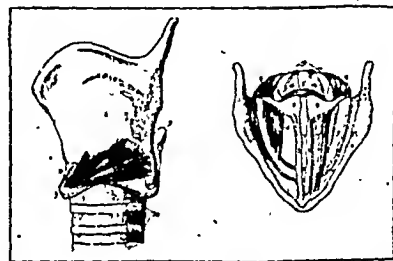


Fig. 6.—The cricothyroid and thyro-arytenoid muscles, so-called external and internal tensors of the vocal cords.

The cricothyroid muscle approximates the two cartilages by pulling the cricoid upwards, and thus the cords are tensed. It also assists to close the glottis, but only with the assistance of the posterior crico-arytenoid and interarytenoid muscles. The glottis can be closed only if a side-slipping of the arytenoid is prevented by the arytenoid muscle and if the arytenoid is braced back by the posterior crico-arytenoid muscle.

The lateral crico-arytenoid muscle can act either as an abductor or an adductor, depending upon which of the other muscles are in action and upon whether it causes the arytenoid to rotate or to slide. In using the words "tensor" and "tension" as applied to the vocal cords it must be distinctly understood that no idea of stretching is implied. The cords alter very slightly in length if at all during phonation.

The most important fact to remember regarding the muscles of the larynx is that, while they are grouped and paired, each pair does not act as an isolated unit, but always in conjunction with other laryngeal muscles.

Vibratory Movement of the Vocal Cords

The laryngeal muscles do not produce the vocal note. Phonation is an aerodynamic, not a muscular, phenomenon. The muscles merely adjust and hold the cords in a certain position, at a certain tension, and with a certain shape, and the expiratory air current from the lungs does the rest.

Many vague and ill-considered opinions have been expressed on the all-important question of vocal-cord vibration. All sorts of curious theories have been advanced. One school of observers affirmed that sound was produced by the "cyclonic" air currents within the laryngeal ventricles. Others stated that the cords vibrated in a vertical plane. Although our knowledge is still far from complete it is easy to refute such obsolete notions. We now know, for example, that

vocal cord vibration is mainly transverse, and only to a very slight extent vertical.

From time to time the larynx has been compared to various types of musical instrument. It can in no wise be likened to a stringed instrument, as alterations of pitch do not depend upon changes in the length of the cords. To some extent the larynx resembles a reed or a siren, but the resemblance is not very accurate. What actually happens is that the vocal cords forming the glottic margins are approximated and hardened by muscular action; then, by the increasing pressure of air from the lungs, the glottis is opened and some air escapes. By reason of the elasticity of its margin the glottis again closes, and by the rapid succession of these movements of opening and closing a note is produced, the pitch of which depends upon the number of glottic movements a second. The simile of the siren holds good in that the sound is the result of a rapid series of puffs of air. But the number of movements a second depends, in the larynx, upon the rigidity, thickness, and tension of the vocal cord rather than upon the air pressure. The mechanism for altering the vibrating mass such as one finds in the larynx is not present in any musical instrument. Sir Richard Paget has aptly compared the vocal cords to the lips of a trumpeter.

Working Models of the Larynx

Ewald (1913) constructed a number of models to illustrate the mechanics of the larynx which are probably as accurate as any model can be. The accompanying diagram (Fig. 7) illustrates the principle. The elastic edges

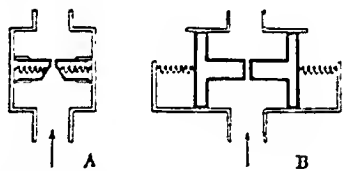


FIG. 7.—Ewald's models, to illustrate the mechanism of vocal cord vibration. In model A the parts representing the cords may be caused to vibrate by a blast of air from below. In model B vibration may also be caused by a downward blast.

are set in motion by the upward air current, but in the second model a note may be produced on inspiration as well as expiration. We know that this occurs in the human larynx in humming, crying, laughing, etc., and even during speech the inspiratory voice is used by children and very talkative persons; while certain animals, such as the cat and donkey, can phonate on inspiration.

Perhaps the most accurate model is that which Harless (1853) constructed from two parallel strips of fresh frog's muscle, stretched across the linear opening of a tube so that they might be set in vibration by a blast of air. When the muscles were electrically stimulated to contract the pitch of the note was raised. The experiment has been repeated by Ewald and more recently by Negus, and it illustrates very well the mechanism of the larynx. The pitch of the note is raised by increased tension of the cords, the loudness by increase of air pressure.

It is generally taught that during phonation the arytenoid cartilages are firmly opposed, the cords alone vibrating. In view of investigations by Némai (1916) and of the cinematograph record of Pressman it would appear that this is not so. In the production of low notes the arytenoid edges vibrate along with the cords. Like the laryngoscope, cinematography at the rate of sixteen images per second can only give a picture of the major

phase, although an ultra-rapid technique, giving several thousands of pictures per second, has recently been tried, and would appear to be an ideal means of investigation, though naturally very expensive.

The exact mechanism of vocal cord vibration is best studied by the stroboscope.

The Principle of the Stroboscope

The principle of the stroboscope was applied to the larynx for the first time by Töpler in 1866. Since then it has been used by numerous workers, and their results form a large bibliography, although in this country stroboscopy has not received the attention it deserves. Even those who have had experience of the method are not agreed as to its usefulness. While some regard the stroboscope as merely an interesting toy, others call it the microscope of the larynx, and regard it as the best means of demonstrating the finer movements. As usual, the truth lies between the two extremes.

Stroboscopy consists in the inspection of the larynx by a periodically interrupted beam of light, the number of interruptions per second coinciding or nearly coinciding with the number of vibrations of the vocal cords. A blast of air passing through the slots in the revolving disk gives (after the manner of a siren) a note of a pitch corresponding in frequency to the number of interruptions of the light, and the subject is asked to imitate this note. If, for example, he emits a note of a pitch corresponding to 128 double vibrations per second while the larynx is viewed by a beam of light interrupted 128 times per second the vocal cords appear to be immobile. Then, if the revolving disk is very slightly retarded so that the light is interrupted, say, 127 times per second, the cords are seen to move at the rate of one vibration per second; in other words, the observer views the vocal cords in "slow motion," each interruption contributing a small fraction ($1/127$) of the composite view presented each second. But if the number of light interruptions be slowed down considerably, say to 115 per second, the laryngeal note remaining at 128 cycles, one will no longer see each individual vibration. The less the variation between the interruptions of the light and the vibration of the cords, the more clearly is the movement of the cords demonstrated. By varying the speed of the disk and the pitch of the note produced one may analyse the vibratory movement of the vocal cords.

A stroboscope has been recently introduced in which the source of light is a neon lamp which may be directly controlled by the voice pitch transmitted by a microphone connected to the lamp.

Results of Stroboscopic Examination

It cannot be denied that the stroboscope has added to our knowledge of the physiology of the larynx. By its aid one may study the closure of the glottis, the amplitude of the vibration, the direction of movement, and the form of the cords at the various pitches which the voice may produce.

By means of the stroboscope one may clearly distinguish between a paralysed vocal cord and a cord which is fixed by crico-arytenoid ankylosis. One may diagnose a paresis of the adductor muscles which escapes notice in the ordinary laryngoscopic view. One may note incoordination on various pitches (islands of defective phonation); one may discover a difference in the rates of vibration of the two cords (a phenomenon not yet fully elucidated); and one may study abnormal mechanisms such as ventricular band voice.

Vibratory movement in the vertical plane is characteristic of a paralysed cord, the normal movement being horizontal. The duration of contact of the cords varies

according to the pitch. In 1832 Lehfeldt suggested that there were two vocal cord mechanisms—the normal and the falsetto—and he stated that in the high note of the so-called falsetto register the glottis remained open while the edges of the cords vibrated. Müller confirmed this view, and at a later date Katzenstein (1909) sought to prove that the thyro-arytenoid was the active muscle in the lower register, while in falsetto the cricothyroid took over the work of maintaining the tension of the cords.

Quite recently Tarneaud (Husson and Tarneaud, 1932), using the stroboscope, observed that in the falsetto register the cords did actually make contact, but that the duration of such contact occupied so small a part of the cycle that it escaped notice under ordinary laryngoscopy. Tarneaud's diagram, here reproduced (Fig. 8), illustrates how, in

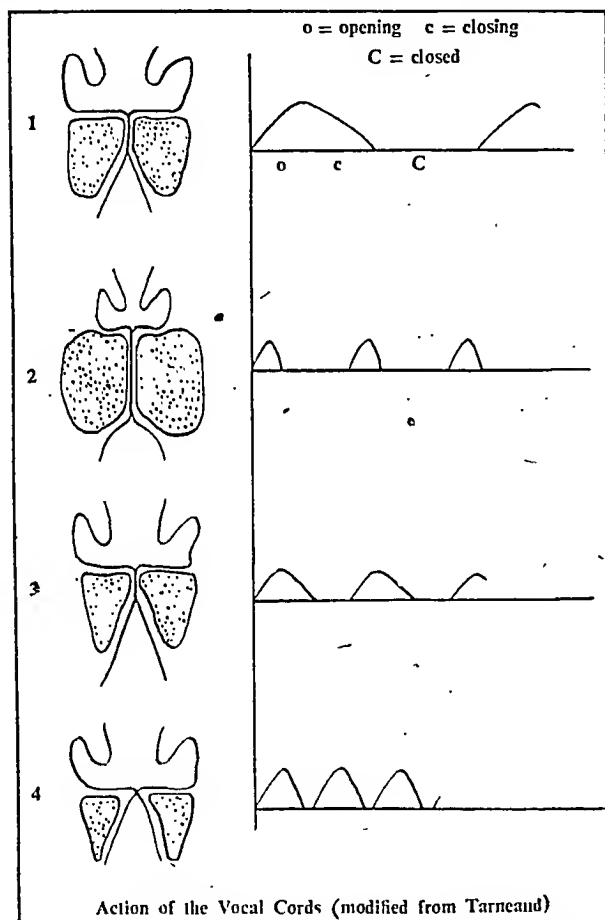


FIG. 8.—Tarneaud's diagram showing the open and closed phases of vocal cord vibration as revealed by the stroboscope. On the left are sections of the vibrating mass (thyro-arytenoid muscle) during the closed phase from a low-pitched note at 1 to a high note at 4; at 1 and 2 the thyro-arytenoid muscle is contracted; at 3 and 4 the cord mass is smaller and tension is maintained by the cricothyroid muscle.

The diagram on the right shows how the closed phase predominates at 2, and on laryngoscopic examination the cords appear to meet. At 4 the open phase predominates and the cords appear to remain apart. The real extent of movement can be determined only by stroboscopy.

singing up the scale, the open and closed phases of the vibration vary in duration, and how, in falsetto, the closed phase is very brief in comparison with the time occupied by opening and closing of the glottic aperture. It is generally agreed, however, that in the highest notes of the whistle register there does remain a small opening near the anterior part of the glottis during the entire vibration, and this note is produced only by the rush of air through the hole.

Pressman's film (1938), which was shown this year at the Royal Society of Medicine, while of course it did not analyse each vibration as does the stroboscope, showed clearly that on the low notes the posterior part of the glottis, including the arytenoid margins, is vibrating, on the middle notes the edges of the entire cords vibrate, and on the high notes the anterior part of the cords vibrates. The film also shows how the cords were kept moist by a continuous flow of mucus from the laryngeal ventricle, this being probably one of the chief functions of the ventricle. The ventricle also enables the ventricular bands to act as an outlet valve, preventing the escape of air and thus ensuring fixation of the thorax during movements of the upper limbs. This function was first described by Professor John Wyllie (1866) of Edinburgh seventy years ago.

Treatment of Voice Disorders

The physiological facts which I have so roughly outlined are of no mere academic importance. They form an essential background to the diagnosis and treatment of voice disorders. Just as orthopaedics has budded from general surgery, so may orthophonics become a useful branch of laryngology. The laryngologist is often consulted by the singer or speaker who complains that the voice is weaker than usual or becomes easily fatigued or is apt to "crack" at certain pitches. There may be symptoms of local irritation or soreness, of constant clearing of the throat or recurrent hoarseness. On examination one may find the dilated vessels and lymphoid nodules which are sometimes described as the signs of "clergyman's sore throat" but which, if pathological at all, are the result rather than the cause of the trouble. The tonsils may be present and the nasal septum may be deflected, but as a rule some previously consulted colleague has dealt with those structures. Most often local examination reveals no abnormality, and the laryngologist is content with the diagnosis of a "functional disorder" and sends the patient to a singing teacher or to a speech therapist. Such a diagnosis is correct: it is indeed a functional disorder—phonasthenia, if we choose to name it so—and the treatment also is sound, as a good speech therapist knows how to deal with the case. But one ought to go further and endeavour to ascertain what part of the vocal mechanism is at fault. Is it the method of breathing? Is it the vocal range? Did the trouble originate from overstrain of the voice or from use of the voice in the course of a cold or after an illness? The laryngologist must not regard his patient as a larynx surrounded by a body, and he must even inquire into the environment of the body with a view to discovering any feature which has an influence upon the voice. The prescription of a spray is not enough, though it may be of great psychological value. Orthophonic treatment must be directed towards the correction of disordered function, and must necessarily be on a physical basis.

Conclusion

And so I conclude this address as I began it, with a plea for a closer study of the problems of speech and of voice, and for a fuller recognition that the vocal mechanism—using the term in the widest sense—still offers a great field of study for the laryngologist. One often hears it said that laryngology is a narrow specialty and that it must needs constantly invade other anatomical territory. What more interesting research could be found than that which concerns vocal function? In pursuing such a study the

laryngologist is in the very centre of his own domain, but even here there is a territory which has too long been left unexplored.

I desire to record my indebtedness to the superintendent, Royal College of Physicians Laboratory, and to Professor Drever, Department of Psychology, University of Edinburgh, for their kindness in providing facilities for histological and experimental work.

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VI AGGLUTINATION IN THE DIAGNOSIS OF TYPHOID FEVER AND THE TYPHOID CARRIER CONDITION

BY

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Our conception of the diagnostic significance of a Widal reaction has materially altered since it became known that the typhoid-paratyphoid group of organisms are possessed of more than one antigenic component—notably the flagellar H antigens and the somatic O antigens, which produce their serum counterparts on human infection. Since the great war a complicating factor in the serological diagnosis of the enteric group of fevers has been introduced by the widespread use of T.A.B. inoculation.

The relative importance of the two types of antibody (O and H) in the diagnosis of typhoid fever, and of other enteric infections, in the inoculated and the uninoculated individual, first demonstrated by Felix (1924), has been the subject of a large number of studies, the literature being fully summarized by Topley and Wilson (1936). As a result it is being realized that in the interpretation of serological tests such diverse factors as the natural level of O and H agglutinins, the state of the subject in relation to previous inoculation, the agglutinin curves, the individual titres of the antibodies, and the possibility of non-specific stimulation of antibody formation, have to be taken into consideration.

In the laboratories of the Army in India Widal reactions are carried out as a routine every fourth day throughout the course of a continued fever, against standard O and H suspensions supplied by a central enteric laboratory at Kasauli. From personal experience and from a study of the carefully kept records of cases of typhoid fever for the past five years, it was observed that in a typhoid infection in the inoculated the trouble taken in estimating the O and the H agglutinins could not be justified when the value of the results obtained was assessed. In a large

majority of cases the rise in the titre of these agglutinins offered no tangible evidence from which alone a positive diagnosis could be arrived at. Reliance had therefore to be placed on the isolation of the infecting organism from the blood, the urine, or the faeces. Where this failed, one was commonly confronted with a positive clinical picture and doubtful serological findings. The results proved to be so disappointing that the practice of carrying out tests for the detection of H agglutinins has recently been entirely discontinued in the Army in India.

It is now generally recognized that, apart from the O and the H antigen, the great majority of strains of *Bact. typhosum* possess a third antigen—the Vi antigen—described and designated as such by Felix and his co-workers. A number of strains alleged to be free from Vi antigen were collected by us and grown on a medium consisting of mutton digest agar (2 per cent.) to which 1 per cent. saccharose was added. They all showed the presence of this antigen and gave rise to Vi antibody on animal inoculation.

Serological analysis of sera over the past three years from patients suspected to be suffering from typhoid fever suggested the possibility that Vi agglutination may prove to be a more reliable method of serological diagnosis of typhoid infection than the time-honoured O and H types of agglutination. This view was further strengthened by the observation that in the examination of thousands of sera from both inoculated and uninoculated persons no Vi antibody could be detected. The explanation why this antibody is not produced in spite of the inclusion of a Vi-containing typhoid strain in a T.A.B. vaccine has already been given (Felix and Bhatnagar, 1935; Bhatnagar *et al.*, 1937). Thus no interference was anticipated in the interpretation of serological tests from Vi antibody which could be accounted for either as a natural or as an inoculation agglutinin.

The present communication deals with the demonstration of Vi antibody in 134 cases of bacteriologically proved typhoid fever. The material was collected from both the inoculated and the uninoculated. In addition, information obtained on the bearing of Vi agglutination on the typhoid carrier condition is included.

Detection of Vi Antigen in a Typhoid Organism and of Vi Antibody in a Serum

When an organism with the morphology and the biochemical reactions of *Bact. typhosum* is found to agglutinate with a typhoid O serum much below the established titre of the serum the presence of Vi antigen in the culture is to be suspected. This is confirmed if it gives a positive reaction in agglutination with a pure Vi serum—that is, a serum prepared against a highly virulent strain of *Bact. typhosum* and from which the O and the H antibodies have been completely removed by absorption.

While the detection of Vi antigen can thus be carried out comparatively easily, the titration of Vi antibody in a serum, on the other hand, is complicated by the simultaneous presence in it of O and H agglutinins. Two methods are usually employed to overcome this difficulty: (a) Complete absorption of O and H antibodies from the serum by the use of a strain devoid of Vi antigen. In our experience very few strains indeed are completely devoid of Vi antigen; moreover, this method is a laborious process, hardly of practical applicability to an investigation which involves the serological analysis of a large number of samples. (b) Agglutination against selected strains or their chemically treated suspensions sensitive to one type of antibody only. While alcoholized

and formalized suspensions have proved to be excellent reagents for the titration of the O and the H agglutinins respectively, the real difficulty met with in the routine practice of Vi agglutination has been the want of a strain which either in the live state or as a preserved suspension would react only with the Vi antibody. In the course of the antigenic analysis of 235 typhoid strains, collected from different parts of the world, we were able to identify one culture which in its agglutinating reactions behaved as a pure Vi variant of *Bact. typhosum*. This strain has been designated "Vi I" and is described elsewhere (Bhatnagar *et al.*, 1938). Its agglutination reactions with pure O, H, and Vi sera are exemplified in Table I. This strain is not only insensitive to O and H agglutinins but is also more sensitive to Vi antibody than the well-recognized typhoid strains hitherto employed for the purpose of Vi agglutination—namely, "Ty 2," "Watson," and "6 S."

TABLE I.—Agglutination Reactions of Strain "Vi I" of *Bact. typhosum*

| | Serum Dilutions | Typhoid Sera | | |
|---------------|-----------------|--------------|--------------|---------------|
| | | Pure H Serum | Pure O Serum | Pure Vi Serum |
| Strain "Vi I" | 1 : 10 | — | — | ++ ++ |
| | 1 : 25 | — | — | ++ ++ |
| | 1 : 50 | — | — | + + + |
| | 1 : 100 | — | — | + + ± |
| | 1 : 200 | — | — | + + |
| | 1 : 500 | — | — | + ± |
| | 1 : 1,000 | — | — | + |

Vi Antibody in the Blood Serum of Typhoid Patients

The 134 cases of typhoid fever described here consist of fifty-six inoculated and seventy-eight uninoculated individuals. The serum from each case was collected every fourth day and titrated for the presence of the three types of antibody (O, H, and Vi). Table II summarizes the highest titres obtained during the course of typhoid infection; the "titre" represents the dilution of the serum which gives a *one plus* (+) reading according to the agglutination technique of Felix. The O and H agglutinin titres are omitted, as they are intended to form part of a subsequent communication.

TABLE II.—Vi Titre in Typhoid Patients

| Titre | Number showing a Particular Titre | | Height of Titre per 100 Individuals | |
|-----------|-----------------------------------|--------------|-------------------------------------|--------------|
| | Inoculated | Uninoculated | Inoculated | Uninoculated |
| 1 : 10 | — | — | — | — |
| 1 : 25 | — | 27 | — | 34.6 |
| 1 : 50 | 10 | 45 | 17.8 | 57.7 |
| 1 : 100 | 37 | 6 | 66.1 | 7.7 |
| 1 : 200 | 9 | — | 16.1 | — |
| 1 : 500 | — | — | — | — |
| Totals .. | 56 | 78 | | |

It is evident from Table II that Vi antibody was present in the serum from every case of typhoid fever, whether previously inoculated or not. A distinct difference was, however, seen to have been caused by inoculation, so far as the titre of this antibody is concerned, in that the inoculated individuals generally gave a higher reading. Whereas in the uninoculated more than 90 per cent. of the cases examined did not show a titre higher than

1 in 50—34.6 per cent. of these reacting only in the dilution 1 in 25—among the inoculated, on the other hand, a titre of 1 in 100 was obtained in as high a percentage as 66.1 and that of 1 in 200 in another 16.1 per cent. It was noticed that those individuals who have had the benefit of multiple inoculations recorded, as a rule, a higher titre than those who had undergone a single course.

Advantage was taken in sixteen cases (eight inoculated and eight uninoculated) to bleed the patient every third morning so that the development of Vi antibody could be studied every forty-eight hours. Two sample cases are illustrated in Charts I and II.

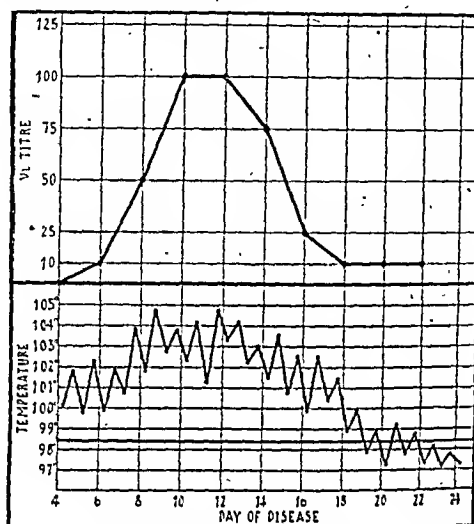


CHART I.—Showing the development of Vi antibody in an inoculated person.

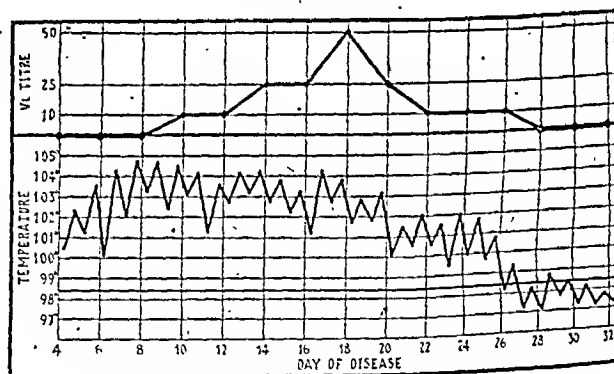


CHART II.—Showing the development of Vi antibody in an uninoculated person.

It is seen from the charts that the Vi antibody response was different in the two types of individual. In the inoculated the rise of the Vi agglutinin curve was steeper, more Vi antibody was produced, and the highest point was reached much earlier (on the tenth day in this case); in the uninoculated the rise was much more gradual, and the highest titre (only 1 in 50, compared with 1 in 100 of the inoculated person) was not reached till the eighteenth day. It is of interest to note, however, that the fall of the curve was rapid in both cases.

These two curves exemplify what has been observed by us in an average inoculated and an average uninoculated case in which the typhoid fever takes what may be described as a normal course. Departures from the normal in the clinical course of the disease were noticed to produce variations in the elaboration of the Vi antibody as well. Thus in an inoculated community like the Army

it was common to see the infection follow a modified course in which the symptoms were mild and the pyrexia did not last more than eight to ten days. Here the rise of the Vi antibody curve was observed to be much more steep, and so was the fall, the difference in the titre in the course of twenty-four hours being as much as four times. Thus it was not unusual to find a titre of 1 in 100 one morning to be followed by a reading of 1 in 25 the day after.

Typhoid fever in an uninoculated individual in India commonly presents a textbook description of this disease—namely, a step-ladder type of pyrexia, the typical rash, the tympanitic abdomen with "pea-soup" stools, and complications like severe mental disturbances, haemorrhage, and relapse. It was noticed as a rule that the titre of Vi antibody continued to be low till late in the disease in those cases where either the clinical course was severe or the pyrexia prolonged, or a relapse set in later.

From the point of view of the diagnosis of acute typhoid condition with the aid of Vi agglutination, it has been our experience that in an inoculated community a definite conclusion can be arrived at by the end of the first week. The Vi titre was found by then to have been in the region of 1 in 25 to 1 in 50, which could be easily detected with the help of the strain "Vi I."

In an uninoculated population a positive Vi agglutination reaction is of definite diagnostic value. A negative result, on the other hand, cannot be relied upon to exclude the presence of typhoid infection, since the Vi antibody is produced with difficulty in this type of individual and at a much later date during the course of the infection. In a case which runs an uninterrupted course frequent serological tests will, however, detect the presence of this antibody at a titre of 1 in 10 to 1 in 25 during the second week. In cases which relapsed it was noticed that generally no Vi antibody could be found during the primary rise of temperature, a positive Vi agglutination being obtained only during the course of the secondary rise.

Before the identification of the strain "Vi I" the Vi titre of a serum was determined by testing it against three different strains of *Bact. typhosum*, sensitive to O, H, and Vi agglutinins respectively, and the reading of the Vi reaction was taken in the simultaneous presence of O and H agglutination. Where the Vi titre was low the alternative method of completely absorbing the serum of its O and H antibodies was resorted to. This procedure inevitably resulted in the reduction of the already low Vi titre of the serum due to non-specific factors. Further loss took place owing to the absorption of a certain amount of Vi antibody by the small amount of Vi antigen present in the so-called Vi-free organisms that are employed for this purpose.

In view of these technical difficulties in assessing the Vi antibody content of a serum it can be easily understood why the study of this antibody in human infection has not progressed beyond its simple recognition by a few observers (Felix *et al.*, 1935; Bensted, 1937; Lewin, 1938). To start with, the impression was gaining ground with us that the Vi antibody is produced in a large number of inoculated individuals but very rarely in those who are not inoculated. It has only been possible to demonstrate the presence of this antibody in every case of typhoid fever since pure Vi agglutination has been obtained with the help of the strain "Vi I," which is sensitive to the Vi antibody but is insensitive to the O and the H agglutinins in as low a dilution as 1 in 10 (see Table I).

Up to the present we have not failed to correlate a positive Vi agglutination reaction with either the isolation

of the infecting organism or with a positive clinical picture of typhoid fever where bacteriological proof of the presence of typhoid infection could not be obtained. The great advantage of this type of agglutination lies in the fact that a positive result clinches the diagnosis of typhoid fever, there being no interference in the interpretation of the serological test from either the normal or the inoculation agglutinins such as occurs with the O and the H types of agglutination. In a recent personal communication Bensted expressed the opinion that T.A.B. inoculation does give rise to Vi antibody, but only in very small amounts, not large enough to be taken account of in Vi agglutination. On this basis he compares the altered Vi antibody reactivity of an inoculated individual to typhoid infection to the very rapid response to diphtheria toxin when there are minimal amounts of antitoxin in the blood.

It is necessary to emphasize certain technical points in connexion with the quantitative estimation of the Vi antibody. Dreyer's tubes are not suitable for Vi agglutination tests. The type of tube with a round bottom, employed in Felix's technique for the differentiation between O and H agglutination, is most suitable for Vi agglutination. The tubes are about 5 cm. long and have a uniform internal diameter of about 1.25 cm. The difference between the agglutinated bacteria and those that have simply settled down can be easily made out in these tubes, since they permit the shaking of the whole serum-suspension mixture. The clumped bacilli in Vi agglutination have a tendency to distribute themselves round about the lowest quarter of an inch of the agglutination tube, where they appear as a general haze to the naked eye. When the tube is shaken these agglutinated bacteria become readily visible as a considerable mass of somatic agglutination.

With a view to preparing sterile suspensions of strain "Vi I" suitable for Vi agglutination various chemical reagents were tried. None of them has so far proved to be entirely satisfactory. The agglutinability of the organisms so treated diminishes rapidly. Formalized suspensions (0.5 c.cm. of pure formalin added to every 80 c.cm. of the suspension) or those prepared with mercury perchloride (1 in 1,000 HgCl₂ in normal saline) can, however, be trusted to give reliable results for a period varying from four to ten weeks. It is therefore necessary that the Vi sensitivity of the suspension should be tested every few days against a pure Vi serum of known titre.

Vi Agglutination in Detection of the Typhoid Carrier Condition

During convalescence from typhoid fever it was observed that, as a rule, only traces of Vi antibody could be found in the serum. In a certain number of cases, however, the Vi titre continued to be high in spite of the termination of the acute infection. Further investigations revealed that this variation connoted a tendency towards the typhoid carrier condition. It was possible to study the serum reactions of four such individuals over a period of one year side by side with the examination of their stools and urine for the presence of the typhoid organism. None of the patients gave a history of previous T.A.B. inoculation. Three of them were faecal carriers and one urinary. Specimens were obtainable at approximately one-month intervals. The results are reproduced in Table III.

A correlation between the typhoid carrier condition and the presence of Vi antibody in the serum is evident from this table. Individual No. 1 proved to be only a tem-

TABLE III

| Time After Acute Typhoid Infection | Temporary and Chronic Typhoid Carriers | | | | | | | | | | | | | | | |
|------------------------------------|--|-------------------|-----|-----|------------------------------|-------------------|-----|-----|------------------------------|-------------------|-----|-----|------------------------------|-------------------|-----|----|
| | No. 1 | | | | No. 2 | | | | No. 3 | | | | No. 4 | | | |
| | Isolation of Typhoid Bacilli | Agglutinin Titres | | | Isolation of Typhoid Bacilli | Agglutinin Titres | | | Isolation of Typhoid Bacilli | Agglutinin Titres | | | Isolation of Typhoid Bacilli | Agglutinin Titres | | |
| | | Vi | O | H | | Vi | O | H | | Vi | O | H | | Vi | O | H |
| 1 month | + | 50 | 100 | 100 | + | 100 | 200 | 100 | + | 50 | 200 | 200 | + | 100 | 200 | 50 |
| 2 months | + | 25 | 100 | 50 | + | 50 | 100 | 25 | + | 50 | 200 | 50 | + | 100 | 100 | 25 |
| 3 " | + | 10 | 50 | 50 | + | 50 | 50 | 25 | + | 50 | 100 | 25 | + | 50 | 50 | 25 |
| 4 " | — | — | 50 | 25 | + | 50 | 50 | 25 | + | 50 | 100 | 25 | + | 50 | 100 | 25 |
| 5 " | — | — | 50 | 25 | + | 50 | 100 | 25 | + | 50 | 100 | 25 | + | 50 | 100 | 25 |
| 6 " | — | — | 50 | 25 | + | 50 | 100 | 25 | + | 50 | 100 | 25 | + | 50 | 100 | 25 |
| 7 " | — | — | 50 | 50 | + | 50 | 100 | 25 | + | 50 | 100 | 25 | + | 50 | 100 | 25 |
| 8 " | — | — | 50 | 50 | + | 50 | 100 | 25 | + | 50 | 100 | 25 | + | 50 | 50 | 25 |
| 9 " | — | — | 50 | 50 | + | 50 | 100 | 25 | + | 50 | 50 | 25 | + | 50 | 50 | 25 |
| 10 " | — | — | 50 | 50 | + | 50 | 100 | 25 | + | 50 | 50 | 25 | + | 50 | 50 | 25 |
| 11 " | — | — | 50 | 50 | + | 50 | 100 | 25 | + | 50 | 50 | 25 | + | 50 | 50 | 25 |
| 12 " | — | — | 50 | 50 | + | 50 | 100 | 25 | + | 50 | 50 | 25 | + | 50 | 50 | 25 |

porary carrier. After the third month no typhoid bacilli could be isolated from his urine or his faeces, nor could the Vi antibody be demonstrated in his serum. The three persons whose serum continued to give a positive Vi reaction proved to be true chronic carriers. The typhoid bacilli isolated from their faeces were invariably found to be virulent Vi-containing organisms.

Pijper (1930), Ashby (1931), Wyllie (1933), and others have suggested the estimation of O agglutinins for the detection of the typhoid carrier condition. The O titres in our series appear to be significantly high. But when this observation is considered in conjunction with the normal level of the typhoid O agglutinin in India, which has been shown to be as high as 1 in 100 in 64 per cent. of the individuals examined (see Bhatnagar *et al.*, 1937), the figures reproduced in Table III, obtained by the same technique of agglutination, cannot be taken to be more than suggestive of the chronic typhoid carrier condition.

The suggestion that possibly Vi agglutination may be a useful method of detecting chronic typhoid carriers was made by Felix, Krikorian, and Reitter (1935), and was followed up by Giovanardi (1936, 1937) in Italy and by Pijper and Crocker (1937) in South Africa. More recently the results of the examination of a considerable number of chronic carriers were published by Felix (1938). I myself have been using Vi agglutination in the routine carrier examination of a large number of individuals, such as is done in the Army in India, and in tracing the source of infection of a particular case or a group of cases of typhoid fever. The detection of Vi antibody in a serum is taken to be an indication for a thorough search for typhoid bacilli in the stools and urine. We have not yet come across an individual who while excreting typhoid bacilli failed to produce evidence of the presence of Vi antibody in his serum. The procedure not only led to the saving of a considerable amount of time and material, but also reduced the chances of missing a carrier in whom the discharge of bacilli was intermittent.

Summary

A strain of *Bact. typhosum* which gives rise to pure Vi agglutination has been identified.

With the help of this strain the Vi antibody is shown to be produced in every case of typhoid fever, the inocu-

lated individuals producing a higher Vi titre than the uninoculated.

Vi agglutination is shown to be a more reliable method of diagnosing typhoid fever in the inoculated than the time-honoured O and H types of agglutination.

A correlation between the typhoid carrier condition and the presence of Vi antibody in the serum is described. The employment of Vi agglutination in the routine carrier examination and in tracing the source of typhoid infection is suggested.

I wish to express my indebtedness to Colonel J. Taylor, D.S.O., C.I.E., V.H.S., I.M.S., Director, Central Research Institute, Kasauli, India, for his kind help and valuable criticism.

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With the October issue the *Jahrbuch für Kinderheilkunde* has become an international journal under the editorship of Dr. E. Freudenberg of Basle, published by S. Karger at Basle. Its other titles are *Annales Paediatrici*, *International Review of Pediatrics*, and *Revue Internationale de Pédiatrie*. The journal is open to receive articles in German, English, or French, and each paper will be summarized in these languages. The editorial board consists of representatives from Turkey, Switzerland, United States, Poland, Holland, Yugoslavia, Palestine, and France.

HYPERSENSITIBILITY TO BASAL ANAESTHETICS*

BY

B. P. HILL, M.B., Ch.B., D.A.

The investigation of problems arising in basal anaesthesia is very difficult, since so many factors go to make up the complete anaesthetic record of each case. To mention but a few of these factors, one may say that the patients are often in an abnormal state, either physically or psychologically, before the drugs are given; also, that in some cases other drugs are used in addition to the basal anaesthetic, and these complicate the picture. Furthermore, different operative procedures produce widely different effects upon patients, and these effects might be attributed in some cases to the method of anaesthesia and the drugs used. In view, therefore, of the difficulties to be encountered it would seem that accurate and full records of a large number of cases might furnish a valuable weapon with which to attack the problems involved. By observing factors that are common to many cases which react abnormally to basal anaesthetics, deductions as to their cause and prevention might be made. Perhaps it is no exaggeration to say that the drugs to which very few persons are hypersusceptible are the most difficult to investigate. An example of this is the use of paraldehyde: cases of hypersusceptibility to that drug are comparatively rare; but they do occur, and are very hard to explain, because comparison of common factors is almost impossible.

Avertin

Cases which are hypersusceptible to the action of this basal anaesthetic are more often seen, but are by no means common. As a result we know a little more about the causes of the hypersusceptibility to avertin. One of the most dangerous forms which this hypersusceptibility takes, but not the most common, is perhaps that of liability to liver-cell damage. In view of the similarity in chemical structure between avertin and chloroform, the comparison of their toxic effects is interesting. Both have a tendency to cause necrosis of the central cells of the liver lobules. The symptoms are very much the same with both drugs, and in the case of chloroform constitute what is known as delayed chloroform poisoning.

It has recently been shown that the liver extract of animals contains a substance which is able to protect liver cells from damage by small doses of chloroform. This substance has been isolated, and found to be sodium xanthine. When injected into animals sodium xanthine protects the liver cells from much greater doses of chloroform than those necessary to produce necrosis in normal animals. It is not unreasonable to suppose that the livers of people showing this form of hypersusceptibility to avertin might be deficient in this cell-protecting substance.

A recent case at the Royal Berkshire Hospital showed quite obvious symptoms of liver-cell damage following a dosage of avertin of 0.1 gramme per kilogramme of body weight. The patient recovered, and it was found later that she had revealed almost identical symptoms following chloroform anaesthesia twelve years previously. On the first occasion pure chloroform had been administered for thirty-five minutes; at her recent operation no chloroform was used.

* Paper read to the Section of Pharmacology at the Annual Meeting of the British Medical Association, Plymouth, 1938.

The above illustrates the use that might be made of the previous anaesthetic history of a case to indicate a possible hypersusceptibility to avertin or any other basal anaesthetic.

The Barbiturates

In a series of 300 cases in which nembutal, sodium evipan, and sodium amylal were used forty-six showed hypersusceptibility in some form or other. The most common symptom was that of severe post-operative restlessness, for the control of which morphine was required in many cases. The next most common form was that of prolonged narcosis, which in one instance lasted for nineteen hours.

Other symptoms that suggested hypersusceptibility were:

- (a) Respiratory depression, which resulted in cyanosis in two cases.
- (b) A fall in systolic blood pressure to 90 mm. Hg.
- (c) The appearance of albuminuria, which persisted for four days in a patient previously albumin-free.
- (d) An increase in bronchial secretion, which resulted in cyanosis in a patient whose supplementary anaesthetic was nitrous oxide-oxygen only.

Certain conditions and diseases seemed to favour hypersusceptibility to a barbiturate, but they were by no means constant in the effects produced. They included:

1. Arteriosclerosis, especially when accompanied by high blood pressure.
2. Senility, even in the absence of obvious pathological changes.
3. Anoxaemia of the body tissues.
4. Toxaemia of bacterial origin. This was especially marked in the toxaemia due to the haemolytic streptococcus.
5. The presence of shock.
6. Pulmonary disease.

The use of the barbiturates in cases showing clinical evidence of hepatic disease was avoided.

Thirty-six cases of the series in which hypersusceptibility was suspected were given sodium amylal in a dose of half a grain per stone of body weight. Where necessary this amount was administered in a divided dose, and the effect of each dose was carefully observed. In twenty-four of these patients the suspicion proved to be justified, because twenty-two of them showed severe post-operative restlessness and two prolonged narcosis. These results suggested that although in some cases hypersusceptibility might be anticipated, this anticipation proved correct in only about 66 per cent. of cases.

It is probable that hypersusceptibility in an individual varies within wide limits. Some of the patients in this series had had repeated operations, and the same dose of the same drug was given on each occasion, the conditions being kept as nearly constant as possible. Fourteen cases were investigated thus, and not one showed hypersusceptible tendencies twice, though three patients had abnormal reactions to the drug on one of their visits to the operating theatre.

Another factor which seemed to influence the appearance of hypersusceptibility was the route by which the drug was administered. When given intravenously nembutal produced shorter periods of post-operative restlessness in certain susceptibles than when the oral route was used, but the symptoms appeared very much earlier after operation and were usually more severe. Prolonged narcosis and respiratory depression were more frequent

when the intravenous route had been used. All cases in which the drug was given intravenously showed temporary albuminuria. In one case this persisted up to the fourth day.

The muscular contractions that were fairly common during and following the injection of evipan were not seen with nembutal used intravenously to the point of loss of consciousness. One out of the six healthy men who each received a fairly rapid intravenous injection of 10 c.cm. of cold sterile normal saline had an attack of shivering following the injection. This led to the inference that perhaps these muscular tremors are not a manifestation of hypersusceptibility to evipan in all cases.

In an attempt to detect hypersusceptibility to a barbiturate a test rather similar to the Schick test was devised. This was used in 210 cases. Into the skin of the forearm was injected 0.2 c.cm. of a 10 per cent. solution of sodium amytal, a control injection of sterile saline being made at the same time. The sites of injection were observed for the appearance of erythema. The results showed the unreliability of such a test in a very striking manner.

Conclusion

Hypersusceptibility is rare with the use of paraldehyde as a basal anaesthetic. Its explanation is very difficult in consequence, and cases are hard to anticipate.

More undue susceptibility is seen when avertin is used, and therefore rather more information as to the cause and avoidance of symptoms is available. Hypersusceptibility results in liver-cell damage in certain cases, and this may be due to the deficiency of a substance which normally protects the liver cells from necrosis during the detoxication of avertin.

With the barbiturates, hypersusceptibility is very inconstant, even in the same individual. Certain factors favour an undue reaction to a normal dose of the drugs, and though not absolutely constant these factors must be considered as a guide to dosage. No reliable test has so far been devised by means of which hypersusceptibility may be detected, and a skin test proved to be wholly unreliable.

Summary

It is suggested that deductions as to the cause and the prevention of hypersusceptibility to basal anaesthetics might be made by observing common factors in a large series of cases.

The liability to liver-cell damage from the use of these drugs is discussed.

Certain diseases and symptoms that suggest hypersusceptibility are recorded.

The route of administration is discussed as a factor in hypersusceptibility.

At the first public exhibition of its kind in the United States of America, held at the Harlem Art Center in New York City under the auspices of the Government's Federal Art Project and of the Bellevue Hospital's Psychiatric Division, 106 pictures were shown as the work of disordered minds. The artists included moronic children, chronic alcoholics, advanced epileptics, schizophrenics, manic-depressives, and victims of G.P.I. The majority of the exhibits told of mental conflicts and had but scant contact with reality, being shapeless (sometimes senseless), lurid, and gruesome. The idea underlying the art classes at Bellevue is to attempt a cure of the mentally sick by encouraging them to express their conflicts and at the same time to give psychiatrists a clearer picture of their patients' emotional life.

TREATMENT OF ACUTE OSTEOMYELITIS BY ULERON

BY

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My object in writing this note is not merely to record a short series of successful cases but to draw further attention to the use of uleron in the treatment of osteomyelitis. If it is of the value which I for the present am led to believe that it is, my belief can be confirmed by the observations of others, who I hope will put it to trial if they have not already done so.

The treatment of acute septic osteomyelitis demands the consideration of three problems: the relief of the abscess which is usually present; the treatment of the general infection, which in many cases manifests itself in the form of a virulent septicaemia; and the best method of dealing with the actual bone infection, which, although apparently responding satisfactorily to local treatment, may show a persistent tendency to recur, and this over a period limited only by the patient's span of life. For many years I have been interested in these problems, and after a close examination of the subject it seems to me that we cannot honestly maintain that our treatment has advanced much during the last twenty-five years, if we are to take as our criterion a highly improved mortality rate and an increased freedom from late recurrence of infection.

Practical experience over a long period improves one's judgment as to when to operate and as to the type of operation suited to each particular case; but it has been found that sera and blood transfusions are of very little value in the treatment of the severer types of septicaemia, and we still have to rely on Nature's powers of clearing up such infections. The liability of cases apparently completely cured to show severe and intractable recurrences years afterwards has, in my opinion, never received sufficient recognition. It is the knowledge of this liability to recur that has caused me always to be an advocate of complete subperiosteal resection in suitable cases.

The various forms of treatment advocated from time to time are familiar to us all, but the fact that they show such variety must surely mean that no one of them has been found to provide a complete solution to our difficulties. Hitherto no specific agent has been discovered that will really influence the staphylococcal septicaemia so often present, but my experience during the last year has led me to wonder whether we have not at last been offered something which, from the limited trial I have been able to give it, appears to be a curative agent worthy of more extended trial.

Five cases of acute osteomyelitis have been treated with uleron in addition to the ordinary local treatment. This drug, a sulphonamide preparation made by Bayer Products Ltd., has been used in tablet form (7½ grains). To young children we have given one tablet every four hours. The period over which it has been administered has varied up to several weeks.

The cases treated are few in number, but may be considered representative cases because they are all of the really severe type of osteomyelitis, and in each of four of them a different method of operative treatment was adopted; in the other no operation was done. Four were treated in the Royal Aberdeen Hospital for Sick Children, one in a nursing home.

Case I

A girl aged 11 was admitted to hospital on December 13, 1937, with a history of three days' illness—typical acute osteomyelitis of the lower end of the right femur with abscess formation. The child was very ill, and had a temperature of 102° and pulse of 126. An incision was made down to the bone, which was not drilled (Mr. S. G. Davidson). On the 17th there was pain and swelling of the left tibia, followed on the 18th by pain and swelling of the right humerus. Uleron, $7\frac{1}{2}$ grains, was given three daily for about a week, beginning on December 17. Three days after uleron was started the temperature began to fall and the general condition rapidly improved. There was no operative treatment for the tibia or humerus. The patient was discharged in April, 1938, with the wound in the right leg healed.

Skigrams showed the typical appearance of osteomyelitis in the femur, tibia, and humerus. *Staphylococcus aureus* was found in the pus. The report from a blood culture was negative, but there must have been considerable blood infection, as proved by the appearance of two very definite secondary foci.

Case II

A boy aged 4 was admitted to hospital on July 15, 1938, with a history of three days' illness, and also of swelling and pain at the lower end of the femur. The appearance was typical of osteomyelitis; temperature 102° , pulse 160. The child was gravely ill, and it was considered that any operative procedure was not justified. Uleron was given every four hours and continued for three weeks, when the child's face began to look rather bluish and use of the drug was discontinued. Two days after uleron was started his condition began to improve, and his temperature fell to normal in a week.

Skigrams showed periosteal thickening at the lower end of the femur and, later on, a small focus in the shaft higher up. Blood culture showed the presence of *Staph. aureus*. The child was discharged one month after admission apparently cured.

Case III

A male child aged 2 was admitted to hospital on June 23, 1938, having a history of two days' illness, with pain and swelling at the upper end of the left tibia and an abscess. He was very ill, his temperature being 104° and his pulse 160. Uleron, $7\frac{1}{2}$ grains, was given every four hours. On June 27 the abscess was incised down to the bone, and on July 20 the whole shaft was easily removed subperiosteally. A small part of the circumference of the shaft was sawn off in all its length, boiled, and replaced in the periosteal bed. Pus and blood culture made on June 27 showed *Staph. aureus*, but on July 6 blood culture was negative. A small secondary abscess developed in the lower end of the right radius, but this cleared up quickly after being drilled. On August 19 the leg wound was very clean. The granulations were exceptionally fresh-looking, and the tibia was re-forming in very good position.

Case IV

A youth aged 16 was admitted to a nursing home on July 21, 1938, with pain and swelling of the lower end of the right femur. The temperature was 106° and pulse 120. The abscess was incised on the same day. Four drill-holes were made and a small piece of the cortex of the femur was removed. Uleron, $7\frac{1}{2}$ grains, was given every four hours. Blood culture was positive to *Staph. aureus*. A second blood culture on August 1 was negative. This patient showed a very rapid improvement, but uleron had to be discontinued after eight days owing to skin irritation.

Skigrams showed that a considerable length of the shaft of the femur was infected. On August 18 there was very little discharge from the wound and the patient's general condition was excellent.

Case V

A boy aged 6 was admitted to hospital on August 10, 1938, having a history of two days' illness. His temperature was 102° and the pulse 138. There was pain and swelling over the lower end of the right femur, and the abscess was incised. Two drill-holes were made in the lower end of the femur; acriflavine and vaseline gauze dressing were applied and the leg fixed in plaster-of-Paris. Uleron, $7\frac{1}{2}$ grains, was given every four hours. The temperature fell to normal in eight days. The child was very comfortable, and up to the time of writing the dressing has not been changed. Examination of the pus showed the presence of *Staph. aureus*. Blood culture was negative. This case was not quite so severe as the others, and has made exceptionally good progress.

Commentary

These case notes have been made as brief as is possible, and any discussion of local dressings, splintage, and sun exposure has been omitted.

As I have pointed out, the series is a short one, and it may be argued that similar recoveries might have been obtained by treatment other than that adopted, but I feel strongly that all these cases have done exceptionally well, particularly Cases I and II, which seemed absolutely hopeless. All of them were definitely of the really severe septic osteomyelitis, and not of the milder type sometimes seen.

PELVIC HYDATID CYSTS AND OBSTRUCTED LABOUR

BY

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Perusal of the literature leaves little doubt that, in this country at least, obstructed labour is only rarely caused by a hydatid cyst. Such a case recently seen in the practice of the maternity department of the Cardiff Royal Infirmary prompted me to consult the hospital records. They revealed a similar case fifteen years ago, and so this opportunity is taken of describing both cases.

Case I

A 5-gravida aged 33 was admitted on October 24, 1923, having been referred by Dr. Burns of Abertillery. She had previously had four living children—three *per vias naturales* and one by Caesarean section—and no miscarriages. The patient had been unwell during the early months of pregnancy and a hydatid cyst had been removed from the anterior aspect of the uterus at the fifth month.

Examination revealed a full-term pregnancy, labour being obstructed by a large mass in the pouch of Douglas. Classical Caesarean section was performed and a full-term living child weighing 6 lb. was delivered. The uterine incision was brought together with mattress sutures and the abdomen explored. The uterus, especially its right lower aspect, was studded with small tubercle-like bodies. There was a large retro-uterine fluctuant mass in the pelvis, with a number of hard white masses resembling caseous glands attached to the omentum. On manipulation the pelvic mass ruptured, and what appeared to be pus and masses of endocyst were extruded. A large number of cysts of all sizes were attached to the omentum and peritoneal surfaces, and were removed. Further exploration revealed a hard calcareous mass attached to the under surface of the liver, but whether primarily there or in adherent omentum could not be ascertained. Removal of the mass was

considered inadvisable. Subtotal hysterectomy was then performed, with removal of the left appendages and what remained of the right, and the abdomen was closed.

Progress was fairly satisfactory until the twenty-fourth day after operation, when the patient suddenly collapsed and died, apparently from a pulmonary embolism. Permission for a post-mortem examination was not obtained.

Case II

An 8-gravida aged 35 was referred to the Infirmary by Dr. Roberts of Barry on February 5, 1938, as a case of labour obstructed by a pelvic tumour. She had had three miscarriages followed by four normal confinements, the last being two and a half years previously.

At the time of admission the membranes had been ruptured thirty-five hours and labour had been in progress sixteen hours. Abdominal examination revealed a full-term pregnancy, the foetus presenting by the breech in the left sacro-anterior position and the foetal heart rate being 138 per minute. Contractions were recurring every five minutes. On vaginal examination the cervix was found to be half dilated, with the breech presenting high up. There was a firm irregular mass in the pouch of Douglas about the size of a coconut which did not appear to be attached to the uterus and which was obviously obstructing labour. A tentative diagnosis of impacted ovarian cyst was made.

Classical Caesarean section was performed and the patient delivered of a full-term living child weighing 6½ lb. The uterine wound was closed and the abdomen explored. There were multiple cysts in the abdomen—eight to ten in number. The ovaries were not involved. One cyst attached to the upper surface of the bladder, and a second attached to the descending colon by adhesions, were removed for microscopical examination. Other cysts were intimately attached to the colon and mesocolon, and varied from the size of a walnut to that of a coconut. One such cyst was impacted in the pouch of Douglas, obstructing labour. As removal of all the cysts would have meant considerable dissection and have taken much time, it was thought advisable to close the abdomen. Convalescence was uneventful, and the patient was discharged twenty-five days after operation.

The diagnosis of hydatid cyst was confirmed microscopically. A blood count revealed an eosinophilia of 5 per cent, and the Casoni reaction was positive. The patient had always enjoyed good health, and inquiry failed to elicit any previous, family, or social history suggesting hydatid disease.

Pathological and Clinical Considerations

The two cases described were almost certainly examples of secondary echinococcosis. They serve to emphasize certain pathological and clinical aspects of hydatid disease which are as yet not sufficiently appreciated and which may be briefly outlined.

Following ingestion of the ovum the hexacanth embryo hatches in the upper part of the alimentary canal and, travelling via the radicles of the portal vein, lodges as a rule in the liver. Here, as a result of growth changes which need not be detailed, the typical univesicular hydatid cyst is formed, consisting of an outer ectocyst, or laminated layer, and an inner endocyst, or germinal layer containing specific fluid in which float the reproductive elements—the whole surrounded by a fibrous adventitia derived from the host. The scolices grow inside specialized brood capsules, and with their formation the cyst may be said to be fully developed. Such a cyst is typically found in a child or young adult; for in the majority of cases infestation takes place in childhood, so that the cyst is nearly as old as the host.

In nearly all instances it is the onset of complications that determines the first clinical manifestation of hydatid disease. In the great majority of cases these complications

depend on the previous escape of fluid from the cyst—varying from a slight leak to a frank rupture—and commonly occur after the third decade of life.

Rupture of the cyst may take place into the subcutaneous or muscular tissues, into the bile ducts, bronchi, alimentary canal, or urinary tract; into a serous cavity such as the peritoneum, pleura, or pericardium; or into the chambers of the heart or large veins. Each presents its own characteristics, but according to Dew (1930-1) the sequelae may be grouped as follows:

General—applicable to all types:

1. Immediate: Anaphylaxis.
2. Delayed: Secondary echinococcosis.

Special—applicable particularly to rupture into a natural channel:

1. Immediate: Mechanical effects.
2. Delayed: Suppuration in the cyst.

Of these sequelae it is only necessary to consider briefly anaphylaxis and secondary echinococcosis.

ANAPHYLAXIS

The appearance of anaphylactic phenomena following rupture or puncture of a hydatid cyst has been noted many times. The most common of these manifestations are urticaria, dyspnoea, cyanosis, abdominal pain, vomiting, syncope, and delirium. The severity of the anaphylactic reaction varies within wide limits, but it is probable that were more accurate histories obtained clinical evidence of anaphylaxis would often be revealed.

SECONDARY ECHINOCOCCOSIS

For many years the majority of clinicians regarded multiple cysts as evidence of multiple primary infestations, but it is now known that they are nearly always manifestations of secondary echinococcosis following rupture of the primary cyst and the implantation of daughter cysts or scolices. There are many clinical examples of this phenomenon, but only two—the localized and intraperitoneal types—need be mentioned.

Slight leakage of fluid from a single cyst, following puncture or mild trauma, may give rise to the formation of multiple secondary cysts within the confines of the adventitia, and is one of the commonest types of reactive daughter-cyst formation. Dew is of the opinion that probably all cases of endogenous daughter-cyst formation are best regarded as a special type of localized secondary echinococcosis.

Multiple secondary cysts of the peritoneal cavity are relatively common, and are always due to leakage of reproductive elements from a primary cyst of the liver or, rarely, the spleen or kidney. These secondary cysts become completely surrounded by the peritoneal epithelium, so as often to give the impression that they have developed in an extraperitoneal situation. They are of slow growth, with a latent period of from five to ten years before they produce symptoms. They are prone to further rupture, with the production of more cysts, so that ultimately the peritoneal cavity may be almost filled with hydatid cysts in all stages of development. The original primary cyst may be completely evacuated, so that after a lapse of years it may be exceedingly difficult to detect the primary site. More commonly, however, the rupture becomes sealed off by adhesions, and the residual germinal elements produce multiple daughter cysts—one type of localized secondary echinococcosis.

The multiple intraperitoneal cysts present in each of the cases described were undoubtedly produced by rupture of a primary hydatid cyst as outlined above. In Case I

the calcareous mass attached to the under surface of the liver would appear to have been the remains of the primary cyst. In Case II the primary cyst was not located. In neither case was a history suggestive of anaphylaxis obtained, so that the time of rupture of the primary cyst cannot be known; but it is likely that in each case multiple cysts had been present and unsuspected in the peritoneal cavity for several years.

In Case I the first manifestation of hydatid disease appears to have been in the earlier months of the pregnancy, when the patient began to feel unwell. Presumably in consequence of an examination laparotomy was performed and a hydatid cyst removed from the anterior part of the uterus. In Case II hydatid disease was not suspected until the occurrence of an obstructed labour due to a cyst being impacted in the pouch of Douglas. It is noteworthy that in both cases, although hydatid disease had probably been present for many years, it was not discovered until the fourth decade of life, and then only on account of an associated pregnancy.

Literature

References in the literature to the ubiquitous hydatid cyst in relation to pregnancy and parturition are few. Franta (1902) collected all the recorded cases and dealt with them in three papers. The first was concerned with dystocia due to hydatid cysts in the pelvis, and recorded thirty-six cases. The second contained an account of twenty-two cases in which operation for removal of the cyst was performed in pregnancy. The third dealt with the influence of pregnancy, labour, and the puerperium on hydatid cysts. I am aware of only four recorded instances in this country. Gemmell (1899) described a case of hydatid cyst in the omentum obstructing labour which was treated by abdominal section and removal in the puerperium. Blacker (1903) published a case of hydatid cysts complicating pregnancy in which Porro-Caesarean section was performed. Andrews (1903) also described a case in which pregnancy was complicated by the presence of a hydatid cyst in the pelvis. The remaining case is that of Bell (1925), whose patient had an obstructed labour necessitating craniotomy, the cyst subsequently being removed during a second pregnancy.

Summary

1. Two cases of obstructed labour due to a hydatid cyst are described because of their comparative rarity.
2. Both cases were examples of secondary echinococcosis with multiple cysts in the peritoneal cavity.
3. In neither case was there a history of anaphylactic manifestations such as frequently accompany rupture of the primary cyst.
4. Although hydatid disease had probably been present for several years, it had not been suspected. In the first case it was discovered at the fifth month of pregnancy, and in the second during labour.

I wish to express my thanks to Sir Ewen Maclean and Dr. M. D. Arwyn Evans for permission to publish these cases.

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EPIDEMIC MYALGIA

FIVE CASES IN ONE HOUSEHOLD

BY

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The following account of an outbreak of epidemic myalgia may be of some value, as it provides a possible differential diagnosis in cases of appendicitis, pleurisy, cholecystitis, and muscular rheumatism.

Survey of Literature

Daae (1874) in Norway is first credited with describing the disease, which, he says, is distinguished by pain in the chest and back, febrile disturbance, and relapses. Gradually it became recognized as a clinical entity, and by 1888 the name "devil's grip" had been associated with it in America. From this time it attracted little attention until 1930, when Sylvest (1930, 1931) gave a full account of an epidemic which occurred on the island of Bornholm, in which 10 per cent. of the population were attacked. He described the onset as sudden, with pain in the hypogastrium and nausea, the pain shifting to the chest and shoulders after a few hours. These symptoms are associated with fever, from 99° to 105° F., and the attack lasts a few days. Relapses are frequent. Sylvest noticed a seasonal incidence in summer and early autumn. The sexes are equally affected, and, although no age is exempt, most cases occur between the ages of 5 and 15. There appeared to be an incubation period of two to four days, and examination of the blood showed an eosinophilia.

Since 1930 there have been a few reports in the literature. Rector (1935) records nineteen cases in which the patient was under 8 years old, and he suggests the use of quinine sulphate in cases that do not clear up quickly. Smith (1937) gives an account of an epidemic at Rugby School, in which there were myalgic pains, chiefly in the back of the neck.

In 1934 the disease received more attention owing to several outbreaks in American towns. MacDonald, Howell, and Cooper (1937) investigated an outbreak in Cincinnati; clinically they found the same picture as did Sylvest, but there were no patients over 15 years of age. They point out that constipation was frequent and relapses after a few days were common features. These workers found no eosinophilia, but some of the patients had a leucopenia. Bacteriological investigations of the cerebrospinal fluid were negative, as also were blood cultures. The Wassermann reaction was negative in all cases. Cooper and Keller (1937) tried to find a specific organism in washings of the throat and nose, but the only constant growth was a small colony type of *Streptococcus viridans*, to which they attached little importance. Later work with animals suggested a filterable virus as the cause, with a possible incubation period of eight to ten days. F. Wolter (1937), investigating a series of outbreaks in Germany, adds the fact that the urine is usually very dark in colour, and this, he suggests, is due to the presence of creatinine, which he attributes to the changes in the muscles. He discusses the connexion between epidemic myalgia and epidemic poliomyelitis, and points out that there is a similar seasonal and climatic incidence.

Case Records

Case 1.—A man aged 26 first complained of epigastric pain, made worse by meals. The following afternoon the pain became very acute and was localized to the right costal margin; there were no clinical signs of pleurisy and a radiograph of the chest was normal. During the next two days the pain in the chest became much less severe, but it was made worse by deep breathing or laughing. Tenesmus was present. On the fifth day there was a relapse, with headache, sweating, and a temperature of 101° F. After 30 grains of aspirin had been taken there was a profuse perspiration followed by considerable improvement. During the next three days the pain in the lower part of the chest became less severe and was more generalized over the back and shoulders.

Case 2.—A woman aged 27 complained of vague abdominal pain with nausea; the next morning the abdominal pain was worse and tenesmus was pronounced; in the afternoon there was a sudden onset of pain in the right costal margin, aggravated by coughing or laughing. On the third day she felt better, but had a relapse in the afternoon, and complained of feeling hot and exhausted. The temperature was not taken. During the next three days the pain became less, and finally disappeared after a treatment with an infra-red lamp.

These patients did not go to bed.

Case 3.—A woman aged 26 complained of a sudden onset of pain in the abdomen and general malaise eight days after exposure to Cases 1 and 2. Her temperature was 103° F., and she went to bed. The next day the pain was localized to the right costal margin and was made worse by coughing or deep breathing. The morning temperature was 101° F., and the evening 102° F. A blood film was taken which proved normal. Tenesmus was present. On the third day she felt better; her temperature was normal and she got up. The following day there was a mild relapse, the patient feeling hot and sweating, but she managed to undertake a railway journey.

Case 4.—A baby aged 15 months had a general upset, being off her food and appearing to have pain in the abdomen, especially when crying; she was sick twice. The following day she was well but fretful. On the third day she had a relapse, the temperature being 102° F., but there were no localizing symptoms. During the next few days the child was off its food but was otherwise well. The motions were normal.

Case 5.—A female aged 17, nurse to Case 4, developed abdominal pain, with general malaise and a temperature of 99° F., ten days after Case 4 had recovered. The next day the pain was localized to the right side of the chest, where it persisted for two or three days. There was no relapse. This was a very mild attack, if one at all.

Commentary

These cases thus closely followed the clinical picture described by Sylvest, the main features being a sudden onset with abdominal pain and malaise, the pain moving to the chest, particularly the right costal margin (Cases 1, 2, and 3), on the second day, later diffusing all over the chest and shoulder. Pyrexia varied from 99° to 103° F., and tenesmus was present in three cases. A relapse on the third, fourth, or fifth day was noticed in four cases. Cases 3 and 5 appeared to have incubation periods of eight and ten days respectively.

The chief disabilities are intermittent attacks of malaise for about a week, combined with the inability to laugh or take a deep breath without excruciating pain in the chest, also the frustration, in spite of a strong urge, of being unable to defaecate satisfactorily.

It is interesting to note that at about the same time as the above cases occurred there were admitted to the local hospital more cases than usual, perhaps, of appendicitis that never came to operation. Unfortunately these were not investigated from the point of view of myalgia.

Summary

A brief review of the literature of epidemic myalgia is presented, together with an account of five cases occurring in one household.

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Clinical Memoranda

Domiciliary Emergency Treatment of Eclampsia

There is no gainsaying the fact that domiciliary treatment of persons acutely ill of obstetrical complications is the correct one, not only in the homes of the well-to-do but also in the overcrowded homes of the poor. Hospitals have their place in the treatment of disease, but a review of the table below proves beyond doubt that the emergency treatment of eclampsia at home is pre-eminently the best line.

Comparative Statement of Cases of Eclampsia Treated from 1933 to 1937 in Hospital and by Domiciliary Emergency Measures

| | 1933 | 1934 | 1935 | 1936 | 1937 | | Totals |
|---|-------|-------|-------|-------|-------|---|--------|
| Total admissions to hospital .. | 1,416 | 1,649 | 1,759 | 1,729 | 1,780 | | 8,333 |
| Cases of eclampsia occurring in hospital or admitted after onset .. | 13 | 13 | 17 | 26 | 17 | Incidence 1.03% Average death rate 11.6% | 86 |
| Deaths .. | 2 | 2 | 1 | 5 | 0 | | 10 |
| Emergency team: Cases treated in own home | 4 | 10 | 13 | 5 | 11 | | 43 |
| Deaths .. | 0 | 0* | 0 | 0 | 0 | | 0 |
| Hospital and home cases combined .. | 17 | 23 | 30 | 31 | 28 | | 129 |
| Deaths .. | 2 | 2 | 1 | 5 | 0 | Average death rate 7.7% | 10 |

* Of the patients attended in their own homes during 1934 one was dead before the arrival of the emergency team.

As our experience increases the pitfalls become apparent: one that I have observed is where there is such a pronounced elevation of the blood pressure in a case of pre-eclamptic toxæmia that even the excitement attending transport and admission to hospital causes the patient to develop an eclamptic seizure, the prognosis of which it is difficult to forecast.

During the past five years 8,333 cases have been admitted to this institution, and eighty-six have suffered from eclampsia either before or after admission, with a mortality rate of 11.6 per cent.; whereas during the same period forty-three cases were treated in their own

homes without any mortality. During the period under review it has been left to the general practitioner in charge of the case to decide whether the patient should be admitted to hospital or not, and, generally speaking, those treated in their own homes have been seriously ill with advanced symptoms of eclampsia. One would therefore expect that the death rate of these cases would be considerably higher than that in the hospital, but that is not so. Previous to the advent of domiciliary emergency treatment the mortality rate from eclampsia was in the neighbourhood of 20 per cent.

TREATMENT

Our treatment of eclampsia is simple: a darkened room, freedom from noise, careful nursing, an initial sedative dose of morphine hydrochloride 1/6 to 1/4 grain, varying according to the severity of the attack, followed by doses of chloral and bromide, 20 grains of each, hourly until fits are controlled. No fluids are allowed during the unconscious state, and only a limited amount after the patient becomes conscious. Mist. senna co. 3 to 4 oz. orally and a magnesium sulphate enema are given if the bowels are obstinate. Lumbar puncture is performed under light anaesthesia, which is again resorted to if fits supervene.

H. J. THOMSON, M.D., M.C.O.G.,

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Hospital.

Bellshill, Lanark.

Locked Twins

The following record of a case of locked twins with survival of the second twin seems worthy of publication.

A primipara aged 24 was admitted to hospital on August 18 as a case of obstructed labour. On admission a foetus was showing between the legs, having been born as far as the head in a breech presentation; it was dead. The history was that labour had started two days previously, was about six weeks premature, and the membranes had ruptured twelve hours before admission.

The woman was in good condition, and abdominal examination revealed twins, the second presented as a vertex. The patient was immediately given a general anaesthetic, and vaginal examination showed that the twins were locked, the head of the first, which was above the brim, being held up by the head of the second, which was in the pelvis. The second head was pushed up quite easily and the dead foetus removed. An internal version was then carried out upon the remaining twin, and it was extracted readily by the breech. It was found to be alive.

The woman had an uncomplicated convalescence, and the second twin survived after a severe attack of melaena neonatorum, which was treated by intramuscular injections of the mother's whole blood and haemoplastin. The twins weighed 4 lb. and 3 lb. 12 oz. respectively, the mother's pelvic measurements being 11 by 12 by 8 inches.

COMMENTARY

The interest of this case lies, first, in the rarity not only of locked twins but especially locking of the two heads (Queen Charlotte's *Obstetrics* stating that no case has been seen in the experience of that institution), and, secondly, in the survival of the second twin.

The fact that several cases have been recorded in the last few weeks shows that the condition is not as uncommon as is thought.

I wish to thank Mr. H. I. Deitch, medical superintendent, General Hospital, Halifax, for permission to publish this case.

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Reviews

PROBLEMS OF POPULATION

Population: To-Day's Question. By G. F. McCleary. (Pp. 222; frontispiece. 6s. net.) London: George Allen and Unwin, 1938.

In more than one previous book Dr. G. F. McCleary has demonstrated his command of a lucid and agreeable literary style and his ability to present the really important part of a difficult scientific argument without using technical terms. His latest book, *Population*, is worthy of the reputation he has gained. It would not be difficult for a less skilful writer than Dr. McCleary to make a sensational story of the historical facts or a thrilling forecast of the future. But to make statistically clear why (1) an actual increase of population may be strong evidence that population will shortly decline enormously, (2) a decreasing population involves increasing unemployment, needs something more than literary facility. Dr. McCleary succeeds here, partly by a careful choice of arithmetical methods, partly by the use of judicious analogy. To the "common-sense" objection that population is in fact still increasing he retorts that no wise business man would disregard an unfavourable report of his accountant merely because his takings substantially exceeded his expenses. As Dr. McCleary succeeds in the most difficult part of his undertaking, it is not surprising that, in his exposition of opinions respecting the reasons for a decrease of population and of attempts to check the decrease, he is candid and instructive. His observations on the recent demographic history of Italy and Germany are particularly valuable.

Broadly speaking, measures to encourage an increase of population are of the following kind. The statesman endeavours by methods of differential taxation or occupational preference to reduce the social and economic disadvantage which, under modern conditions, parents with many children suffer. But as the positive effects of these measures never go further than to reduce the disadvantage it is necessary either to persuade the deliberately infertile that the measures are more effective than they really are or to change their emotional outlook on the facts of life. In Germany and Italy both plans have been in operation: in Italy for more than a decade; in Germany since 1933. In Italy the results have been trivial. "Signor Mussolini has done many wonderful things, but he has not yet succeeded in inducing his countrymen to produce more babies." Herr Hitler has been relatively more successful, but it is too early to say more. How far the relative success of the German campaign is due to (a) better planning of the financial aids or (b) a greater capacity of Germans to believe what they are told and act upon instructions is hard to say. Indeed, to form an opinion requires much more intimate knowledge of financial and psychological questions than most readers can have. Dr. Burgdörfer thinks a new confidence in the future is an important factor. If the German nation as a whole really possesses that confidence its spiritual condition is unlike that of some other populous nations. Whether recent events or the comments of public men of all shades of opinion upon those events are likely to foster confidence in the future of the British people is a question which Dr. McCleary naturally does not discuss. All will agree with one of the concluding sentences of his book—"Of one thing, however, we may reasonably be sure: the formulation of an effective population policy will be no

easy task." Indeed we might phrase this more harshly, and say that until statesmen have learned how to utilize and protect the population in being they need not spend time in preparation to stave off a natural decline of population.

HAEMATOLOGICAL TECHNIQUE

Laboratory Manual of Hematologic Technic, including Interpretations. By Regena Cook Beck, M.A., M.D. With a Foreword by Frank W. Konzelmann, M.D. (Pp. 389; 79 figures, 72 tables. 18s. net.) London: W. B. Saunders. 1938.

The students of laboratory technique at the School of Medical Technology, Richmond, Va., will find the manual of haematological technique by Dr. R. C. Beck a valuable if not indispensable guide in their work. Laboratory technicians have a special professional status in the United States which has not as yet developed to the same extent in this country; they constitute an important group of workers almost exclusively women. This manual is a compilation of laboratory methods collected from various sources, many of which are unfamiliar to workers in this country, but are in routine application at Dr. Beck's institution, where they seem to fulfil the same useful purposes as those of all carefully planned methods. With the modern zeal for attaining accurate and reliable results laboratory technique has attained almost universally to so high a standard that there is little opportunity for selection, and every laboratory may safely adopt the methods best fitted to its equipment.

The methods chosen for this manual are clearly and simply described and comparatively free from the distraction of references and names of authorities. It is surely an inaccurate or biased claim of Professor F. W. Konzelmann in his foreword that "at the time of this writing there is no other single volume where so much information on the subject of procedure in haematology is contained between two covers." The book is, of course, American in style, but is commendably free from arresting words and expressions.

CONTROL OF VENEREAL DISEASE

Syphilis, Gonorrhoea and the Public Health. By Nels A. Nelson, B.S., M.D., and Gladys L. Crain. (Pp. 359; 15 tables. 12s. 6d. net.) New York: The Macmillan Company. 1938.

In few countries is the problem of venereal disease more difficult of solution than in the United States of America, and those who are interested may with advantage study *Syphilis, Gonorrhoea and the Public Health*. This book is divided into two main sections, the first dealing with the clinical and pathological side of venereal disease, and the second with its control. The former is excellent, giving a simple straightforward account of the history, diagnosis, and treatment of gonorrhoea and syphilis which is intelligible to any layman, and which might be read with profit by many doctors: though this is compressed into less than 150 pages there appear to be no important omissions and little to criticize. Perhaps to say that "if the red cells remain red the test [Wassermann] is positive," and "if the red cells are decolorized the test is negative," may hardly convey the true facts very accurately, while the diagram of gonococci does not look very much like the real thing; but these are minor shortcomings in a really admirable section.

The second section of the book deals with the incidence, prevalence, and control of venereal disease, and may well

prove an eye-opener to the uninitiated layman, for the general public has very little idea of the extent to which venereal disease has permeated all ranks of society. A control programme should include both syphilis and gonorrhoea; it concerns health departments, the medical profession, and the social worker. Case finding, case control, treatment, and diagnostic facilities all have to be considered, and no less important is the education not only of the patient but of the doctor, the nurse, and the general public. It remains open to question whether compulsion in any form is more efficient than persuasion, but what is clear is that, so far as America is concerned, more money, more V.D. specialists, and more free treatment are required before there can be any hope of reducing materially the incidence of venereal disease. Conditions are far more difficult in the U.S.A. than in most countries owing to the number of component States and the different races involved, including, as these latter do, a large coloured element.

This book should appeal more particularly to the medical officer of health and to the social service worker; to the former it should make it clear that venereal disease cannot be controlled by the same methods as are other communicable diseases, and the latter will realize the importance of finding and holding cases and contacts. Now that the subject of venereal disease is no longer barred from ordinary conversation or by the Press, and now that the public conscience is being awakened to the seriousness of the problem, there is hope that much progress in its control will be made.

MATERIA MEDICA

Traité de Pharmacie Chimique. Volume I. Chimie Minérale et Chimie Organique (Série Aeyclique). Volume II. Chimie Organique. (Two books.) By P. Lebeau and G. Courtois. Second edition. (Pp. 1,206 and 2,128; Vol. I, paper cover, 250 fr.; cloth, 280 fr. Vol. II, paper cover, 410 fr.; cloth, 460 fr.) Paris: Masson et Cie. 1938.

This is a comprehensive work on all kinds of therapeutic agents. It deals more especially with their chemical characters, properties, and relationships, but also includes information on matters of importance affecting their use in medicine. The plan of treatment is not dissimilar to that of works of a kindred nature, of which the *British Pharmaceutical Codex* is an example. Under the name of every substance, used as a title, there appears a descriptive monograph reciting generally the synonyms by which it is otherwise known, information relating to its source, the mode of preparation, the chemical formula and chemical properties, tests of purity, method of assay, the physiological action, therapeutic use, and the medicinal dose. Other matters of information are also interpolated whenever they are of material importance; such, for example, as the pharmacopoeias of other nations in which the substance is official. It does not describe crude vegetable drugs but only the active principles obtained from them, nor does it touch upon galenical products or formularies of the nature of prescriptions.

The monographs are arranged in sections corresponding with a chemical plan of grouping, one group comprising glucosides, another comprising alkaloids, and a third proteins. There is an introductory article to each sectional group giving a historical and general dissertation on the members of the series. Thus the leading article on tannins, which is treated as a subsection of the glucosides, recites the different varieties of substances distinguishable as members of the group, describes their relation to each

other, and gives an account of the more important researches by which their individual constitution has been established. This plan of treatment is well exemplified by the article on glycerophosphoric acid, which recites the first observation by Pelouze in 1845 that glycerin reacts with phosphoric anhydride with the disengagement of heat, and refers further to the work of Goble, who isolated the substance from yolk of egg. Then follow descriptive references to the observations of successive authors who elucidated the relationships of the alpha and beta forms of the substance to each other: all this is described in illuminating detail with chemical formulae and equations. Then follow monographs on the several salts of glycerophosphoric acid. A similar discussion appears under the title of "radio-activity," followed by monographs on compounds of uranium, thorium, and others. The technology of alcohol is treated very fully. Its manufacture by fermentation and by chemical synthesis is described in detail, as well as various methods of dehydration in use for the production of absolute alcohol.

Perhaps the most outstanding feature of the work is its encyclopaedic character. Whatever therapeutic agent may be the subject of reference, whether it be the most recent product of synthetic chemistry or a well-nigh forgotten representative of bygone medical practice, an account of it will almost certainly be found. Organic substances prepared by chemical synthesis are treated in the same thorough manner to which allusion has been made above. Lebeau and Courtois's treatise is indeed *sui generis*; it cannot fail to prove valuable to anyone who is interested in the chemistry of therapeutic remedies.

A MEDICAL MISSIONARY IN THE SUDAN

The Doctor Comes to Lui. A Story of Beginnings in the Sudan. By Eileen Fraser. With an Introduction by the Bishop in Egypt and the Sudan. (Pp. 71; 26 illustrations. 2 maps. 1s.) London: Church Missionary Society. 1938.

In this little book Mrs. Eileen Fraser tells the story of a medical missionary and his wife in the Sudan. Lui, formerly Yilu, lies in the centre of the Moru country, virgin territory of Central Africa, a thousand miles south of Khartoum and 120 miles west of the White Nile. Thither Mrs. Fraser and her husband, the late Dr. Kenneth Fraser, set out in the year 1920 to devote themselves to the task of bringing spiritual and physical comfort to the Moru people. With wattle and daub they built a house for themselves, a hospital, and a school on a site which had served for many years as the headquarters of a notorious slave trader. From these small beginnings an organization was built up, extending eventually to sixteen different centres, in which 27,423 cases were treated during the year 1937. Dr. Fraser, who died in 1935, proved himself not only a devoted doctor and evangelist but also a born organizer. Following a policy of decentralization he trained native helpers and established them in outlying stations; thereby enormously increasing the scope and value of his work.

Written in modest and straightforward style, Mrs. Fraser's book makes light of the immense difficulties to be overcome in this remote region, infested with wild animals, and with a backward population riddled with disease. The work of these two pioneers is the more admirable in view of the fact that Dr. Fraser was already in the forties when he first went to Moru. The value of the book, which may be especially commended to medical men, is enhanced by relevant maps and a large number of really good photographs. It is an excellent shilling's worth.

Notes on Books

A new edition has been published by H. K. Lewis and Co., Ltd., at 12s. 6d. of Mr. EUGENE WOLFF'S *Anatomy for Artists*, illustrated from original drawings by Mr. GEORGE CHARLTON, who has added a number of new figures. The trunk and limbs are shown in positions other than those necessarily used in descriptive anatomy, and the importance of the bony points lying under the skin is again emphasized. As we noted when reviewing the second edition, stress is rightly laid by Mr. Wolff on a thorough knowledge of the skeleton as an indispensable basis for the understanding of form and function. Mr. Charlton's drawings are clear and vigorous, and he brings out very well the distinction between the fleshy and the tendinous portions of muscles. New figures illustrate the importance of the skull in the formation of the face, show the position of the eyeball in its socket, and demonstrate the parts played by the thyroid cartilage and thyroid gland in the surface form of the neck. The production of this book reflects credit on author, artist, and publisher.

Erleiden des Auges, edited by Dr. ARTHUR GÜTT, and published at Leipzig by Georg Thieme at the price of RM. 26, is a compilation by many contributors, and covers very much the same field as the larger and individual monographs on hereditary disease of the eye by Waardenburg and by Franceschetti. A certain amount of more recent literature is noted in the present volume, which, like the *Handbuch der Erbkrankheiten*, of which it is part, is essentially utilitarian rather than academic, and aims at giving the necessary scientific background for the application of the German eugenics laws. Much of the space is devoted to medico-legal discussions which are only of indirect interest to the English reader. So far as the academic matter is concerned, some sections, notably that of Bücklers, are comprehensive and valuable; others are distinctly sketchy. The book is profusely illustrated, and some of the bibliographies are useful.

Preliminary Studies of a Vaudeville Telepathist. Bulletin III. by S. G. SOAL, M.A., B.Sc., is published by the University of London Council for Psychical Investigation at 5s. This careful study shows that "Marion" discovers hidden objects by watching minute movements of members of the audience who know where the object is hidden, and recognizes cards if he has handled them by his very keen tactual sense, but that he cannot prove any capacity for true telepathy.

Preparations and Appliances

A "PIN" EYE-DROPPER

Mr. N. BISHOP HARMAN, F.R.C.S. (London, W.1), writes:

Oily preparations of alkaloids for the treatment of eye diseases are in many cases preferable to watery solutions.



Oily preparations keep better, and in some cases they are more effective—for example, eserine in castor oil in the palliative treatment of chronic glaucoma, or homatropine in refraction work. Oily preparations are perhaps less used than they might be owing to their messiness. This arises from too much being put into the eye by using a glass rod or dropper. The "pin" eye-dropper meets this difficulty. It is an ordinary domestic pin fixed in a suitable handle, and the whole chromium plated. If the head only of the pin be dipped into the oil it will lift a globule of the right volume, which by a touch on the mucosa of the lower lid is transferred to the eye. The dropper can be boiled. It is made by Messrs. W. Martindale of New Cavendish Street, London, W.1.

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HEALTH AND AGRICULTURE

The pre-eminent influence of food in determining man's general physical endowment, powers of endurance, and resistance to disease gives to efficient agriculture a foremost place among public health services. It was inevitable that those whose business lay in the investigation of the relations of food to health and disease and of the health-promoting properties of certain natural foodstuffs should have come to regard the proper care and cultivation of the soil and the economic production of health-giving foodstuffs as a most important public health measure. But the attempt to induce the public, the Government, and the farmer himself so to regard agriculture—and in consequence of this regard to establish it as part of a comprehensive public health policy—has been the business of others. Last year the League of Nations published the final report of the Mixed Committee, presided over by Viscount Astor, on *The Relation of Nutrition to Health, Agriculture, and Economic Policy*: a report replete with information on this highly important matter. In it there occurs a passage which cannot be too often repeated:

"Millions of people in all parts of the globe are either suffering from inadequate physical development or from disease due to malnutrition or are living in a state of sub-normal health which could be improved if they consumed more or different food. That this situation can exist in a world in which agricultural resources are so abundant and the arts of agriculture have been so improved that supply frequently tends to outstrip effective demand remains an outstanding challenge to constructive statesmanship and international co-operation."

Now there appears another report of an inquiry on British agriculture¹ organized by Lord Astor and Mr. Seeborn Rowntree which is of profound interest from the point of view of national health in this country. They set themselves the task of answering these questions: What can British agriculture produce most effectively and most economically, having regard to our soil, climate, and economic conditions? What does the consumer need most from British agriculture? They came to the conclusion that the best interests of the agricultural producer and of the consuming public coincide. The new knowledge of nutrition

emphasizes the importance to human welfare of the consumption of adequate quantities of the "health-protective" foods as distinct from the energy-bearing foods. The main foods falling into this category are milk (pre-eminently), fresh fruit, vegetables, and eggs. And for the production of these Britain is especially fitted by natural conditions; and can be still better fitted, in regard to milk, by the application of the new knowledge now available for improving grassland cultivation. Moreover, British farming enjoys a natural protection in these perishable products through proximity to the market. "We should therefore aim at effecting a marriage of agriculture and nutrition by subsidizing the production of the protective foods rather than in giving subsidies to the production of energy-bearing foods. This policy would not only further the interests of agriculture in Britain but would also have an inestimable value on the standards of national health."

In practice, as the authors of the report point out, the central feature of a constructive nutritional policy must be the promotion of the consumption of milk. The potentialities of enlarging agricultural production by a successful policy of stimulating milk consumption are very large. The present average *per capita* consumption of milk by the British public is extremely low. If it were increased by one-third of a pint a day it would still be far below the level which is desirable on nutritional grounds; yet such an increase would entail an expansion of our natural milk output of no less than 65 per cent. At the present rate of productivity this would require the maintenance of 2½ million more cows. The authors of the report urge that the constitution of the marketing boards which administer the various statutory marketing schemes should be transformed. They recommend that these boards should be appointed by the appropriate departments of State to represent the public interest: a reform which, in their judgment, is essential if agricultural marketing is to evolve on satisfactory lines. "It would be far easier to develop constructive schemes for stimulating an increased consumption of milk and other protective foods, or for improving the system of retail distribution, if the powers of the marketing boards were in the hands of bodies representative of the public interest." With the other proposals here put forward we are not immediately concerned. State ownership of certain lands, land improvement commissions, measures for increasing farming efficiency, educational and advisory services, more energetic attempts to eradicate animal disease, improving the quality of the product in many branches of farming, measures to maintain and improve the fertility of the soil, improvements in conditions of

¹ *British Agriculture: The Principles of Future Policy*. A report of an inquiry organized by Viscount Astor and B. Seeborn Rowntree. (Longmans, Green and Co. 15s.)

life of agricultural workers—all these are among them. What concerns the medical profession as guardian of the public health is that agriculture should be given its rightful place among the public health services, and that the agricultural policy of the future should be part and parcel of a national policy of nutrition. The report by Lord Astor and Mr. Seebohm Rowntree will, by developing public opinion, contribute greatly to the attainment of this much-to-be-desired end.

RADIUM BEAM THERAPY

Of the many special reports which have from time to time been issued under the auspices of the Medical Research Council few have been so valuable and important as that on *Radium Beam Therapy*,¹ which has just appeared. As this method of treating cancer had already been successfully used in France, Belgium, the United States, and especially in Sweden, it was decided in 1933 to undertake systematic investigations in this country, and the Radium Beam Therapy Research was inaugurated. From the first it was decided that physical investigations must precede any clinical work, especially as regards the protection of patients and staff, as well as of other occupants of the building in which the work was carried out. Another direction in which exhaustive physical research was imperative was the effective and safe distribution of the dosage. In every form of radium therapy any errors, in either the quantity or quality of the radiations used, are serious and often irreparable; with the large masses of radium employed in beam therapy they are more than likely to be fatal. The clinical part of the work was put in charge of Miss Constance Wood, Mr. L. G. Grimmett, and Mr. T. A. Green, and it is a magnificent tribute to their knowledge and skill that, although the inquiry extended over four years and included the treatment of 366 patients, in no instance was there the slightest trace of accidental damage from radiation—either to the patients or to the staff. The radium employed was at first a unit of 5 grammes, but a further unit of 5 grammes was added subsequently. The greatest care had obviously to be taken in moving these large amounts, and a pneumatic transference device enabled the radium to be taken from the safe where it was kept and placed in the required position without any handling or exposure of the operators. The exact placing of the patient and the adjustment of the apparatus were all done before the

radium itself was in working position. This enabled the necessary time and care to be given to the indispensable preliminary adjustments, as there was obviously no danger to anybody concerned in manipulating the uncharged apparatus. The amount of thought, care, and skill devoted to this and similar matters is beyond all praise.

It was decided from the first that these treatments should be confined to cancer of the mouth, tongue, larynx, and pharynx. In the first place these regions are easily accessible for inspection and treatment, and, in the second, surgery in order to prevail has to be of a very drastic character, and even then is often ultimately ineffective. Of recent years, since the development of radiotherapy, good results have been obtained by the interstitial use of small radium needles, but this means surgical intervention and considerable discomfort while the needles are in position. With beam radium therapy there is no surgery of access; the treatment is conducted externally, as with the x rays, and there is, of course, no discomfort arising from the presence of a number of inserted needles. It must, however, be understood that a certain amount of discomfort is inevitable during and soon after the treatment. Reaction of both skin and mucous membranes is bound to occur, but in general the patient's condition is much more comfortable than after interstitial radiation and incomparably more so than after the severe and permanently mutilating attempts of pure surgery to eradicate the growth completely. During the progress of each individual treatment every application of the unit is made by the radiotherapist, and the apparatus is kept empty of radium until all arrangements are complete. No one except the patient is present in the treatment room during the whole course of exposure; but communication between nurse and patient is rendered easy by an ingenious installation of microphones and loud speakers, while observation is conducted by the use of a system of periscopic mirrors. As the preface contributed by the Medical Research Council states:

"Of even greater importance than the actual therapeutic results so far recorded are the new technical methods which have been elaborated as the result of close co-operation between physicists and clinicians, and which are described in careful detail by the investigators concerned. The procedures used in this research, both for the treatment of patients and for the protection of the staff, should be applicable not only to radium beam therapy in its further evolution; they should be widely adaptable also to the needs and future developments of other types of radiotherapy for cancer. . . . The Medical Research Council have been impressed, moreover, not only by the high standard of work done under this scheme but also by the fact that the methods used are already serving as models to be followed elsewhere. They have accord-

¹ Medical Research Council. Report on Radium Beam Therapy Research, 1934-8. H.M. Stationery Office. 4s.

ingly accepted a proposal that they should assume chief responsibility for extending the research, and in this they are glad to be assured of continued co-operation by other bodies."

The general conclusions as to the value of this form of treatment are as follows. In cases in which the growth is early and localized its complete disappearance may be expected. When there is involvement of the lymphatic glands in close proximity to the original growth their enlargement can be made to disappear. Even with advanced stages of the primary growth and of local lymphatic involvement, in a small proportion of patients disappearance of the growth may occur; while in a large proportion many distressing symptoms are relieved. The report points out that, although it is too early to make definite pronouncements, it would appear that treatment of carcinoma of the mouth and throat by radium beam is at least as satisfactory as that by surgery or by interstitial radium therapy. And the results are obtained without mutilation of the patient. It has now been demonstrated that radium beam therapy, in competent hands, is a very valuable form of treatment. Further work is to be undertaken forthwith in which a 10-gramme unit will be applied to the treatment of cancer of the breast.

THE BLOOD TESTS BILL

Medical men who have studied the literature of blood grouping, and the use of blood tests in the courts of other countries for settling paternity disputes, are probably satisfied by now that the tests afford sound and valuable evidence. The rules for the inheritance of blood characters are proved beyond the shadow of a doubt, and pathologists who are familiar with the procedure regard it as one of the most reliable of all laboratory tests. The chief obstacle to the use of the tests in this country has been that the courts cannot order them to be made. As the tests cannot prove paternity but only, in certain cases, non-paternity, the mother has nothing to gain by acquiescing in them. Legislation is therefore necessary, and, after careful consultation with societies and individuals interested in the possibilities of the tests, Lord Merthyr has introduced a Bill into the House of Lords for the purpose of giving magistrates power to require a mother who asks for an affiliation order to undergo a blood test. The text of an official memorandum on the Bill is printed in our *Supplement* at page 362. It will probably come up for second reading soon after Parliament meets in the New Year.

The word "groups" is not mentioned in the Bill. The court may order blood tests, and these, as

defined, include any tests made with the object of ascertaining the inheritable characteristics of blood. If the research workers in haematology some day develop a test which will disclose individuality of blood, as to-day it is possible to show individuality of a finger-print, the Bill will not shut it out. The court may order a test when it thinks fit, but the Bill obliges the court to order the man and the woman with her child to undergo a test if either of the parties requests it to do so. Normally the request will come from the man, but it would not be fitting to give one party a right by statute and withhold it from the other. The object of the test is to show whether the defendant can be excluded from being the father of the child—a cumbersome phrase, but one familiar to pathologists. If the woman will not consent to the test, the court may not order physical compulsion, but must dismiss her application. Its ordinary power to adjourn at will is saved, and so the court may give the parties time to consider their position.

The question of who shall perform the tests is of the greatest importance. Unless the work is kept in the hands of experts who are familiar with it, mistakes are bound to be made and this otherwise valuable source of evidence will be discredited. The Bill provides, therefore, that the tests shall be carried out by an "approved person" in accordance with rules. The approved persons are to be chosen, and the rules made, by the Lord Chancellor, who is the officer of State at present responsible for the appointment of magistrates and the procedures in their courts. In forming his panel of approved persons he is limited to registered medical practitioners who are competent to carry out blood tests, and he is required to consult the President of the Royal College of Physicians. The rules are to govern the whole conduct of the tests, including the taking, identifying, and posting of samples of blood, the form of certificate to be sent to the court, the qualifications of the pathologists and the scale of fees and expenses payable to them, and any other matters which ought to be laid down. The Bill has been drafted to give the Lord Chancellor as free a hand as possible, in the confidence that, if it became law, his Department would make the best possible arrangements for implementing its provisions. After blood specimens have been taken according to the court's order and to the rules, the pathologist shall—it is proposed—send a certificate of the result to the clerk of the court as soon as may be practicable, in the form laid down by the rules. It will be the duty of the clerk to supply copies to both parties, and at the adjourned hearing he is to produce the original certificate. In order to save prohibitive trouble and expense, the Bill here provides for an important exception to the ordinary

laws of evidence: that the certificate shall itself be evidence of the result without the pathologist having to appear in court and swear to its correctness. There is precedent for this provision in the Food and Drugs (Adulteration) Act, 1928, which lays down that in a prosecution for adulteration the certificate of the public analyst may be received in evidence without calling the analyst himself. The principle is that the analyst is presumed to be competent and impartial, and a pathologist who has been specially chosen by the Lord Chancellor's Department as competent to perform blood tests obviously has an equal, if not a better, stamp of reliability. Nevertheless, the Bill provides that the court, the mother, or the man may call the pathologist to give evidence, but a party who calls him may have to pay the costs. The court may order the payment of all or part of the costs out of what are called the "local funds"—funds already in existence for defraying the cost of the defence of poor prisoners.

A blood test can never prove that a man is the father of the child; all it can do is to exclude an innocent man in about one-third of the cases. When it does not exclude the man it has no evidential value at all, for it does not show any greater likelihood that he is the father; it merely shows that, in common with several million other men, he may be the father. A court which does not realize this fact may, however, be misled into thinking that, because the test shows that the man may be the father, it therefore in some way corroborates the mother's statement that he is the father. In some countries an inconclusive result is not allowed to come before the court at all. Those responsible for the Bill have felt, however, that an English court should be trusted with all the available evidence. The magistrates will therefore have the certificate before them whether it is conclusive or inconclusive, but the Bill provides that if the certificate is inconclusive neither party may comment on it. A notable omission is any provision directing the court to accept the result of the test. Once the certificate is before the court it has precisely the same value as any other evidence, and its value is for the court to decide. The Bill, therefore, provides that a man who desires a blood test may have it, but may have to pay the cost. It gives the court power to use, at its discretion and at the public expense, a source of evidence which has already been proved in many parts of the world to assist greatly in the proper decision of paternity disputes. At present the English courts (the Bill will not apply to Scotland) hear nearly 7,000 bastardy applications a year, but relatively few of these raise a doubt so great that a blood test is needed to settle it. During the first year there might be a fairly

large number of applications for the test, but as the public became used to them, and as defendants realized that if they made a frivolous demand for the test they would have to pay, the numbers would soon settle down to a few hundred a year at most. They would perhaps be even less, because the existence of a reliable, if limited, means of disproving a false allegation of paternity would probably reduce the total number of applications for affiliation orders.

SEROLOGICAL DIAGNOSIS OF TYPHOID

Agglutination tests for intestinal infections have increased immensely in the refinement and complexity of their technique, and have gained correspondingly in significance. It is not long since the diagnostic importance of the O as distinct from the H agglutinin in typhoid fever was first generally recognized. A later development was the discovery by Felix of the Vi antigen and agglutinin, arising from the observation that recently isolated cultures varied in their agglutinability by an O serum: the degree of this agglutinability varied in inverse proportion to their virulence for mice. That this phenomenon is due to the existence of a distinct antigen associated with virulence is now generally accepted, and the consequences are important in two directions. Although the clinical evidence is not conclusive, there is good reason to believe that a therapeutic serum containing Vi as well as O antibody can influence the course of the disease, and such a serum is now available. The other direction in which these observations can be turned to account is that of diagnosis. Felix himself has recently asserted that the presence of Vi agglutinin is a certain sign of the carrier state. The significance of this agglutinin is made a good deal plainer in the paper by Major S. S. Bhatnagar, to be found at page 1195. He has made a study of its development in the course of the disease, and of its subsequent diminution, and it is clear that whereas other typhoid agglutinins persist for years after an attack the Vi agglutinin disappears from the blood almost as soon as the disease is over unless a carrier condition results: in that case Vi agglutinin remains in the blood just as long as living bacilli remain in the body. Another point brought out in this study is that in the previously T.A.B.-vaccinated individual who contracts typhoid Vi agglutinin is produced earlier and in greater amount than in the person who has not been inoculated: such individuals have a short and mild attack. It appears, therefore, that the presence of Vi agglutinin is the one and only certain serological sign of the presence of living typhoid bacilli in the body, whether during the disease or in the carrier: nothing can counterfeit it, neither a previous attack, vaccination, the anamnestic reaction, nor any other cause of positive reactions without active infection, such as may be obtained with other types of agglutination test. Bhatnagar has a further very practical contribution to make to this study in the discovery of a pure Vi strain of the typhoid bacillus.

This organism, if its peculiar character persists, is capable of much mitigating the technical difficulties of this study for anyone possessing a culture or securing suspensions of it, for even suspensions killed chemically have been found satisfactory, though for a few weeks only after preparation. Hitherto, owing to the instability of the Vi antigen, all this work has required the use of living cultures as agglutinable suspensions, a corollary to which is the freedom of stock sera from chemical preservative. Only a few laboratories have adopted Vi agglutination as a routine diagnostic method: it is safe to predict that many more will find it necessary to do so.

The typhoid bacillus has always been regarded as one and indivisible, a single entity from every point of view, and indeed in that sense an oasis of simplicity in the desert of complexity which constitutes the remainder of the enteric group and other species in the genus *Bacterium*. It is therefore somewhat alarming to read of the subdivision of the typhoid bacillus into seven "types." These, however, have been identified by Craigie and Yen¹ on the basis of susceptibility to different phages, an ingenious method for the ultimate pursuit of bacterial identity, and one the complexity of which in this case incidentally suggests doubts of the value of stock phages in therapeutics. The main interest of this method is epidemiological: thus of recent epidemics in this country that in Malton was due to Craigie's type F, Croydon to D₁, and Bournemouth to E. Such facts being known, further cases can be assigned with a fair degree of confidence to their presumptive source when the type of bacillus is ascertained and found to be the same as that in a contemporary or recent epidemic. These types are stable and a given typhoid bacillus can therefore be recognized, wherever it may have been between one case and another. This method promises in its authors' hands (for few others are likely to attempt it) to yield interesting information.

THE PROBLEM OF THE PARTIALLY BLIND

An article with this title by Sir James Barrett in the *Medical Journal of Australia* shows the difficulties that arise so soon as some piece of beneficent legislation is established. The blind are blind and need help. Help is provided for them. Then the poor-sighted envy the new economic security of the blind and strive to get the same for themselves. The Royal Victorian Institute for the Blind pays inmates the difference between what they earn and the basic wage. The partially sighted claim the same assistance. The standard adopted is the British formula. Those who are unable to count fingers at a distance of one metre are totally blind; those with vision up to 3/60 are partially sighted; and those with vision between 3/60 and 6/60 are considered in association with other evidence, such as contracted fields of vision and nystagmus. The partially sighted assert in some cases that the sight they have is of no benefit in their work. Yet Sir James Barrett cites examples where this assertion is proved untrue. An albino with 6/60 in each eye and nystagmus could have

been certified as blind, yet the man was brought up on a farm and managed it successfully. Sir James gives a list of cases where demands have been made for assistance, yet examination has proved the possession of effective or nearly normal sight. Some were cases of one-eyed persons whose remaining eye had normal vision. The moral is that no case should be certified for assistance as a blind or partially blind person without an examination by an ophthalmic surgeon.

SURGERY AND THE LIVER

In spite of careful pre-operative preparation and expert choice of anaesthetics there remain a proportion of surgical deaths, especially in jaundiced subjects, which are apparently due to liver insufficiency. Such fatalities as acute necrosis of the liver due to chloroform poisoning are of course well recognized, though luckily rare. In other cases, however, hyperpyrexia, oliguria, and a clinical picture resembling uraemia, ending in death, may follow not only operations upon the biliary tract but at times even quite "minor" surgical procedures. Such fatalities are sometimes spoken of as "liver deaths" or "liver-kidney deaths," and at necropsy some degree of hepatic necrosis is a usual finding. Some at least of the difficulties in the study of this subject, and particularly in guarding against such disasters in practice, arise from the lack of a reliable and at the same time relatively simple practical test of liver function. Before any operation, and equally before any anaesthetic, it is usual to examine the heart and lungs and test the urine, but there are few ways of testing the condition of the liver, which, in the absence of any special warning in the history, is often entirely ignored. It is, however, becoming now more and more the practice to give all patients, however slight the operation planned, additional glucose for some days before the anaesthetic. It is satisfactory to have further evidence² from Drs. F. H. Boyce and E. M. McFetridge that this measure is in fact effective. These workers have used a test of hepatic function which was first described in 1932 by Quick. The details of this test must be studied in the original papers, but it is sufficient to state here that it is based upon the excretion of hippuric acid in the urine after sodium benzoate has been taken by mouth. In spite of a number of objections to this test, common largely to all other tests of liver function at present available; it has given useful results, is easily carried out, and has already found a number of supporters. Employing it on a large series of subjects, Boyce and McFetridge confirm the value of pre-operative glucose and stress the fact that extra glucose is of real value during a fairly long period after operation. Much impairment of liver function, as shown by Quick's test, persisted in some of the patients tested for many days up to some weeks: in a certain number of cases the efficiency of the liver was more than halved after operation on the bile ducts. Anaesthetics administered to starved animals caused a much greater diminution in function than when given to well-fed animals. One important conclusion to which these workers came

¹ *Canad. publ. Hlth. J.*, 1938, 29, 448, 454.

² *Arch. Surg.*, 1938, 37, 401.

was that the post-operative fall in liver function was greater after spinal anaesthesia than after either ether or ethylene, and they firmly believe that spinal anaesthesia is not the safe procedure it is supposed to be. Not all workers would agree with this conclusion, and in a recent paper Ravdin² and others consider that in the surgery of the bile ducts spinal anaesthesia is the method of choice. But at least these investigations have demonstrated the fall in liver efficiency after operations, and the importance of post- as well as pre-operative administration of glucose in even normal individuals undergoing even simple operations. With the Quick test Boyce and McFetridge have also shown a considerable diminution in liver efficiency in thyrotoxicosis and a still greater post-operative fall after thyroidectomy. It is to this severe fall in liver function that they attribute many of the deaths after this operation, especially in poorly prepared patients: again they emphasize the value and importance of massive glucose therapy before and after operation.

CHOLERA IN RUSSIA

An important contribution³ has recently been made to the epidemiology and epidemiography of cholera as exemplified by its behaviour in Russia. The method of study adopted is more by way of the geographical and time relations of the several recorded outbreaks and their subsequent spread over the country than by the usual considerations of personal factors and mode and means of transmission. These topographical features are expressed by the word "geo-medicine," while the temporal elements are depicted by lines drawn on the map to represent the date of appearance of the advancing front of the epidemic, to which the term "isodates" is applied. A short review of previous contributions to the geographical study of this disease constitutes a preface wherein reference is made to the familiar dictum that "the movement of disease is from east to west against the rotation of the earth," and this is amplified by the observation that "the penetration of cholera is from east to west with distinct fading out the further westward it spreads," while the Elbe is cited as being the final barrier in its advance from Asia through Russia and into Germany. The first recorded outbreak of cholera in Russia was in 1823, when it appeared in the region of the Caucasus and Orenburg, but it did not then spread northward; in fact it was not until 1830 that an "all Russia" epidemic appeared. Since then Russia has experienced fifty-five "cholera years," but of these only thirteen can be regarded as "peak years," half of which could be designated as periods of limited or minor outbreaks only. Here it may be remarked that both morbidity and mortality are taken as indices of the character of the outbreaks so far as the statistics serve, and that reference generally is to European Russia, as the Asiatic part does not afford adequate records. In a series of eight "chartographs" the author illustrates his thesis by showing the "date lines" of the principal epidemics during the period in review. Of these the

first (the epidemic of 1830) is the simplest to follow, for the lines spread fanwise in almost regular order across the country, closer together where progress was slow and widely apart where it was rapid. There is, significantly, a central invagination on the western side to indicate an area that remained free although almost surrounded by cases. In the following year there was an exacerbation of the epidemic, and here the lines are much contorted. Then came a period of minor outbreaks or of complete freedom until 1847 to 1849, when a major epidemic swept right across the country in regular waves. Subsequent major outbreaks in 1853, 1855, 1870, and 1871 do not show the same regularity of advance, the lines being in the form of whorls and wide sweeps. The author aptly compares these lines of advance to the ripples of a disturbed water surface, and the irregularities to intervention of obstacles or residual ripples from a previous disturbance. Thus a striking picture of the invasion is produced. The months of the year most favourable to spread were August and September, closely followed by July and October, while the first four months of the year showed a marked decline. In explanation of the irregular and at times anomalous behaviour of the waves, interference by residual waves of a previous invasion—that is, the protective effect of exposure to infection—is not considered as sufficient, and the theory is advanced that there are in different regions cholera vibrios of a different inner quality and also a winter-resting phase. Be that as it may, the author has succeeded in representing the epidemic invasion of an extensive area in a new and graphic way that sheds a broad light on the epidemiology of the disease. He does not claim thereby to explain the inner dynamics of infectious disease, but hopes that the further use of this method will bear fruitful results.

THE MEDICAL DIRECTORY, 1939

The ninety-fifth edition of the *Medical Directory*, published at 42s. by Messrs. J. and A. Churchill, contains more material than any of its predecessors, but further typographical revision has resulted in a saving of four pages, despite a net increase of well over a thousand entries. The numerical summary of the medical profession shows that the names now number 61,109, being 1,215 more than last year's figure. As usual, the largest part of the present increase (543) has taken place in the provinces, which now contain 26,093 medical practitioners. In London there has been an increase of 159, in Scotland 208, and in Ireland 104. Entries under "Abroad" have grown by 228, while the numbers in Wales and in the "Services" section remain almost stationary. The time is long past since the *Medical Directory* needed an introduction to any member of the profession it serves so admirably. All we are called upon to do, year by year, is to take a few soundings and assure ourselves that the new edition is up to the high standard which the publishers have maintained from generation to generation. We find no falling off in the 1939 edition. It appears to be as accurate and up to date as care and intelligence can make it.

² *Surgery*, 1938, 3, 805.

³ *Z. Hyg. Infektkr.*, 1938, 121, 1.

The second point of special interest deals with the question of the organization of a national cancer service, and almost coincidentally with the publication of the Commission's report a Bill dealing with the subject has been introduced into the House of Commons by the Minister of Health.

Cancer Treatment at Large Centres

The importance of treating cancer at large centres is strongly urged by the Commission, and it is a point which should be obvious enough to all who give the subject impartial consideration. One function of the largest of the centres should undoubtedly be to provide facilities for instruction in the early signs and symptoms of the disease. Treatment to be effective must be early, as has been repeatedly urged in this *Journal*; and systematic instruction in the recognition of neoplastic diseases in their earliest stages is of vital importance. Such knowledge as this can only be obtained at institutions where a sufficiently large number of patients is collected.

Among the causes which hindered the establishment of an efficient national service in the past has been the acquisition of inadequate quantities of radium by small hospitals not working in co-operation with any recognized centre; and the same may be said of the private ownership and therapeutic use of small amounts. In both cases the objection is the same. Radium treatment to be effective needs in the first place to be in the hands of experts who devote the whole of their time to radiotherapy; it is in no sense a "side line" or a mere casual adjunct to surgery. In the second place the supply of radium available for the treatment of any particular case must be such that the patient receives neither more nor less than the optimum dosage with regard both to amount and distribution. Beyond all this it must be remembered that in many cases treatment by high voltage x rays is an indispensable adjunct to treatment by radium. For these reasons the indiscriminate supplying of radon or the hiring of radium needles to non-experts seems a most undesirable procedure, and the Radium Commission, in collaboration with the Medical Research Council, is doing valuable service to all concerned by insisting upon centralization as an essential to success.

Str strenuous efforts are being made to explore the possibilities of forming centres at Cambridge and Oxford. In view of the extraordinarily high quality of the research work upon the biological effects of radiation which is being carried out at the Strangeways Laboratory, Cambridge, the establishment of a clinical centre seems a matter of the greatest importance. The physical and experimental facilities are unrivalled, and it is to be hoped that the formation of a therapeutic centre in the near future will give practical expression to the ever-increasing developments of experimental radiology. At Oxford negotiations with the Nuffield Committee for the Advancement of Medicine are in progress, and although the immediate establishment of a national centre does not seem possible, a move in that direction has been made by an application for the loan of radium for gynaecological purposes.

Arrangements for Radium Therapy

The conditions regarding possible arrangements for radium therapy throughout the country are being thoroughly investigated by the Commission, and the conclusions reached will doubtless be of fundamental importance in forwarding any Government measures that may be taken towards the setting up of a national service. So far as can be seen the suggestions at present set forth coincide very closely with the declared aims and objects of the Commission from its beginning until the present time.

During the past year representatives of the Commission have visited many of the centres and are able to report

that all of them show a steady development of radiotherapy. This is in all respects a testimony to the valuable work which has been and is being done. Not less important is it to realize that for the efficient carrying out of a national campaign against cancer the co-operation of the general practitioner is essential. How this is to be secured is a matter for careful consideration, but obviously adequate instruction in the recognition of the earliest signs and symptoms is the first step towards obtaining a reduction in our high cancer mortality.

ROYAL AUSTRALASIAN COLLEGE OF PHYSICIANS

At the inauguration of the Royal Australasian College of Physicians at Sydney on December 15 the Royal College of Physicians of London will be represented by Dr. H. Morley Fletcher, formerly Senior Censor. It will be recalled that in the delicate work of drafting its constitution the founders of the new Australasian College took full advantage of the assistance afforded by the London College, with its wealth of experience and four centuries of tradition. The London College is therefore pleased to receive an invitation to send a representative to the opening ceremony.

Address from the London College

His Excellency the Governor-General of Australia, supported by the Prime Minister, will open the proceedings, and Dr. H. Morley Fletcher will present the following Address:

"To the Royal Australasian College of Physicians.

"We, the President and Fellows of the Royal College of Physicians of London, desire to send to the Royal Australasian College of Physicians our fraternal greetings and our hearty congratulations upon its successful inauguration. We have watched with much sympathy the steps that have been taken to bring the new College into being, and have regarded it as a privilege to put the long experience of our own College at the disposal of its founders. We do not doubt that the establishment of the Royal College of Physicians in Australasia will not only promote learning and good fellowship amongst physicians in that part of the Empire but will also be in the highest interests of medical science and practice.

"Along with this Address we have great pleasure in presenting the new College with a replica of our ancient caduceus, one of the insignia of office of our President. In the words of the original designer, Dr. Caius, 'the silver rod indicates that the President should rule with gentleness and clemency unlike those of old time who ruled with a rod of iron. The serpents, the symbols of prudence, teach the necessity of ruling prudently, while the Arms of the College placed on the summit indicate that gentleness and prudence are the means by which the College is sustained.' We are confident that the Royal Australasian College of Physicians will always be guided by these principles, and we cordially wish for it a long, useful, and prosperous existence."

Dr. Morley Fletcher will address the assembly on "Medicine—Past and Present," and, in addition to presenting the caduceus, will offer as a gift to the Library of the new College handsomely bound copies of Harvey's *Praelectiones Anatomiae Universalis* and *The Roll of the Royal College of Physicians of London*.

The December issue of the *Practitioner* has a number of articles specially devoted to "cold weather ailments." These include articles on the treatment of pneumonia by Dr. G. E. Beaumont, on chronic bronchitis by Dr. F. H. Young, on the clinical aspects of influenza by Dr. J. S. Scadding, and on vaccines and the common cold by Dr. Dennis Embleton.

Reports of Societies

TERMINAL DISINFECTION AND EXCLUSION OF CONTACTS FROM SCHOOL

At a meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health, with the vice-president, Dr. E. H. R. HARRIES, in the chair, a discussion took place on terminal disinfection and the exclusion of contacts from schools.

Dr. DUNCAN FORBES said that the discovery of the diphtheria carrier, and of mild cases of scarlet fever which were often overlooked, and the demonstration of the carriage of infection by spray gave good ground for the belief that apparently healthy carriers were the chief cause of spread in scarlet fever and diphtheria and that fomites played a negligible part in the spread of infection. It was on these grounds that in Brighton the old orthodox disinfection, first of mattresses and bedding in 1910 and later by spraying in 1921, was abandoned and the "spring clean" substituted. The "spring clean" consisted in the boiling of sheets and pillow-slips, the washing of blankets, the dusting of bedrooms, and the scrubbing of floors. It was important that the inspector should see that this "spring clean" was actually carried out, as, although it did not sterilize, it must reduce the amount and vitality of any lingering infection.

Statistics published by the Ministry of Health (Public Health and Medical Subjects No. 55) proved that the difference in results between orthodox disinfection and the "spring clean" was inconsiderable, and the added cost of orthodox disinfection was not justifiable in any but exceptional conditions. In order to allay anxiety a full disinfection after scarlet fever was still carried out in certain circumstances—for instance, if the mother was in an advanced state of pregnancy, in hotels and boarding houses, and in the homes of dairymen. After the "spring clean" had been tried out in scarlet fever and diphtheria it next replaced disinfection after cerebrospinal fever and pulmonary tuberculosis; in the former because of the known rapid death of the meningococcus after it left the body; in the latter because the usual mode of infection from persons suffering from pulmonary tuberculosis was by direct spray infection.

Exclusions from School

Home contacts after measles had not been excluded from school in Brighton since 1922. The reasons for this were (1) that such exclusion after the first crop of cases did not prevent a general infection of the school; and (2) that home contacts when excluded played with and infected neighbours' children who were at an age when the case mortality was high and who could not have the offer of any prophylactic injection of adult serum which home contacts of school-infected cases had. Chicken-pox contacts were not excluded because it was a real asset to get the attack over in childhood. With regard to scarlet fever, since 1932, whether the patient was removed to hospital or isolated at home, school contacts had been excluded for one week only without any apparent ill-effects; in Brighton 55 per cent. of scarlet fever cases were now nursed at home. An appeal was made for the early revision of the 1927 Memorandum on *Closure and Exclusion from School*, which, while claiming to be only advisory, really governed the practice of most education authorities.

Ritual Disinfection

Dr. A. TOPPING said that terminal disinfection was a survival from very early times when, there being complete ignorance of how infection was spread, herbs and

other materials, foul or sweet-smelling according to taste, were burned to combat miasmata or pest-bearing emanations. It was understandable then, just as was the practice of displaying a bunch of hyssop on the magisterial bench as a means of protection against typhus, but it was difficult to understand its persistence in our enlightened age. It was known that the organisms responsible were extremely short-lived outside the human body and that infection did not normally lurk behind picture rails or in the depths of a mattress but was almost invariably due to the direct passage of the causative organism from the throat and nose of a sufferer or carrier to those of a susceptible contact. Yet in deference to a completely uninformed public opinion the hoary witch-doctrine type of ritual connoted by terminal disinfection was continued. No matter how convinced he might be of the folly of the approved hocus-pocus, no medical officer could be blamed for playing for safety if he knew that he would be criticized if a second case arose and he had not burned his votive sulphur candle or sprinkled chloride of lime round the gullies—yet for more than forty years writers on public health had praised with faint damns, or had actually decried, routine terminal disinfection.

In America terminal disinfection had been almost completely discontinued, and there had been no evidence whatsoever of any corresponding increase in incidence. In this country several medical officers of health had to all intents and purposes abandoned it with excellent results. Dr. Duncan Forbes led the way in Brighton and had no cause to regret his action. The medical officers of many provincial towns and of certain metropolitan boroughs had followed suit, and instead of any increase in incidence of infectious disease there had been, in many instances, an actual diminution. Thirty years ago Dr. F. H. Thomson, then medical superintendent of the North-Eastern Hospital, discontinued any disinfection of wards changing over from one disease to another; a thorough washing, full free ventilation for only six to eight hours, and change of bedding were all he insisted on. His results continued to be at least as good as they had been when the full ritual was carried out. Another senior medical superintendent followed this example, but he countenanced the waving of a sulphur candle so that, on questions being asked, he could say that disinfection had been done!

No one could deny that under certain circumstances micro-organisms—for example, the haemolytic streptococcus—might survive for considerable periods outside the human body and occasionally retain their pathogenicity. Recent experiments by Dr. White at Queen Charlotte's Hospital showed that they could be recovered from dust; the moral was obvious, and there was no better way of removing dust than by a liberal use of soap, water, "elbow grease," and free full ventilation. The streptococcus which survived this for twenty-four hours must indeed be a stout fellow, and the odds against his being laid low by a variable concentration of sulphur or formalin fumes would be very heavy; even if entrenched in saliva or mucous discharges the streptococcus could not resist direct applications of soap and water. As regards bedding and other fomites, his opinion was that, as in the case of rooms, the high standard of disinfection normally prescribed was not justified by our knowledge of the viability of the organisms and the modes of transmission.

It is not normally necessary to subject mattresses to steam disinfection. Unless the organisms soaked into the depths in the patient's discharges it was difficult to visualize how it penetrated nightgowns, draw sheets, sheets, mackintoshes, and ticking. It was just as difficult to see how it found its way out and retained enough vitality to cause disease. When it was remembered that myriads of these same organisms were living in rude health in the throats and noses of people met in normal life it seemed somewhat supererogatory to spend money, time, and trouble in ruining mattresses on the off-chance that some

emasculated little orphan had found its way into their recesses. Where, for any reason, steam disinfection was really indicated, it should be reasonable. There was no justification for applying the standard necessary to kill anthrax spores or for surgical sterility if the potential infection was attributable to non-resistant organisms such as the *B. typhosus* or the haemolytic streptococcus. Dr. Topping continued:

"To sum up—in the case of the common infectious diseases of respiratory origin where current disinfection has been sensibly carried out no final disinfection other than cleansing the room with soap and water and allowing free ventilation is necessary; bed-linen, blankets, etc., should be washed; mattresses stripped and exposed to fresh air. Most of us feel in our hearts that this is all that need be done and that the spread of infection, were this the recognized routine, would not be greater than it is where more elaborate methods are in force. Until we become vocal, until the powers that be come down definitely on our side of the fence, and until we get the concurrence of the general body of medical practitioners, public opinion, unaware as it is of the real modes of transmission of these diseases, will, I am afraid, resent any change."

School Children as Contacts

In Dr. Topping's opinion routine rule-of-thumb exclusion of contacts from school was as much of an anachronism as was routine closure of schools. It argued either ignorance of epidemiology or unwillingness to face up to its teaching. In epidemic periods practically every child was a contact of the disease, yet the elaborate pretence of isolation was confined only to those in contact with a known case. Exposed children were kept away from healthy, well-ventilated schools and allowed to be in close contact with the younger and more susceptible children at home and in the streets: to play, to go to cinemas, and generally to mix at will out of school hours with their fellows. This was one of the best demonstrations of the ostrich technique that even illogical public health regulations could provide. The results of observance of this fetish had never been statistically worked out. What proportion of excluded contacts actually did develop the disease?—probably not more than $\frac{1}{2}$ per cent. What did exclusion cost in terms of lost education, grants, etc.?

Contacts as such, other than those who chance to be carriers—and this carrier state was largely independent of the contact for which they were excluded from school—did not convey infection. It was not until the prodromal malaise or catarrh manifested itself that the child was infectious. Where was this condition more likely to be promptly recognized, and where was transference of infection more likely to take place? In school with constant wide-awake supervision by teachers and school nurses in clean airy conditions, or in a stuffy home with a busy mother and a crowd of youngsters below school age? Exclusion of children in industrial areas was an insult to their intelligence and mumbo-jumbo of the worst type.

"The position is different if you are dealing with an isolated case of any disease and where the conditions either of the home or of the locality are such that contacts can actually be segregated from other children. But where the disease is established in an industrial area, pretended segregation of one small batch of the thousands of contacts is a waste of time and money. Variations in susceptibility are much more important than variations in the intimacy of contact, and no one, medical or otherwise, can postulate which of two children, one known to be exposed and the other only presumed to be, is likely to prove the greater danger to his fellows. I realize that any move to stop indiscriminate exclusion will be met by public outcry; exactly the same thing occurred when routine school closure was abolished and when the modified system of exclusion in measles epidemics was adopted. All are

agreed that both these measures have not resulted in increased incidence but have brought cases under treatment at a much earlier stage than formerly. Surely it is time for us as a profession to give an unequivocal lead in such an important matter."

Paths of Infection

Dr. M. MITMAN said there was a paucity of evidence of a scientific kind on the value of terminal disinfection. Available statistics indicated that there was no significant difference in the occurrence of secondary cases when terminal disinfection of the old type was abolished. He believed that the vast majority of the "inhalation" diseases were contracted by the close proximity of the new host to the infected person, the transmission of droplets taking place from one nasopharynx to the other. The effective range of such droplets was relatively small (distance factor) and the life of the organism outside the body was relatively short (time factor). Droplets suspended in the air were dispersed by ventilation and the majority of the organisms in them died as the result of drying and sunlight, so that their concentration was rarely sufficient to initiate an attack except in the vicinity of an infected person. Organisms in droplets and discharges deposited on inanimate objects were in like manner destroyed by sunlight and drying. Those which remained viable formed part of the dust and might be inhaled, but the concentration was seldom sufficient to result in disease, particularly if the dust had lain for some days. The viability of the organisms deposited on inanimate objects was influenced by the organic matter—for example, mucus and grease—in which they were embedded. A detergent like ordinary soap and water was therefore a good disinfectant. The efficiency of soap and water was demonstrated in cubicle and chamber nursing. The hands of an attendant were much more likely conveyers of infection than inanimate objects and were more difficult to clean, but washing seemed to be adequate. In alimentary infections insanitary disposal of excreta and unhygienic handling of food resulting in the contamination of food and drink were the chief factors. Inanimate objects, except bed-linen, played little or no part.

If these views were correct, persons and not inanimate objects were mainly responsible for the spread of disease. Concurrent disinfection of the discharges from the upper orifices of patients with respiratory diseases, and of the excreta of patients with alimentary diseases, was therefore particularly important. Terminal disinfection need be simple only: removal of dust by a vacuum cleaner or damp sweeping; throwing open the windows to clear the air; simple laundering of bed-linen and underclothes; exposure of mattresses and top clothes to air and sunlight; disinfection of utensils by boiling, destruction of toys and books by burning; and scrubbing inanimate objects with soap and water. In special circumstances departures from these practices were necessary. The only function of disinfection was to stop the paths of infection. Terminal disinfection of inanimate objects could not do this, because such objects did not institute a common path of infection.

PLEURAL EFFUSIONS

At a meeting of the Liverpool Medical Institution on November 17, with the president, Dr. E. GILBERT BARK, in the chair, Dr. ROBERT COOPE read a paper on pleural effusions, including empyema.

Dr. Coope said that absolute dullness was the cardinal sign of effusion, but there must be enough fluid present to cause a relaxation of the lung far enough away from the chest wall to ensure that the lung vibrations did not come through; this involved the accumulation of at least some 400 c.cm. of fluid. The percussion should be quite

light, especially in marking out the upper level of the fluid; the upper limit of the dullness was highest in the axilla. In the presence of a pleural effusion there were two factors which made a sound transmitted from the larynx and large bronchi more difficult to hear or feel on the chest wall: the lung was retracted and not so elastic or stretched as normally, and the sound had, as it were, to jump the change from air to water. Other things being equal, a large number of the sound vibrations were lost and never reached the hand or ear of the observer—so far lost, indeed, that there was silence. In particular cases all might not be lost. If there was not much fluid, and if, therefore, the lung was not markedly relaxed, the sound might jump the gap between lung and fluid and be well conducted. This often occurred in children, and many an empyema in a child had been missed by letting the diagnosis wait upon absent breath sounds over an area of dullness.

The cardinal sign, he repeated, was the absolute flatness of the percussion note . . . "if this is present do not be turned aside from the likely diagnosis of underlying fluid because you may hear breath sounds, or even bronchial breathing, coming through." He thought such things as Grocco's triangle, Garland's triangle, and Traube's space unimportant and often misleading; it would be more honest now to consign them to the historical museum.

Clear Effusions

In actual practice it was not difficult to eliminate the less common causes of serous effusion; the overwhelming majority of clear effusions were tuberculous, and to accept that fact frankly was the beginning of right treatment. Even in pre-radiological days Scandinavian workers found that if these patients were treated as ordinary hospital cases of acute illness, and discharged thereafter into the rough-and-tumble of the world, 40 to 50 per cent. of them became frank cases of pulmonary tuberculosis a few years later. With the coming of radiology careful workers found the proportion to be even greater. These effusions were only symptomatic of pathological processes in the underlying lung; the fluid was essentially an incident in the wider disease. If by reason of its bulk it caused mechanical difficulties, relief must be given by drawing some of it off, but the important question was how to deal with the diseased lung.

A lung with scattered subpleural tubercles only was not one which called for an artificial pneumothorax. Apart from any question of replacing the fluid by air, was the fluid to be removed in any case? To do so might cause rapid re-expansion of the lung, a change from lymphatic stasis to a flooding of the tissues with body fluids, and a real danger of dissemination of the lesions. The fluid would usually be absorbed within four to six weeks if left alone, even though pyrexia might persist in some patients over this period. After the acute stage was over these patients ought not to go back to the stress and strain of everyday life. With adequate sanatorium treatment over 90 per cent. would return to work and remain well. This remarkable contrast with what happened if the illness was merely considered as an acute episode called for courage on the part of the doctor; it was necessary to be frank with these patients in telling them what they might expect.

Empyema

Purulent effusions were of two types—true pyothorax and abscess of the pleural cavity (large or small) shut off by adhesions. It took time for adhesions to form; in the earliest stages of either a pneumococcal or a streptococcal effusion the pus would be thin and adhesions would not yet have formed. The practical difference between pneumococcal and streptococcal empyema was that an effusion complicating a streptococcal infection of the lung formed early, and the pneumonia—usually a bronchopneumonia—did not as a rule resolve so quickly; the streptococcal effusion tended to remain thin and cloudy for much longer

than did the pneumococcal. The pneumococcal empyema was not usually diagnosed until the pneumonia had resolved, the pus was thick, the empyema was walled off, and the condition was ripe for operation. "Evacuate pus straightway by free incision" was altogether too hasty counsel in the streptococcal cases. On the other hand, the over-cautious physician tended to be too dilatory in the pneumococcal ones.

It was true that pus must be removed, and the sooner it was removed the better for the patient both immediately and for the future. It was important, however, not to kill the patient in the process, and, moreover, the pus must be evacuated in such a way as to encourage the lung to expand. Some form of closed drainage was the ideal, during the acute stage of the lesion in the underlying lung and to favour proper expansion later. But if the patient came to the surgeon with large masses of fibrin and sloughs in the pleural cavity, then open operation might well be necessary, followed later by closed drainage. In purulent effusions, too, the condition in the underlying lung must be looked to for guidance in right treatment. Pus in the pleura was not only due to acute infectious processes in the underlying lung; there might be primarily a lung abscess, or a neoplasm, or phthisis, or even a sub-diaphragmatic abscess.

In the discussion which followed Drs. RONALD ELLIS, G. S. ERWIN, and WALLACE JONES took part, with Mr. JOHN T. MORRISON, Mr. HUGH REID, and Mr. F. RONALD EDWARDS.

At the same meeting Dr. H. WALLACE JONES showed a cinematograph film illustrating in slow motion various abnormal gait.

BRITISH ORTHOPAEDIC ASSOCIATION

Annual Meeting

The annual meeting of the British Orthopaedic Association was held in Birmingham under the presidency of Mr. NAUGHTON DUNN. A large number of members attended and enjoyed the scientific sessions, and also a tour, conducted by the Dean of the Medical Faculty, Dr. STANLEY BARNES, of the impressive new hospital centre and medical school. The association dinner was held at the Midland Hotel. A clinical demonstration was given in the out-patient department of the Royal Cripples' Hospital by Messrs. Naughton Dunn, Percival Mills, J. B. Leather, Wilson Stewart, F. G. Allan, A. G. Hendry, T. S. Donovan, and H. Donovan.

Coxa Plana.—Mr. H. JACKSON BURROWS (London) in this contribution epitomized the essay for which he had been awarded earlier this year the Robert Jones medal and prize of the association. He dealt chiefly with the pathology of the condition, and its relationships to similar lesions of other bones and to proven aseptic necrosis of bone. He described the essential histology of coxa plana as (1) an atypical subchondral necrosis which involved lysis of trabeculae, and (2) ingrowth of phagocytic and reparative young mesodermal tissue. The radiological criterion was destruction of trabeculae. Coxa plana could not be regarded as due to complete arterial obstruction, for in lesions resulting from such arterial obstruction—for example, aseptic necrosis of the femoral head following subcapital fractures—the normal architecture and texture of the bony trabeculae were preserved for a long time. Mr. Burrows discussed the experimental work which he had carried out in trying to determine the pathogenesis of coxa plana. Arterial obstruction alone did not produce the typical changes, and he felt, though he had been unable to prove, that venous obstruction and/or haemorrhage into the bony nucleus of the femoral head might play an important role. Infection, though unlikely, could not be ruled out entirely as a causal factor.

Bone Lengthening.—Mr. F. G. ALLAN (Birmingham) described in detail the method he employs for leg lengthening.

He discussed the indications for this procedure and the precautions which must be observed. From an analysis of the large series of patients on whom he had performed lengthening operations he concluded that two-inch lengthening could be safely and easily obtained, that tibial lengthening was more certain and easier to control than femoral lengthening, and that many of the complications experienced by other surgeons were due to extensive and unnecessary stripping of the periosteum and damage to the soft tissue.

Operation for Calcanéo-cavus.—Mr. BRYAN MCFARLAND (Liverpool) said the essential steps of the operation were the removal of a substantial wedge of bone from the posterior third of the os calcis, and its insertion into a niche on the dorsal surface of the neck of the astragalus, close to the articular surface for the tibia. If the wedge was inserted accurately it formed a block to excessive dorsiflexion. The procedure and patients before and after the operation were clearly illustrated by a cinematograph film.

Osseous Dystrophy following Icterus Gravis Neonatorum.—Dr. FRANCIS BRAID (Birmingham) gave a full account of two patients who had a disease characterized by (1) jaundice of the familial icterus gravis type at birth with acholia; (2) pathological pigmentation of the skin; and (3) a generalized cystic condition of the bones, which developed some time after birth. The bony changes might possibly have represented an accompanying developmental defect, or they might be secondary to cirrhosis of the liver (present in both patients) which could very well have disorganized the storage and utilization of vitamins.

Tuberculous Infection of Bursa over Great Trochanter.—Mr. T. S. DONOVAN (Birmingham) described five patients who had suffered from tuberculous infection of the subgluteal bursa. He made a plea for early excision; treatment by immobilization of the hip in recumbency had proved ineffective.

Snapping Jaw.—Mr. A. CAMERON ARMSTRONG (Liverpool) discussed the pathology of this condition, and an operation for the removal of the torn meniscus was described and illustrated by a cinematograph film. Through a short oblique incision in front of the ear the zygomatic arch was exposed and a half-inch of it removed (to be replaced at the end of the operation) immediately in front of the eminentia articularis. This procedure gave a clear view of the anterior and antero-lateral aspects of the joint, and excision of the meniscus was easy. In the two patients on whom the operation was performed a temporary paresis of the frontalis muscle developed, but recovery was complete in a few weeks.

Radiographic Changes of Childhood as Seen in Adult Life.—Dr. J. F. BRAILSFORD (Birmingham) showed an interesting series of radiographs of various bone dystrophies in patients with whom he had been able to keep in touch from childhood to adult life. He discussed the relationship between epiphyseolysis of the upper end of the femur and renal rickets, and described in detail the radiological appearances in the "pre-slipping" stage. He regarded infantile coxa vara as a localized bone dystrophy. Bone changes of a similar nature were sometimes seen in cleido-cranial dysostosis and in Albers-Schönberg disease.

Non-traumatic Dislocation of Toes.—Mr. SAYLE CREER (Manchester) gave an account of thirty-six patients in whom non-traumatic dislocation of one or more toes at the metatarso-phalangeal joint had occurred, the majority in connexion with hallux valgus and metatarsal arch defects; pes cavus was present in only one patient. In three cases there were plantar sinuses leading down to the dislocated joints. Mr. Creer disagreed with Branch's theory that the dislocation was produced by interosseous muscle action, and he demonstrated very clearly in a cinematograph film that these muscles on faradic stimulation had an action quite different from that ascribed to them by Branch. It was therefore concluded that the extensor tendons were the dislocating factors, in association, of course, with deformities already present. Treatment consisted of tenotomies of the extensors in the early stages; when the dislocation was long established excision of the base of the phalanx was necessary.

Local News

ENGLAND AND WALES

London School of Medicine for Women

The annual dinner of the London (Royal Free Hospital) School of Medicine for Women was held at the Savoy Hotel on December 1, Mr. E. Ulysses Williams presiding. In proposing the toast of "The School and the Hospital," the chairman mentioned various matters of domestic interest, including the honours and appointments gained during the year by old students, for all of whom the school maintained an affectionate regard. He also congratulated Mr. L. E. C. Norbury, surgeon of the hospital, on his election as a member of the Council of the Royal College of Surgeons. One event of the year was the installation in the physiological department of a cinematograph with sound, which would be of great advantage to those working there. The toast of "The Guests" was proposed by Mr. J. D. McLaggan, and was coupled with the names of Miss Helen Simpson (Mrs. Denis Browne) and Sir Girling Ball. He appraised Miss Helen Simpson's novels, saying that she was primarily a teller of stories and not one of those modern writers who probed too deeply into the abysmal depths of the human mind. Of Sir Girling Ball he said that his most distinguishing characteristic was his enormous fund of common sense. Among other guests he mentioned Mr. Denis Browne, who had acquired a great reputation as a soldier and a surgeon, but whom he remembered also as a tennis player—"up to Wimbledon standard" on the old court at the back of Great Ormond Street; their old friend Sir James Berry; Dr. Hamilton Fairley, who had come in the place of Sir Leonard Rogers; the Editors of the *British Medical Journal* and the *Lancet*; and Sir Walter Schröder, who, as the doyen among coroners, carried with him a tradition of dignity and courtesy which it would be difficult to match. Miss Helen Simpson began her reply with the remark that she was that "scourge of the profession"—a doctor's wife. Soon after entering that state she had a succession of illnesses which enabled her to look on the profession from the outside as well as from within and led her to offer a few observations as a patient on the manner in which doctors might better conduct their art or craft, or, as it used to be called in the Middle Ages, their "mystery." She thought it a mistake for doctors to take patients too much into their confidence. With scarcely an exception, what patients wanted from doctors was not reason but magic, and, indeed, the profession showed some appreciation of this when they used an astrological sign at the beginning of their prescriptions. Another consideration was that each patient believed himself to be unique, and resented being told that the doctor knew all about his particular complaint. It was a difficult task a doctor had to do—to keep patients in their place and at the same time to bolster up their conceit of themselves, to range them in classes and also to see them as individuals, and to combine the spirit of a vocation with the pursuit of a profession. It seemed odd to her that a profession embodying all these qualifications should for so long have been closed to women. She quoted from Lord Horder's inaugural address delivered at the school a few weeks previously that medicine seemed a natural profession for women to follow, and that the perfect doctor combined the woman's sensitiveness with the man's strength. It was a curious attitude, surely, to suppose that it was womanly to dress a wound but unwomanly to stitch it up, womanly to nurse but not to doctor. Women had something to give to the profession, perhaps not least because they had not quite the same herd instinct as men, nor quite the same reverence for tradition. Such challenge to tradition was not unhealthy in a scientific calling. Sir Girling Ball, who

also responded, spoke of a recent visit he had paid to the London School of Medicine for Women, and said that although the building dated back for nearly seventy years he had been struck by its modernity, especially the first-rate dissecting room. It lacked only space to expand, and he had wondered whether it would be possible to acquire a piece of land for this purpose from the Foundling Hospital. He felt that the schools in London should get much closer together, and in his capacity as Dean of the Medical Faculty of the University he intended to do his utmost to bring this about. There should not be all these separate bodies doing the same kind of work. A committee of the deans of the various medical schools was now in existence, and more and more important educational subjects came before it. After the chairman's health had been proposed by Mrs. Scott-Brown and duly honoured, the company broke up for dancing.

Scientific Treatment of Delinquency

Many influential people attended a dinner at the Savoy Hotel, London, on November 29 in aid of the Institute for the Scientific Treatment of Delinquency, under the chairmanship of Viscount Hailsham. The occasion was well timed in view of the recent publication of the Prison Commissioners' report and the introduction into Parliament of the Government's Criminal Justice Bill. The main purpose of the dinner was to raise funds to carry on and extend the work of the Institute at its clinic at 8, Portman Street, W. Some £2,000 a year is needed for maintenance and extension of the out-patient clinic to provide further staff and for research into the causes of crime. The clinic is operated by a staff of medical consultants and psychotherapists, who give their services voluntarily. The cases with which it deals are sent by magistrates, probation officers, social workers, and others; the opinions of the Institute's experts on these cases are co-ordinated by a director and a report is sent to the appropriate person, usually a magistrate. The speakers at the dinner were the Lord Chancellor (Lord Maugham), Viscount Samuel, Lord Roche, Mr. St. John Hutchinson, K.C., and Dr. Denis Carroll, a director of the clinic. The Lord Chancellor, commending the appeal, referred to the great progress made in penal reform during the present century. He said that the Prevention of Crime Act, 1908, and the Children's and Young Persons Act had effected a revolution in the law, and the new Criminal Justice Bill would bring about further important reforms. Lord Samuel said that in this Bill the Institute would have its charter. The dinner was organized by Countess De La Warr and Mrs. Harry Sacher. The appeal fund now exceeds £3,720, and more than £1,000 was collected in the room.

Lay Analysts at London Mental Hospitals

At the meeting of the London County Council on November 29 the Mental Hospitals Committee reported that it had considered a request by the director of research of the Institute of Psycho-Analysis for a small number of lay analysts in training at the institute to be allowed to be present to observe the reactions of patients when they were being examined at St. Bernard's Hospital, Southall. It was stated that the medical staff of the hospital were willing to co-operate in the arrangement, which meant the attendance at the hospital from time to time of two or three persons, not medically qualified, who were in training with a view to the practice of psycho-analysis. It was unusual for these students, in the course of their training at the institute or in their ordinary practice after training, to get experience of the major psychoses, and it had been represented that acquaintance with these would provide a useful background for other experience. The Mental Hospitals Committee had decided to grant the permission asked for, in the first instance for one year, when the arrangement would be reviewed. It was not proposed that lay analysts should be employed by or on

behalf of the Council either in the mental hospital service or under any arrangements made for after-care.

The proposal met with some opposition in the Council. Mr. F. S. Henwood moved and Dame Florence Barrie Lambert seconded an amendment instructing the committee to defer the permission until the Mental Health Committee of the British Medical Association, which was understood to be investigating the question of non-medical psycho-analysts, had reported. [The Mental Health Committee was appointed by the Council of the Association to inquire into the present medical equipment and provision for dealing with mental health in this country, with particular reference to the problems of the treatment and prophylaxis of the psychoneurotic and allied disorders.] Mr. Henwood considered that the proposal to allow persons who had no medical training to be present during the examination of patients was open to question. The patients were those who had been sent to a mental hospital under magistrate's order, they were at the mercy of the Council, and the Council had special responsibilities towards them. He also suggested that the question might be referred to the Council's medical officers as a body. The proposed action was defended by Mr. J. R. Oldfield, who said that the Institute of Psycho-Analysis was a perfectly proper body in every respect. The trainees were merely to be present as observers. The people observed were so acutely deranged that they would be unconscious of the presence of the trainees. He added that the Council had the only concentration of acute cases available in London, and if its assent were not forthcoming it was as good as saying that the trainees should have no experience at all. The medical superintendent of the hospital and his staff were in favour of the new departure, and the patients would in no way be jeopardized.

The amendment was defeated, and the report sanctioning the permission for the lay analysts to be present was approved.

SCOTLAND

Hospital Co-operation

The Secretary of State for Scotland, Mr. John Colville, discussing the need for co-operation in hospital services at the recent meeting of the Victoria Infirmary, Glasgow, said the work of voluntary hospitals was a natural expression of the spirit of liberty which was dearly prized in this country. The nation showed a sure instinct in cherishing the voluntary hospitals, but it would be a bad mistake for them to hold aloof from the municipal hospitals. The voluntary hospitals had recently sent him a memorial urging the need for co-operation in Scotland, and this initiative was a tribute to the voluntary hospitals. Changing conditions in medical science and the increased scale on which hospital services had now to be conducted had created the need for co-operation in this field of public work. Diseases that had formerly crippled or led to untimely death were being attacked with patient and confident skill, and the people of Scotland were healthier than formerly, although disease still took too heavy a toll. Mr. William Gray, chairman of the hospital, announced that Viscount Weir had given £7,000 for the building of a fracture clinic as recommended by the Departmental Committee on the Rehabilitation of Persons Injured by Accidents. The Victoria Hospital in the fifty years of its life had grown from an institution of eighty-four beds to one of 555 beds, treating 11,000 in-patients and 114,000 out-patients annually. Lord Provost Doilan of Glasgow referred to the antagonism which had formerly existed between the voluntary and municipal hospitals; this, he said, no longer existed in Glasgow because of an increasing understanding that the municipal and voluntary hospitals were not competitors but were working in the same cause.

Edinburgh Hospital Problems

At the annual meeting of the League of Subscribers to the Royal Infirmary, Edinburgh, it was stated that whereas twenty years ago the ordinary expenditure for maintenance was £87,000, last year it was £186,000, and the number of patients twenty years ago was 11,181, while last year it was 21,936. The chairman of the Board announced that the new maternity hospital and nurses' home were nearly completed, and would, it was expected, be in occupation by March 1, 1939. Maintenance of the maternity block was going to add about £30,000 a year to expenses, and it would be necessary for the citizens of Edinburgh to take a greater interest in the maternity work. The managers of the Infirmary were ready to meet representatives of the local authorities to discuss matters involving the municipal hospitals and the Infirmary, and among other things a contributory scheme would require careful consideration. Mr. Andrew Eunson, honorary secretary of the League, reported that there had been a considerable increase in contributions. In 1918 they received £1,600 from employees in public works and businesses; in 1938 this had risen to £32,000. The Edinburgh municipal hospitals were not full, while the Infirmary had a waiting list of over 3,000. The solution seemed obvious—namely, to utilize the empty municipal beds for the waiting patients. It had been suggested that a contributory scheme should be started under which the treatment of members of the scheme would be paid for either in the municipal hospital or in the Infirmary. Such a scheme, however, could not be adopted for Edinburgh alone, because more than half of the patients in the Infirmary came from outside of the city. A contributory scheme must therefore apply to the whole of the south-east of Scotland, but the charter of the Infirmary did not permit the institution of a general system of payment, and the attitude to a contributory scheme of the other voluntary general hospitals in the area was not yet known.

Correspondence

Primary Abdominal Tuberculosis

SIR.—The contribution of Drs. Stefan Engel, Ruby O. Stern, and G. H. News on the danger of primary abdominal tuberculosis in children (November 19, p. 1038) is both timely and welcome, as it calls attention to a condition which is preventable and is a far more serious menace than commonly supposed. They have well shown how frequently a fatal termination may be anticipated in numbers of very young children. Nevertheless, I believe the infection exists in many children and may often be overcome by suitable treatment and in some cases cured naturally without its presence having been diagnosed or even suspected. It would be of value if a similar investigation to theirs were conducted in children from the age of 5 to puberty. I have been interested to observe the much higher proportion of cases of primary mesenteric tubercle admitted to this hospital in recent years. This is probably in part due to improved early diagnosis, though it must be admitted that many were only discovered at laparotomy, especially for appendicectomy.

Except in fulminating cases where meningitis supervenes, comparatively early diagnosis should not be so difficult as the authors would have us believe. Even apart from family history or conditions known as likely to produce infection the general appearance of the child, his faeces, malaise, irritability, apathy, capricious appetite,

occasional attacks of colicky pain relieved by warmth and pressure, sometimes diarrhoea alternating with constipation, in a few cases vomiting, should lead to a tuberculin test being applied. Stigmata of tuberculosis as described by Rivers, ichthyosis, deflected nasal septum, and even squint, though by no manner of means invariable, do sometimes occur and should put us on guard. Locally, frequent absence of abdominal reflexes and localized abdominal tenderness on deep palpation with slight muscle guarding are common, and in more advanced cases the doughy abdomen associated with matted intestines and sometimes free fluid in the flanks makes the presumption of tuberculosis very probable. In acute cases there may be tenderness in the flanks and occasionally very easily palpable enlargement of iliac and groin glands on the side affected. Pyrexia is an uncertain sign, but a moderate degree in untreated cases is common.

On the pathological side haematological examination should be undertaken, as it may afford valuable confirmation of clinical findings, and the sedimentation reaction of the blood should always be ascertained. Examination of the stools for occult blood and tubercle bacilli should invariably be made, and the by some discredited Triboulet test for intestinal ulceration or, as I would prefer to call it, intestinal permeability has, in my hands, proved valuable both as one of the many aids to diagnosis and also as a guide to the conduct of treatment. X-ray examination may be of little if any value at the onset, but later is often of very real help.

I cannot but believe that if investigations somewhat on these lines were undertaken in suspected or doubtful children many cases would be discovered and subsequent disability, invalidism, or even death averted. The tuberculin tests, harmless if of the Pirquet variety, may supply a useful initial hint. Failure to undertake these and perhaps other investigations may lead to dissemination and dangerous sequels. These facts are beginning to be appreciated and are already having favourable effects. They should be emphasized.—I am, etc.,

Alton, Hants, Nov. 28.

HENRY GAUVAIN.

Glycosuria

SIR.—The matter of which I give details confirms what I have long suspected—namely, that diabetes is an insidious disease, often of slow progress and of long duration before its discovery, giving no distress to its victim and no means of diagnosis to the physician save by urine testing, and causing essential cell destruction. Volunteers for the auxiliary fire service of the air raid precautions scheme in the borough of Crosby had a sample of their urine tested. Of 132 men examined, eight were found to have glycosuria, their ages ranging from 26 to 40 years. The precipitation on testing was rapid and copious in all but one case. Each of the eight men said that he felt quite well and strong, and all save one followed occupations involving hard work; every objective symptom was absent except that one man stated that at times he had pains running down the limbs, which he attributed to a "little rheumatism." On physical examination the vision of each man was normal; no examination of the disk was made. Diagnosis was only possible by examination of the urine.

Each man was referred to his own doctor. One practitioner, to whom I had referred one of the men, said that in the last few weeks, on testing samples of urine, he had discovered five cases of glycosuria which, owing to the absence of subjective symptoms and physical signs,

would otherwise have been missed. He went on to state that his late professor of medicine at Edinburgh had said in his lectures that anxiety and mental stress are among the causative agents of glycosuria, and had pointed out its greater incidence among the Jewish race. This, the professor considered, was due to so many of the Jews being engaged in banking, money-lending, speculation, and keen businesses, and, in addition, to their being treated with antipathy in so many countries that mental stress and anxiety were ever present. My friend's view was that the recent cases he had encountered were due to like causes, induced by business disturbances, fear of war, and general unrest caused by the international situation.—I am, etc.,

Liverpool, Nov. 28.

VINCENT J. GLOVER.

Haemorrhage following Tonsillectomy

SIR,—Mr. D. W. Ashcroft, in his article on haemorrhage following tonsillectomy, in your issue of November 26 (p. 1079), states: "According to the literature ligation of the external carotid artery is of doubtful efficacy in any type of tonsillar haemorrhage on account of the extensive anastomosis of this vessel through the circle of Willis." The external carotid artery does not enter, even indirectly, into the formation of the circle of Willis, nor do any of its branches. The major part of the blood supply of the tonsil is derived from the rami dorsales of the lingual artery, which anastomose with those of the opposite side, as also do the palatine arteries which contribute branches to the tonsil, and ligation of the external carotid may therefore be ineffective.

Mr. Ashcroft further states: "... it is desirable that effective measures for the control of any bleeding should be instituted before transfusion becomes necessary." I think that many surgeons will agree with the view that transfusion is of value more for its haemostatic effect than for its mere replacement of blood lost, and that it should no longer be regarded as a late resource.—I am, etc.,

London, W., Nov. 25. S. E. BIRDSALL, B.Ch., F.R.C.S.

Pituitary Extract in Third Stage of Labour

SIR,—It was interesting to read the article by Dr. G. W. Blomfield in the *Journal* of November 26 (p. 1083), on the giving of pituitary extract with a placenta still in the uterus. I have done this in cases of retained placenta on four occasions during the past six months.

The first time was for a patient who had some degree of post-partum haemorrhage and after many attempts had been made to express the placenta. When first seen she was badly collapsed, her pulse could not be felt, and she had a flabby uterus which continually relaxed and filled with blood clot, in spite of a controlling hand on the fundus. Her condition was too poor to permit of a manual removal, so 1 c.cm. of pitocin was injected intramuscularly and the blood clot gently expelled from the uterus and vagina, the abdomen and fundus being very tender. The uterus then contracted on to the placenta and the bleeding ceased. Intravenous glucose, 20 per cent., was administered. The bed was already raised at the foot; an electric blanket was put over the patient and $\frac{1}{4}$ grain morphine was given. A watch was kept on the fundus, but no excessive bleeding occurred. The patient's condition gradually improved, and fourteen hours later, after a good sleep, she was given an anaesthetic and the placenta was expressed. During the puerperium she had a raised pulse and temperature for some days, but was able to get up on the tenth day and went home normally on the fourteenth day.

The second and third cases were similar, but not so ill when first seen.

The fourth case was one which I delivered myself under light chloroform and ether anaesthesia. One and a half hours after the delivery a third attempt to express the placenta failed. This patient had had a long labour—terminated by forceps for foetal distress. Her condition was good, but she was obviously tired; there was no bleeding and the placenta seemed firmly attached to the uterus. Remembering how well the other ill patients had responded, this patient was given pitocin also and the nursing staff were asked to keep a watchful eye on her and call me if necessary. Next morning—that is, about six hours later—the placenta was easily expressed. This patient's puerperium caused no anxiety.

In my experience repeated attempts to express a placenta generally cause marked shock and collapse, while a manual removal, even at its best, is likely to cause sepsis later. It is probably unsafe to risk haemorrhage by leaving a placenta without first giving an oxytocic drug. Therefore pitocin to prevent bleeding, followed after a good rest by expression of the placenta, seems the most natural and rational treatment for this otherwise difficult condition. I consider, however, that it is essential to have a good, trustworthy nurse when leaving these patients; these four patients happened to be in hospitals or nursing homes, but I remained with the first case for some hours before I felt it would be safe to leave her.—I am, etc.,

Bristol, Nov. 30.

MABEL F. POTTER.

The Occipito-posterior Case

SIR,—The second letter from Dr. David Price (*Journal*, November 5, p. 968) is indeed obscure, and does nothing to rectify the unfortunate impression caused by his first letter. He fails to explain how he finds the position of the occiput, the sutures of which are obscured by oedema, if he omits the "whole hand" examination. He speaks of the "impacted unadvancing head," below which a cervix cannot fully dilate in a reasonable time. Surely this is the picture of delay due to disproportion. Finally, he would have us believe that it is wise to deliver the child in the absence of uterine contractions through a cervix not fully dilated. Why such haste to complete the delivery? I cannot agree that Dr. Price's ideas will ever be considered good obstetric practice.—I am, etc.,

St. Michael's Hospital,
Toronto, Nov. 22.

B. E. MEEK.

* * This correspondence is now closed.—ED., *B.M.J.*

Aplastic Anaemia with Complete Recovery

SIR,—The case reported by Dr. T. H. Boon (*Journal*, November 19, p. 1041) prompts me to record a somewhat similar case recently under my care.

On July 6, 1938, a man aged 36 had several infected stumps of teeth extracted and bleeding was severe. He was admitted to the Royal Naval Hospital, Haslar, on July 8. He looked very ill on admission, his breath was foul, and there was continuous oozing from the infected gums. He stated that his health had been excellent; in fact, he had been playing water polo up to a couple of weeks before admission to hospital. His previous history was of interest. In 1921 he contracted syphilis, for which he had intensive arsenical treatment for two years. In 1930 he again developed a primary sore, and again had arsenic and bismuth therapy; he was considered cured in 1933. In 1937 he again developed a primary chancre, and again had courses of arsenic and bismuth, the last course having been completed in June, 1938. On admission to hospital on July 8 his blood count was: red

cells 2,250,000; haemoglobin 43 per cent.; white cells 5,200 (polymorphs 35.5 per cent.; lymphocytes 58 per cent.; monocytes 6.5 per cent.); reticulocytes 1.6 per cent.; coagulation time $3\frac{1}{2}$ minutes; bleeding time 3 minutes. The spleen and liver were not enlarged, and his blood pressure was 110/50 mm. Hg. On July 12 the blood picture had become worse: red cells 1,500,000; haemoglobin 30 per cent.; white cells 1,800 (no immature cells seen). There were retinal haemorrhages in both eyes; his temperature was swinging between 100° and 103° F.; his mouth was grossly septic and bleeding was continuing from the gums; his nose was bleeding. On July 20 a purpuric rash was present on the trunk. On July 22 the blood picture was: red cells 2,250,000; haemoglobin 45 per cent.; white cells 2,000 (polymorphs 26 per cent.; lymphocytes 65 per cent.; monocytes 4 per cent.; myelocytes 5 per cent.). During the fortnight since admission treatment had consisted of three transfusions—each of 500 c.cm. of blood with citrate solution—and injections of liver, pentide, and soluseptasine, with iron and marmite by mouth. Though the blood picture had shown only a slight improvement his general condition was markedly improved. The oozing from the gums ceased, the mouth was cleaner, and he was taking nourishment well.

On August 12 his blood picture was: red cells 2,250,000; haemoglobin 43 per cent.; white cells 1,600. Another transfusion of 300 c.cm. of blood with citrate solution was given. The administration of pentide and soluseptasine had been stopped, but iron, liver, and marmite were being given. On August 26 there was a setback in the blood count: red cells 1,750,000; haemoglobin 41 per cent.; white cells, 1,800. The diagnosis was aplastic anaemia.

On September 12 a sternal puncture was done and the bone marrow obtained was examined and found to be normal. This caused the diagnosis to be changed to that of achrestic anaemia, and it made the prognosis more hopeful. This optimism was justified, because from then onwards the blood picture steadily improved without any remission. On October 8 the blood count was: red cells 3,500,000; haemoglobin 79 per cent.; white cells 4,400. On November 4 the blood count was: red cells 4,250,000; haemoglobin 91 per cent.; white cells 6,200. It may be mentioned that a fractional test meal showed the presence of free hydrochloric acid, and that the blood Wassermann and Kahn tests were negative.—I am, etc.,

J. G. HOLMES,

Surgeon Commander, R.N.

Haslar, Nov. 21.

Grenz-ray Therapy

SIR,—The annotation in your issue of November 26 (p. 1093) on the subject of Grenz-ray therapy is interesting and stimulating.

It is now two years since I invited Dr. Z. A. Leitner to work in my physiotherapeutic department at St. Mary's Hospital in order to introduce this much-neglected branch of physiotherapy. Results have been extremely good in the local treatment of lupus and other forms of tuberculous skin disease, and in obstinate and chronic cases of poikiloderma vascularis and other rarer and more difficult skin cases where many forms of treatment had been tried in vain. Grenz rays have also shown their great value in the general treatment of certain constitutional diseases. Cases of total alopecia come under this heading, as do certain types of allergic diseases, such as bronchial asthma, migraine, etc. All these cases need great experience and judgment, and scrupulous care regarding dosage. In these we have seen, surprising and even dramatic results.

Unfortunately the possibilities of such modern methods as Grenz rays are as yet little understood in general hospitals to-day. What is needed in all our physio-

therapeutic departments is a much larger number of cases that have not yet arrived at the chronically hopeless stage. Only then can adequate research be done and controlled investigations that are urgently needed carried out.—I am, etc.,

JUSTINA WILSON.

London, W.1, Nov. 29.

F.R.C.P.Ed., D.M.R.E.Camb.

Perforated Gastric Ulcer

SIR,—The article by Mr. Alan H. Hunt and Dr. Eric C. O. Jewesbury on perforated peptic ulcer in organic nervous disease (November 26, p. 1082) brought to my mind a recent remark of a surgical colleague that "the worst place to perforate is in hospital, for the houseman so seldom thinks of perforation in a patient already in one of his beds." To the first part of his sentence, and for the same reason, I would add "or just before admission to a medical ward."

On three occasions I have discovered a patient with a perforated gastric ulcer in one of my medical beds; each time the diagnosis was clinched in my mind by the finding of absent liver dullness, and each time I have been told in rebuttal that there was pneumonia at the base of the right lung—a correct finding so far as it went, for the lesion there was secondary to a collection of purulent fluid under the diaphragm. It is true that none of them presented the so-called typical board-like rigidity of the abdomen; but the absence of liver dullness is a sign surely almost, if not quite, pathognomonic, sometimes occurring reasonably early, sometimes late.

Many good-sized ulcers of the lesser curve are curiously painless in certain phases, and the physician may sometimes be surprised at not being able to elicit a typical ulcer history from the patient. Moreover, an appreciable number of perforations do not necessarily give a "typical" picture, even in the absence of organic disease of the nervous system. There seems to be no need, therefore, to bring in the presumption of a special interference with the normal pathway of pain impulses just because these patients happened to be suffering from organic disease of the nervous system.—I am, etc.,

Liverpool, Nov. 28.

ROBERT COOPE.

Anti-pernicious Anaemia Principle in Urine

SIR,—The presence of the anti-pernicious anaemia principle in urine has been investigated by several groups of workers without conclusive results having been obtained. This may be due partly to the difficulty of separating without loss of potency the small quantities of the anti-anaemia principle that may be present in a state suitable for parenteral injection (and free from toxic substances), and partly to the fact that many of the examinations for anti-anaemia potency have been done with the rat or guinea-pig tests, which, while often used by Continental workers, have now been rejected as unreliable by most others.

In their paper Dr. Edouard Jéquier and Major G. R. M. Apsey (*Journal*, November 5, p. 934) obtained positive reticulocyte-provoking responses with urine (as judged by an increase in reticulocytes from 0.5 to 2.3 per cent. initially to maxima of 3.1 to 4.5 per cent. after injection into rats), while Mr. B. D. Thornley (November 26, p. 1113) did not get any response when his extract of normal urine was tested clinically in one case.

During the last six years my chemical collaborators in this department have prepared in various ways extracts of urines for examination for the presence of the anti-

anaemia principle. In this manner we have made and examined six series of urinary extracts which have been tested for anti-pernicious-anaemia potency in the usual manner in controlled cases of pernicious anaemia. Our results have been as follows:

Series 1 and 2 were prepared from the urines of patients with subacute combined degeneration of the spinal cord, treated with daily parenteral liver preparations. Each patient supplied about 20 to 25 litres of urine, and the extracts when given to untreated cases of pernicious anaemia produced no remissions in Series 1, but normal remissions in Series 2. The two series were prepared differently.

Series 3 and 4 were obtained from normal urines—40 litres of urine from each normal individual being used. The extracts in Series 4 gave normal remissions in test patients, but those in Series 3 gave painful reactions and were discontinued.

Series 5 was prepared from urines from untreated patients with pernicious anaemia—35 to 40 litres of urine being collected from each. These extracts were inactive when tested clinically.

Series 6 was made from 23 litres of urine from one treated patient with pernicious anaemia in remission. This has only been given so far to one test case with a doubtful response.

Our impressions are that whatever amount of anti-anaemia principle may be excreted in the urine it is not present in very large quantity.—I am, etc.,

Manchester, Dec. 1. JOHN F. WILKINSON.

Vitamin B₁ and Insulin

SIR,—We have read with interest Dr. A. Gordon Watson's description of a diabetic case treated with vitamin B₁ (*Journal*, November 26, p. 1111), which suggests that the vitamin had a beneficial effect on the diabetes and reduced the insulin requirements. Our experience is not so fortunate. We have treated a fairly large series—well over a hundred—of insulin cases with big doses of vitamin B₁, a few by injections, most orally. While the neuritis has often been benefited, we have never observed any effect for better or for worse on the carbohydrate tolerance or insulin requirements. Many of our cases have been under close observation, and we certainly should have noticed any improvement in them.—We are, etc.,

R. D. LAWRENCE.

W. G. OAKLEY.

Diabetic Department,
King's College Hospital, S.E.5,
Dec. 2.

M & B 693 in Gonorrhoea

SIR,—I have read with much interest and profit the preliminary report by Dr. R. C. L. Batchelor and his colleagues published in the *Journal* of December 3 (p. 1142), and agree with their conclusion that M & B 693 is the most potent anti-gonorrhoeal agent at present. These authors investigated 102 cases in both sexes and achieved 91 per cent. of apparent cures. The standard of cure aimed at by the authors was not achieved in all 102 cases. Had this standard been achieved it is reasonable to expect that their rate of apparent cure would have been lower. From the scientific point of view one is more interested in the permanent rate of cure, however large or small the number of cases; of course the greater the number the better. There is almost a specific drug for the early infections of syphilis in the form of arsenobenzol or bismuth preparations. The standard period of observation is a minimum of two years. In view of this I suggest that the minimum period of observation after treatment of gonorrhoea with chemotherapy should be two months in male cases and six months in female cases—if we are to find out the permanent rate—in gonorrhoea by

chemotherapy. It is interesting also to point out that Dr. Batchelor has not used vaccines in his valuable investigations, and does not advocate delayed chemotherapy.—I am, etc.,

R. MARINKOVITCH,

Salford, Dec. 3. Venereal Diseases Officer, City of Salford.

Air Raid Precautions

SIR,—Most people will agree with Dr. F. G. Chandler's criticisms of the hospital organization during the September crisis. I think, however, that it is fair, and I believe correct, to remind Dr. Chandler that the Ministry of Health had the "baby" of responsibility handed to it less than three months before the actual crisis, and, further, that the individual hospitals were only informed in detail what was expected of them within two weeks of the crisis.

I am not in a position to say what individual or Government Department was responsible for this amazing want of foresight, nor does that matter at the present time, as I hope, and feel convinced, that the organization that is now being got out by the Ministry of Health will be very different from the hasty organization in September last.

I know nothing about the future organization, but it seems to me that the most important step is the provision of potential base hospitals round the large cities, with advanced base hospitals rather closer for those abdominal and head wounds which can without much risk be moved out of the danger area. I agree with Dr. Chandler that the work of the casualty clearing stations in the next war will be much more in the nature of first-aid-post work than was the case in the last war. It seems fairly certain, also, that a great number of young men will have to deal with this type of work while the senior surgeons and physicians are in the base hospitals, where teaching will have to be carried out when hostilities allow of it. Whether the casualty clearing stations will have to be so numerous as to require other buildings than the existing hospitals of the cities seems to be doubtful, but that portions of the hospitals should have special protection in order to deal with those cases that cannot be transported out of the danger zone would seem to me to be essential. Had the war started in September I am convinced that within a few weeks the hospitals in the centre of London would have been closed down until such protection could be given to make them into first-aid posts.—I am, etc.,

London, W.1, Dec. 2. MALCOLM DONALDSON.

SIR,—Recent letters in your columns, statements in Parliament and elsewhere, and admissions by responsible spokesmen of the department mainly concerned have all emphasized the inefficiency of what has been attempted in the way of air raid precautions. But the authorities whose labours over some years have accomplished so little are still in charge, and signs of any radical improvement are not evident. Major W. V. Fawcner-Corbett, in the *Journal* of November 26 (p. 1114), puts the case for an organization on lines copied from the Army. As an official who has had to do with local attempts to work the A.R.P. scheme I should like to support that. In my opinion the endeavour to organize efficient A.R.P. with unpaid volunteers is illogical and doomed to failure. Apart from the folly of concentration on obtaining volunteers before schemes were prepared or arrangements in hand for training (in my districts equipment for instruction is not yet to hand), how can the allegiance of such untrained volunteers be kept in face of the counter-attraction of the Women's Auxiliary Territorial Service, or

batteries which I understand works and factories are to organize from their hands? I would suggest that the protection of the civil population from air raids is a military responsibility, the neglect of which may lose a war, and that a force for this purpose should be organized on the lines of the Territorial Army. One must realize that it is not a question of temporary arrangements for protection in a situation which is not going to recur, but that from now on it is a permanent national need.—I am, etc.,

Guisborough, Yorks, Nov. 29.

C. R. GIBSON.

SIR,—May I support the point brought forward by Dr. F. G. Chandler in the *Journal* of December 3 (p. 1175). During the crisis emergency schemes were organized in the central hospitals which, as examples of rapid improvisation and within the limits imposed by the controlling authorities, were excellent. The essence of the schemes was that medical and nursing personnel should be concentrated in the available hospitals in the areas in which most casualties were likely to occur. The urgency of the situation probably made these limits necessary then, but, like Dr. Chandler and many others, I am very disquieted at the possibility of their still applying in a more carefully worked out scheme. The amount of destruction of medical and nursing personnel which would occur from the continued chance bombing of such strongly concentrated collections would in no long time raise replacement problems of national, and possibly international, importance. But already one hears suggestions that the more permanent schemes may be on similar lines, and there is talk of adding to the medical and nursing concentration at the central hospitals a further concentration of voluntary workers for bandaging, canteen work, and other such auxiliary services, the atmosphere being more suggestive of the Boer War base hospitals than modern front-line institutions. Study of the methods of modern warfare, which is to-day being forced on even the inexpert, points to two principles to which all medical emergency schemes should, in my opinion, conform:

1. The principle of holding the front line by a minimum of screen troops. Applied to the medical services this means that the central hospitals in emergency should be staffed by the minimum number of medical men and auxiliaries, with facilities for reinforcements if required. The great bulk of the medical and nursing personnel should be carefully conserved.

2. The principle of dispersal. This means that such medical services as have to be retained in the central area should be scattered in multiple small units rather than concentrated in large institutions. In this connexion the use of suitable accommodation in large commercial houses is at once obvious, the units being based for purposes of personnel and supply on the corresponding hospital of the district.

—I am, etc.,

London, W.1, Dec. 5.

DAVID H. PATEY.

Control of Small-pox in India

SIR,—I think that Dr. C. Killick Millard's critics (*Journal*, December 3, p. 1180) have missed the point. It is plain from his letter (November 19, p. 1061) that Dr. Millard is not in any doubt concerning the infectivity of variola minor, while on a number of occasions he has placed on record his appreciation of the fact that recent successful vaccination protects the individual. What he does affirm now (if I read him aright) is that vaccination as carried out in India to-day has lamentably failed to control small-pox among the native community; and the remedy which he suggests as being apparently in his own

view more practicable than measures aiming at more and better vaccination is the deliberate introduction of variola minor as a prophylactic measure against variola major.

For myself, I have grave doubts, for technical and moral reasons, regarding the practicability of his suggestion; but I would base my main criticism on the grounds that the whole rationale of Dr. Millard's suggested procedure arises from the false premise that variola major and variola minor cannot coexist in a community.—I am, etc.,

Dartford, Dec. 4.

J. PICKFORD MARSDEN.

SIR,—Dr. J. D. Rolleston (December 3, p. 1180) has unfortunately misread my letter (November 19, p. 1061). So far from stating that variola minor was not infectious, I used the fact that it was infectious as being a great advantage in a country like India, as compared with vaccination. It is, of course, true, as Dr. Rolleston points out, that variola minor is not entirely free from risk; but compared with variola major it is certainly a trivial disease. And, after all, vaccination itself is by no means entirely free from risk.

As regards Dr. A. G. Newell's letter (December 3, p. 1180), although he opposes my suggestion that inoculation with variola minor might with advantage be substituted for vaccination, his arguments seem to me strongly to support it. He agrees that the mortality from small-pox in India is appalling, and he stresses the enormous difficulty of controlling the disease by vaccination, owing to the social habits, the superstitions, and the prejudices of the people. But when he says that there is no evidence that vaccination has lamentably failed in India I would reply that that all depends upon how you look at it. By his own showing the methods hitherto attempted for the control of small-pox in India, the chief of which is vaccination, have lamentably failed, and in any case the mortality figures for small-pox are proof of this. It is not a case of blaming either officials or vaccination; but we have got to face the facts. Dr. Newell's remedy is education of the people as to the value of vaccination. But surely the medical authorities in India have been striving to do this for years; and even in our own country, with all our educational and other advantages, similar attempts have not been too successful. Finally, he objects to my suggestion because it might undermine faith in vaccination so far as this has already been established. I do not think that this would necessarily be the case at all, but admitting for the sake of argument that it might have such an effect, is this a sufficient reason for refusing to try a fresh method if it offers a reasonable prospect of success, seeing that the existing method has so greatly failed?

Lieutenant-Colonel H. C. Keates (December 3, p. 1180) fails to appreciate the fundamental difference between the effect of vaccination in protecting the individual and its effect in protecting the community. It is only as regards the latter that I accuse vaccination of having been a lamentable failure, and I repeat that the appalling mortality from small-pox in India, after vaccination has been "pushed" as far as ever was practicable under the existing conditions, is sufficient evidence of this. As to the effect of vaccination in protecting the individual, I am probably just as orthodox as Lieutenant-Colonel Keates himself.

In conclusion, may I point out that India and the Far East was the "home" of small-pox inoculation long before the discovery of vaccination. The idea of inoculation, therefore, would not be alien to the philosophy of the people of India. It is possible that they might accept it quite as readily as vaccination. But in the old days of

inoculation the distinction between variola major and minor was not known. It was variola major which was inoculated, and it is not surprising that the results were often disastrous. To-day the greatest care would be taken only to inoculate with the virus of variola minor, so that the results should be infinitely better. I submit, in all seriousness, that the suggestion to substitute inoculation with the virus of variola minor in place of vaccinating with calf lymph is worth consideration by the medical authorities in India. Saturate the population with variola minor and substitute a trivial disease for one which, in spite of the efforts hitherto made, is still a veritable scourge. There would still, of course, be a field for vaccination for the white population, for small-pox hospital staffs, for officials, or for any others who appreciated that the protection conferred by vaccination, although complete for a time, is not permanent, and therefore the vaccination requires to be repeated.—I am, etc.,

Leicester, Dec. 4.

C. KILICK MILLARD.

Decline of Breast-feeding

SIR.—In all the correspondence on this subject there has been no convincing evidence that food supply *per se* plays an important part in enabling a mother to supply breast milk to her infant. In the discussion that took place on the modern decline of breast-feeding at the first session of the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Dr. Alan Moneriff said that "he thought there was a danger of making too much fuss about nutrition. A poor diet during lactation might cause anaemia, but the milk did not fail in quantity until the woman was about to drop; and even then the quality remained." Dr. Ruth Young also gave her experience in India, where the Hindus were forbidden to eat meat, fish, or eggs; they were too poor to buy milk and had little fruit, yet "the infants usually gained steadily on the breast for the first seven or eight months."

In this country public health authorities can in necessary cases supply free milk and free dinners to nursing mothers, and the amount of help given in this way is increasing every year, so that it is difficult to agree with those who stress the importance of diet, vitamins, and general nutrition in maintaining a supply of breast milk. After all, the breast is not a filter for food but a gland requiring stimulation to carry out its function. We all know that the colostrum period, especially in primiparae, is often prolonged to seven or even ten days, so that a little extra nourishment is required until full lactation is established, but when this has been accomplished the extra food can be discontinued. I feel certain that more attention to the technique of breast-feeding by the general practitioners and nurses who attend to these cases is urgently required.—I am, etc.,

London, W.8, Nov. 29.

RONALD CARTER.

New Menstruation Toilet

SIR.—We ought to be grateful to Dr. E. Lawton Moss (November 26, p. 1113) for his timely warning against the use of vaginal tampons, and especially for mentioning the danger of consequent sterility. A recent experience illustrates this point, and although a single case proves nothing it may serve to make one think.

A healthy young woman came to me last June with a profuse leucorrhoea due to a cervical erosion. She had been married for ten years and was childless; she has used tampons intermittently since girlhood and regularly for the last two years. The erosion disappeared entirely after four weekly

swabbings with picric acid in spirit; within three months, however, the discharge had returned, and again there was a large erosion. This unusually rapid recurrence made me question her more closely, and, with a somewhat defiant air, she told me the tampon story. She was with difficulty persuaded to stop using them—and she is now enjoying a normal pregnancy.

This case must be typical of many, where endocervicitis is an unsuspected cause of temporary sterility, and where the original suggestion of using these plugs has come, as in this case, from a doctor.—I am, etc.,

Guildford, Nov. 29. C. R. McLAUGHLIN, F.R.C.S.Ed.

SIR.—Dr. E. Lawton Moss's letter in your columns on the use of absorbent vaginal plugs as protectives at the menstrual period prompts me to relate an experience I have had of this method of personal hygiene.

Some months ago I was consulted by an intelligent and responsible young lady about a vaginal discharge which had appeared four days previously, on the cessation of her period. She stated that menstruation had always been regular and normal, and she had never before suffered from intermenstrual discharge. On inspection I found a thin, blackish-brown, offensive discharge escaping from the vagina, and digital examination revealed a soft mass tightly packed high up in the vagina. This proved to be one of the tampons now on sale for the menstrual toilet. On its removal a rush of foul discharge escaped, and the odour from the saturated plug was exceedingly offensive. The cervix showed patches of hyperaemia where the dressing had been in contact. The patient had used this form of protective for the first time during the last period. She was astonished to find she had left a plug *in situ*.

The case emphasizes, I think, Dr. Moss's contention that such dressings are liable to become infected. It also shows that a real danger exists of one being left behind until it becomes an offence and a danger to health.—I am, etc.,

Leamington Spa, Dec. 1.

DOROTHEA M. TUDOR.

SIR.—The "new" menstruation toilet is not so new. Apart from the fact that ballet dancers have used cotton-wool plugs at all times, I can vouch for the bacteriological integrity of more than one of my patients who has used some or other of the incriminated methods for over four years. A novice in this field, after reading Dr. Moss's letter, might conclude that women are in the habit of plugging the vagina when the necessity arises, and of leaving these plugs *in situ* until they become "offensive and infected," while at the same time deadly bacteria are given a chance to breed in the "dammed-up blood" above the plug. In fact nothing of the kind ever takes place, nor does it seem that even Dr. Moss has ever seen a case of "vaginitis, cervicitis, *B. coli* infection . . . or sterility" caused by this method. He only asserts that these conditions are "likely to result" from the new menstruation toilet.

On the contrary, they are not at all likely to occur, because all women who use any of these methods know that they must change their sponges or cotton-wool plugs every three hours, or before the full capacity of their soaking power is reached. They know that they must change them in time because menstrual blood does not, as a rule, coagulate, and will therefore not be "dammed up" above the plug. The incubator situation Dr. Moss describes in such gloomy terms in fact does not arise, and while I have seen some of my patients discontinue the use of this method because they disliked the presence of a foreign body in the vagina, I have never seen a case, nor heard

of one, in which this method has been the cause of any inflammatory or bacteriological trouble. And if any further proof of the harmlessness of this method be needed it might be found in the fact that it is recommended particularly by women doctors who have found it beneficial and harmless in their own experience.—I am, etc.,

London, W.1, Dec. 1.

EDWARD ELKAN.

SIR,—Mr. E. Lawton Moss (*Journal*, November 26, p. 1113) designates the insertion of tampons by the woman during the catamenia as a "new menstrual toilet." Actually it has been in use in America for the past few years (see *J. Amer. med. Ass.*, March 12, 1938).

Apart from the bacteriological considerations mentioned by Mr. Lawton Moss, with the possible resultant ascending sepsis, sterility, etc., these tampons act as a mechanical foreign body in the vagina. To insert into the vagina during periods of recurrent increased epithelial proliferation a pack composed of cotton, wadding, or gauze, which swells up and loses its pristine smoothness, is to increase the susceptibility of the vaginal mucosa to the results of mechanical irritation.

I have found in the few cases I have advised that in the majority of the women some blood escapes past the tampon, requiring the added protection of a small vulvar pad within the labia. There are also obvious difficulties in connexion with various classes and types—for example, virgins, multiparae with some degree of prolapse and/or gaping vulva, etc. The method, in its present form, cannot be advocated as a routine.—I am, etc.,

London, S.W.1, Dec. 4.

MICHAEL COHEN.

Social Pathology

SIR,—I thank Dr. Hilda Weber (November 26, p. 1115) for that word! . . . "The absence of action against environmental factors which frustrate the basic needs of a community will lead to the decline of individual and therefore of national health" admirably expresses a fundamental truth. It is far-reaching in its meaning. Her palliative for London, though helpful, might be disappointing because it does not go very deep. People who are herded into masses shrink into themselves in self-defence and need altogether more space for leading their own lives. Repression ultimately leads to explosion, while real life remains. I am only writing this, however, to ask that this correspondence should be continued. We are all afraid of these subjects because they easily encroach on politics, but a detached medical or scientific outlook is badly wanted.—I am, etc.,

Leitchworth, Nov. 26.

NORMAN MACFADYEN.

The Services

Surgeon Commander R. C. May, M.C., has been appointed Assistant to the Medical Director-General of the Royal Navy at the Admiralty.

DEATHS IN THE SERVICES

Lieutenant-Colonel STANLEY EVERARD LEWIS, R.A.M.C. (ret.), died at Shears Green, Gravesend, on November 23, aged 61. He was born on October 8, 1877, and was educated at Glasgow University, where he graduated B.M., Ch.B. in 1902. He entered the R.A.M.C. as lieutenant on August 31, 1903, became lieutenant-colonel on June 1, 1926, and retired on August 31, 1932. After retirement he was employed at Gravesend. He served through the war of 1914-18, and was mentioned in dispatches in the *London Gazette* of October 19, 1914, and January 1, 1916. He was awarded the Legion of Honour (fifth class).

Medico-Legal

A CONFLICT OF DUTIES

CRIMINAL ABORTION AND MEDICAL SECRECY

The question whether a doctor who learns in the course of a professional relationship that a crime has been committed should inform the authorities in breach of his obligation of secrecy is no new one. It arises most often in the case where a woman, dying of septicaemia as the result of a criminal abortion, tells the doctor the name of the abortionist. Most medical men are familiar by now with the classical dictum of Mr. Justice Avory in 1914. Charging the grand jury on a bill against an abortionist, he said:

"I cannot doubt that it is the duty of the medical man to communicate with the police, or with the authorities, in order that steps may be taken for the purpose of assisting in the administration of justice. No one would wish to see disturbed the confidential relation which exists, and which must exist, between the medical man and his patient in order that the medical man may properly discharge his duty towards his patient; but there are cases, of which it appears to me that this was one, where the desire to preserve that confidence must be subordinated to the duty which is cast upon every good citizen to assist in the investigation of a serious crime. . . . It may be the moral duty of the medical man, even in cases where the patient is not dying, or not unlikely to recover, to communicate with the authorities when he sees good reason to believe that a criminal offence has been committed."

In reply to this opinion the Royal College of Physicians of London passed a series of resolutions laying down that a medical practitioner is not justified in disclosing confidential information without the patient's consent; that if he is convinced that a criminal abortion has been practised he should urge the patient to make a statement if to do so would not prejudice her recovery; that if she refuses he is not legally obliged to take any further action; and that if she should die he should refuse to give a certificate and should communicate with the police.

If a patient with religious belief is sincerely convinced that she is about to die, and makes in that belief a statement to any person, that statement may be received in evidence at a trial for her homicide. It need not even be reduced into writing at the time. Needless to say, a practitioner who hears a dying declaration ought to take it down in writing, and if possible have the patient sign it or make her mark. It should if possible be in her actual words, and if questions are put, the questions and answers should both be given. If there is time, the doctor should summon a magistrate, who can take her evidence on oath. If reasonable notice can be given to the accused person to enable him or his legal adviser to be present and cross-examine, her deposition will be admissible if she dies, even though the rules covering the admissibility of a dying declaration have not been satisfied.

A Recent Case

This controversy was revived recently in the Paddington coroner's court.¹ Mr. Ingleby Oddie was inquiring into the death of an unmarried woman who had died of septicaemia after an operation. Dr. Arnold Harbourn, who is a divisional police surgeon but was attending the woman privately, said she told him that she had had an illegal operation, and he sent her to hospital. She was dangerously ill and was probably going to die, though an operation might have saved her life. He consulted his solicitors and his defence society on whether he should report to the police what she had said, and his solicitors and the society advised him that it was not his duty to do so. The coroner said that he did not blame Dr. Harbourn for his action. He pointed out, however, that if the doctor had taken steps to warn the authorities that the

¹ *Times*, November 8, 1938.

woman had had a felony committed on her and was dangerously ill, a dying statement might have been taken from her in the presence of a magistrate. He recalled Mr. Justice Avory's charge to the grand jury and added that, although the doctor had a moral obligation to preserve the confidence of his patient, in certain circumstances that confidence should be overridden. The position, he said, was by no means satisfactory and ought to be considered by the authorities. He feared that, until something was done, the secrecy which always surrounded these cases would be maintained and many criminal abortionists would go scot-free, as he had no doubt they often did now.

The Doctor's Duty

The views of the British Medical Association have often been expressed, and are quite clearly stated in the *Medical Practitioner's Handbook* (p. 110). They are that the suggestion that a doctor should volunteer information in such circumstances should be strenuously resisted, in the belief that nothing should be done to prevent anyone who is ill from consulting a doctor in the fullest confidence that his secret, even if it be that he has been concerned in the commission of a crime, will not be reported to the authorities.

The question was discussed by the Medico-Legal Society in June, 1927.² There Lord Riddell stated that the views of the British Medical Association and the Royal College of Physicians did not meet with universal medical approval, and expressed the opinion that, considering the prevalence of abortion, the leaders of the profession were undertaking a serious responsibility in advising practitioners in such emphatic terms to disregard illegal acts of a most pernicious character. While everyone recognized the necessity and importance of respect for medical confidences, doctors must also recognize that the rules regarding these existed for the welfare of the community and "not for the aggrandisement or convenience of a particular class." These words probably represent a fairly large body of legal opinion. Sir William Willcox considered that if the doctor fails to persuade the patient to make a clean breast of what has happened, then perhaps it is his duty to inform the authorities after taking legal advice.

There is no prospect of any solution to the dispute, and it is hardly to be imagined that an *ad hoc* Bill will be introduced into Parliament.

A STRANGE CAUSE OF DEATH

A householder and his wife were much annoyed by her brother, a youth of 21, who persisted in coming to the house and causing trouble, in spite of warnings. On one occasion the husband fetched a rook rifle and prodded the youth with it to frighten him. The youth tripped over a flower-border and fell against the man. The rifle went off and the bullet lodged in his neck. He was taken to hospital and put on the operating table. The surgeon had located the bullet and was about to remove it when his revolving stool slipped and he fell on the floor. He changed his gown and gloves and returned after about six minutes. The bullet had now altered its position, and he was trying to find it again when the patient's breathing suddenly became shallow and stopped. At the trial of the husband at Denbigh Assizes last month³ the surgeon said he would not care to express an opinion on the cause of death. Dr. G. Roche Lynch said that if the surgeon had not fallen the bullet would have been taken out much earlier and the patient would have been on the way to recovery; in his opinion the death was due to chloroform poisoning.

Mr. Justice Hilbery, in addressing the jury, said that no degree of provocation excused the killing of a man. A person could use such force as was necessary to bring about ejection

and no more, but a lethal weapon was an excessive thing to employ against an unarmed man. Death by chloroform poisoning was a risk attendant upon any operation. The jury would have to ask themselves whether death ensued through an operation advised by medical men, and if their answer was in the affirmative they could not convict of manslaughter. In order to convict of unlawful wounding they must be completely satisfied that the injury had been done unlawfully. They acquitted the accused on both charges.

A DEATH FROM PENTOTHAL

At a recent inquest held by Mr. A. D. Cowburn, the Camberwell coroner, an anaesthetist gave evidence that he had administered pentothal intravenously to the deceased woman at a second operation undertaken a week after labour. It was very quick-acting and gave the minimum amount of shock. A pathologist said that he had found nothing wrong with the operation, and that a proper dosage of the drug had been given. In his opinion death had been caused by the effects of the drug, toxæmia, and the effects of the operation. The coroner, recording a verdict of death by misadventure, said that there had been no neglect, no mishap, and no accident. He did not altogether approve of the drug, but that was a matter for discussion, and for weighing all its advantages and disadvantages.

¹ *Daily Telegraph*, November 12, 1938.

Universities and Colleges

UNIVERSITY OF OXFORD

At a Congregation held on November 29 a gift of £200 a year for two years from Mrs. Hugh Watts in augmentation of the stipend of the assistant director of the Institute of Experimental Psychology was accepted.

UNIVERSITY OF CAMBRIDGE

The Vice-Chancellor has appointed Sir Edward Mellanby, K.C.B., F.R.S., M.D., of Emmanuel College, Secretary of the Medical Research Council, to be Rede Lecturer for the year 1939. The place and subject of the lecture will be announced later.

UNIVERSITY OF LONDON

Dr. H. Letheby Tidy has been elected Dean of St. Thomas's Hospital Medical School in place of the late Professor Leonard S. Dudgeon.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates for the degrees of M.B., B.Ch. have satisfied the examiners in the examination indicated:

PATHOLOGY AND BACTERIOLOGY.—Mary E. Budding, T. C. H. Davies, T. Griffiths, D. I. Harries, A. B. J. Hill, O. Howell, R. T. Jenkins, G. A. Jones, J. E. Lloyd, Mary E. Lloyd, S. Love, T. Walker.

OBSTETRICS AND GYNAECOLOGY.—C. Davies, W. H. Harris, J. C. Herapath, H. R. Hudd, Margaret Morgan, C. Thomas, W. Williams.

The following candidates have satisfied the examiners:

PHARMACOLOGY.—Doreen M. E. Cranch, Enid Curran, Joan B. Davies, D. F. V. Johnston, Gwenllian M. Lewis, *W. C. D. Lovett, I. Mazin, J. B. Randall, Nest G. Richards, J. H. Stranger, E. R. Treasure, *Glenys J. Wade, G. A. Wright.

* With distinction.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At the annual meeting of the College, held on December 1, Dr. Alexander Goodall was re-elected President, and the following were elected to form the Council for the ensuing year: Dr. Edwin Bramwell, Dr. John D. Comrie, Dr. Charles McNeil, Dr. A. Fergus Hewat, Dr. D. M. Lyon, and Dr. A. Graham Ritchie. Dr. Comrie was nominated Vice-President.

At an extraordinary meeting held immediately afterwards the honorary fellowship of the College was conferred on Sir Charles Bickerton Blackburn, O.B.E., M.D., Sydney, first President of the Royal Australasian College of Physicians.

² *British Medical Journal*, 1927, 2, 17.

³ *Daily Telegraph*, November 2, 1938.

Obituary

WILLIAM McDOUGALL, M.B., F.R.S.

Professor of Psychology, Duke University, North Carolina

In the death of William McDougall there passes from our sight a very notable—in some ways a unique—figure.

He was born in 1871, and after studying at Owens College, Manchester, proceeded to St. John's College, Cambridge, where he graduated in medicine. He studied also at St. Thomas's Hospital and Göttingen University. As a young graduate he took part in the anthropological expedition to New Guinea and Borneo in company with



Rivers and Myers. In 1902 he was appointed Reader in Psychology at University College, London, and from there he proceeded to Oxford as Wilde Reader in Mental Philosophy. During the war he served in the R.A.M.C., and when Littlemore was opened as a hospital for functional cases he became senior clinical officer and gathered round him a group of younger men, some, like Hadfield, his old students. He returned to his academic duties for about a year, when he left and was appointed

professor of psychology at Harvard University—the chair once occupied by William James. In 1927 he left Harvard to occupy the chair that he held at his death at Duke University. His academic career was thus somewhat anomalous. It reflects more credit on the man than on the academic groups involved. At Oxford he gave his full time and unstinted energy to his academic work though the salary was negligible, the status that of a Reader, and the position (as it continues to be) subject to an archaic maldescription. After the Armistice he returned to his Readership. He said to a friend, "I have done my best to serve my country during the war. I have returned, to have my laboratory taken from me." It is impossible to believe that Oxford seriously wished to retain his services.

In 1927 he left Harvard to go to a new and incomplete university. The change no doubt cost him a good deal. But his difficulties at Harvard were of a somewhat different nature from those at Oxford. There he had expressed his crusading impulses in uncompromising attacks on materialists, behaviourists, and others who suffered from that "uncriticized ability" which is characteristic of lesser breeds. And so he found himself at the age of 56 founding a new department of psychology in a new university and far removed from the academic traditions in which he had begun his career. There, in the last eleven years of his life, he succeeded in establishing a faculty that has already given proof of considerable vitality.

McDougall's most prolific literary phase was during his Harvard years. Before that he had written *An Introduction to Social Psychology* (1908), *Body and Mind*, *Pagan Tribes of Borneo*, and *The Group Mind*. The first of these is probably the work that has commanded the widest attention. It is safe to predict that this volume

will continue to be studied when much of the more fashionable psychology of to-day has been forgotten. At Harvard he wrote *National Welfare and National Decay*. That volume contained truths that society on both sides of the Atlantic still needs to assimilate. There followed *An Outline of Psychology*, *Ethics and Some Modern Problems*, *The Indestructible Union*, *An Outline of Abnormal Psychology*, and *Character and the Conduct of Life*. In the *Outline of Abnormal Psychology* McDougall attempted the thankless task of presenting and evaluating the various schools of modern psychology. In *Ethics and Some Modern Problems* he returned to his favourite problem of race deterioration and dealt with it more faithfully than acceptably. (The volume consisted of lectures given to American audiences.) The last phase—that at Duke University—saw the publication of *Janus*, *the Conquest of War*, *Modern Materialism and Emergent Evolution*, *World Chaos*, *The Energies of Men*, *Religion and the Sciences of Life*, *The Frontiers of Psychology*, and—finally, last month—*The Riddle of Life*. None of these was a major work. In some ways perhaps the most notable is *Religion and the Sciences of Life*, in which McDougall expresses a religious conviction to which he had been driven by his persistent study of purpose in human behaviour. Possibly the change of attitude represented in that volume emanated also in some measure from a more intimate source: the book was written after his son Alan had been killed in an R.A.F. display; and McDougall was a remarkable family-man. Those who had the privilege of knowing him in the family circle cannot dissociate his psychology and sociology from his enviable background of domestic happiness.

If McDougall was a crusader he was by no means narrow (as is the manner of most crusaders) in his objects of interest and of condemnation. His enthusiasm for eugenics and his denunciation of race deterioration were but the counterpart of his Lamarckian zeal. That zeal expressed itself in the amazingly persevering rat experiments. These well-known experiments were intended to show that an acquired aptitude could be transmitted. Pavlov, too, made similar experiments. After accepting his results as positive he subsequently repudiated them. But McDougall was indignant that the great Russian scientist contented himself with a mere matter of four generations, whereas McDougall was already at the twenty-fifth. These experiments, it is believed, are still in progress, and it is to be hoped that they will be carried on till a conclusion one way or another is beyond evil. In these, as in all his experiments, McDougall was pre-eminently practical and honest.

Over his well-known theory of the instincts he fought many battles, notably with his former ally, A. F. Shand. But it was the behaviourists who drew his most ruthless denunciation in this field, and it was certainly a source of satisfaction to him in his later years to observe the pendulum beginning to swing back from the extreme position it had reached in American psychological thought. Freud and his school were obviously marked out for McDougall's criticism. While he was ready to accept much of what is central in the tenets of that school, he was impatient of a great deal that he regarded as unwarranted assumption. In particular he came to grips with Freud over "the group mind." Of Jung he was, as one might expect, much more tolerant, seeing that they both stood for purposive psychology. It was characteristic of McDougall that when he was over 50 he submitted himself to analysis by Jung. He could not have done so if he had been what some of his critics are prone to assert—arrogant and inflexible. In a lecture at University

College he told the dream which had caused Jung to terminate the analysis, and in the telling he revealed a simplicity and sincerity which few men of his standing could have emulated.

In recent years McDougall gave a good deal of attention to psychic research. He took part in some inconclusive experiments with mediums; his completely impartial summing-up of evidence, pro and con, was very impressive. This same interest caused him to initiate the well-known telepathic experiments at Duke University which are still being carried on by Dr. Rhine.

McDougall was said by some to be dogmatic, but his dogmatism belonged to his manner rather than to his thought. He was a deductive rather than an inductive thinker; fearless when he felt conviction; uncompromising when he detected the illogical or the unscientific; utterly disinterested when he felt impelled to attack the popular or fashionable view; a keen observer of his fellow-men in their most primitive as in their most sophisticated environments; a very loyal friend and a very true gentleman.

H. C.-M.

[The photograph reproduced is by Elliott and Fry, Ltd.]

HAROLD PRITCHARD, M.D., F.R.C.P.

Emeritus Physician, West London Hospital

Dr. Harold Pritchard, whose death we announced with regret last week, was born in 1876 at Chester, where his family lived, and began the study of medicine at Liverpool and went on to St. Bartholomew's Hospital. He took the Conjoint diplomas in 1901 and graduated M.B., B.S.Lond. with honours in medicine in 1904, proceeding to the M.D. in 1906 and taking the M.R.C.P. soon afterwards. He was elected F.R.C.P. in 1926. His first appointment was that of house-physician at Addenbrooke's Hospital, Cambridge, which he held for several years. On returning

to London he was appointed junior demonstrator of pathology and casualty physician at Bart's, and edited the *St. Bartholomew's Hospital Journal* for a year or two; about this time he was appointed assistant physician to the West London Hospital and to the Miller General Hospital at Greenwich. In the first weeks of the war Pritchard gave up all civilian work to join the staff of the Duchess of Westminster's Hospital at Le Touquet (No. 1 Red Cross), and received a com-



mission as major R.A.M.C., working there with many Bart's friends until 1917, when he left France to become president of invaliding medical boards for the Royal Air Force in England with the rank of wing commander. After the war he took up again the threads of consulting and hospital practice at the West London and the Miller Hospitals, and was elected consulting physician to the Blackheath and Charlton Hospital, and physician to the King George Hospital at Ilford. His career in civil life, already broken by four years of war, was interrupted by attacks of severe illness, and he underwent several operations, but eventually got back to full working capacity. Throughout these hard trials he maintained the courage and good humour which were part of his nature.

Dr. Pritchard joined the British Medical Association in 1910, and was honorary secretary of the Section of Medicine at the Annual Meeting in Birmingham in 1911 and representative of the Marylebone Division at the Aberdeen Meeting, which broke up on the eve of war. In later years he held office as president of the West London Medico-Chirurgical Society and of the West Kent Medico-Chirurgical Society. He was a very capable all-round physician who habitually carried out most of his own pathological and bacteriological work in private practice. Very loyal to all the institutions he served, and on friendly terms with everybody, he was diligent in attending committee meetings, where his common sense and sound judgment were valued by lay and medical colleagues. He took much interest in Freemasonry, and was a Past Master of the Rahere and Cavendish Lodges. Harold Pritchard had many devoted friends within and without the medical profession; they have lost a charming and sympathetic companion with a keen sense of fun. He is survived by his wife, whom he first met at Le Touquet when she was working there as a V.A.D., and by a daughter and a son. His happiest days were spent with his family at home or on holiday in Devonshire.

F. W. GOODBODY, M.D., M.R.C.P.

Member of Council, British Medical Association

The death of Dr. F. W. Goodbody, which took place in London on November 30 after a long illness, is an occasion of personal sorrow to many engaged in the central and metropolitan activities of the British Medical Association. He had been a member of the central Council and its committees for the larger part of two decades. His principal work was done on the Naval and Military Committee, of which he was a member from 1920 until his death, and chairman for ten years. This is a committee which does not come prominently before the general body of members, because much of its work is necessarily of a confidential nature; but those who knew what Goodbody did there, as well as on the Journal Committee, of which he was a member for twelve years, highly valued his homely wisdom, the rugged simplicity of his speech, his Irish warmth and impulsiveness, his essential modesty, and his friendliness and eagerness to help wherever help was needed.

Francis Woodcock Goodbody was born in 1870, the eighth son of Marcus Goodbody of Clara in King's County and Black Rock in County Dublin. He was educated at Brighton College and Dublin University and studied medicine at Meath Hospital. He qualified in 1894, and took the M.D. of Trinity College, Dublin, a year later, afterwards studying medicine in London, Zurich, and Breslau, before settling down in 1897 as assistant professor of Pathological Chemistry at University College, London. He held this appointment for twenty-two years. The war came towards the end of that period, and Goodbody served as captain, R.A.M.C.(T.), and was attached to the Artists' Rifles, with which he kept contact in later years. At the end of the war he served for a time as Acting Commissioner of Medical Services, Irish Region, and then returned to University College, this time as lecturer in medical chemistry. At the College as everywhere else he was a popular figure, and did much useful work as president and treasurer of the Students' Union.

Although he was not in the practice of clinical medicine, few would have suspected that his work was in the laboratory and lecture theatre, for his interest was in medicine as a whole. While holding it essential to

employ the most advanced and delicate laboratory methods, he deprecated any tendency to rely too much upon results of tests in diagnosis and treatment instead of upon the accumulated knowledge of signs and symptoms. His own excursions into medical literature were principally concerned with the chemical investigation of gastric and intestinal disease, but he acknowledged that this should play only a subordinate part, and said that he would be sorry to give a definite diagnosis of carcinoma of the stomach as a result of gastric analysis.

Dr. Goodbody joined the British Medical Association immediately on qualification and became a member of the Marylebone Division. In 1922 he was elected chairman of his Division, and in the same year honorary secretary of the Metropolitan Counties Branch. He became president of the Branch in 1926, and the unusual compliment was paid of electing him president again after an interval of five years. His second term covered the important year when there fell upon the Branch Council the arduous task of preparing for the Association Centenary in 1932. At Annual Representative Meetings in recent years he presented the report on Service matters. No civil practitioner had a more expert knowledge of conditions in the Services, and he was always zealous to secure proper status and pay for medical officers engaged with the Forces. Soon after he became chairman of the Naval and Military Committee the Warren Fisher Committee was set up, and Goodbody had most to do with the shaping of the evidence which the Association gave. The shortage of medical officers for the Services was at that time a matter of concern, and Association subcommittees were established for each of the three Services—the R.N.M.S., the R.A.M.C., and the R.A.F.—and on each of these Goodbody served for two years. It was at his instance that certain aspects of the Indian Round Table Conference affecting medical services in India were brought to the Council and a special committee appointed. He served also on the Central Emergency, Parliamentary Elections, and other committees.

He married in 1901 Olga, the daughter of the late Dr. George Harley, F.R.S. She died two years ago. A son and a daughter survive them.

NOEL DEAN BARDSWELL, M.D., F.R.C.P.

The death of Noel Bardswell closes a chapter in the evolution of tuberculosis treatment from an activity chiefly of voluntary and private sanatoria to one administered largely by the State. After graduation at Edinburgh in 1895 he became house-physician to the Royal Infirmary, Sheffield, and grew interested in the Nordrach treatment of pulmonary tuberculosis. He persuaded the authorities to set aside six beds for this purpose, and as in these early days a prominent feature of the Nordrach regime was overfeeding, Bardswell began to investigate problems of diet. This work attracted the attention of Sir James Kingston Fowler, and Bardswell, with Dr. J. E. Chapman (now of the Ministry of Health), went to London, where they carried out in the laboratory of University College Hospital work on the metabolism of Fowler's patients.

In 1901 Bardswell went to Nordrach-on-Dee Sanatorium in Scotland as second physician, and a year or two later took over from Dr. Burton Fanning the well-known private sanatorium at Mundesley, Norfolk, in association with Dr. Chapman. When in 1906, after many delays, King Edward VII's Sanatorium was opened at Midhurst, Bardswell became its first medical superintendent; this selection was the measure of his repute at that period. He was a member of the Astor Committee which reported

in 1912 and recommended the Edinburgh dispensary plan as the foundation of anti-tuberculosis measures. He remained at Midhurst, except for war services, until 1917, and on retirement was made a Member of the Victorian Order. This ended the private phase of his career, and henceforward, until the last few years, he was an official.

The London Insurance Committee had become the metropolitan authority for the treatment of tuberculosis, and Bardswell succeeded Dr. Squires as its medical adviser. In 1921 this function was merged in the London County Council, with whom Bardswell continued to serve until his retirement in 1936. He was responsible for the supervision of all the L.C.C. patients, and his period in charge of the service saw an enormous development of facilities for the treatment of London cases, not only in the county area but in institutions as far afield as Cornwall and Suffolk. On his experience at Midhurst he compiled (with Mr. J. H. R. Thompson) a statistical examination of the results of sanatorium treatment—a model for surveys of this kind—and concluded that something further was necessary than the treatment then in vogue. These adumbrations preceded collapse therapy, and Bardswell's later interest in boarding-out contact cases, the Spero workshops for tuberculous men, and other social measures against the disease, which he had first encountered in Edinburgh under Sir Robert Philip. On leaving County Hall, Bardswell undertook for the National Association for the Prevention of Tuberculosis a two-year survey of tuberculosis in Cyprus. Alarmist reports about its incidence were found to have been exaggerated, but he tested samples of the population with tuberculin, established the epidemiology in two interesting monographs, and his recommendations have been accepted by the Colonial Office. He had hoped to make further surveys of other British Dependencies in this way.

Bardswell solved the problem of mental transition from the private consultant to the public official by never undergoing it. He remained an oddly informal character, who looked and dressed like a rustic squire, and frequently wrote his letters in pencil. His nomadic instinct never died. He enjoyed his visits to Cyprus, and seemed equally at home with great officials of State, Greek physicians, Turkish healers, and village muktars. His skilful subtlety made possible the intricate social inquiries into a disease which is hidden and feared. His wife, who with four children survives him, has achieved a reputation in archaeology.

THE LATE SIR HENRY GRAY

Dr. Thomas Fraser, C.B.E., D.S.O., D.L., writes:

I was much distressed to learn from two sources in Montreal that I had perpetrated an error of fact in the obituary of Sir H. M. W. Gray written by me and published in your issue of October 15. Therein I stated that the name of Professor Archibald of Montreal appeared on the piece of plate presented to Sir Henry by surgeons who served under him in France. I can only account for this by a lapse of memory, as I last saw the plate some sixteen years ago, but I wrote what I did believing it to be true. Sir Henry was consulting surgeon to the Third Army for several years; and had I recalled that the Canadian Corps served mainly in the First Army (which I knew of as I was in that Army in charge of a casualty clearing station for six months) the implication that Mr. Archibald served under Sir Henry would not have been suggested. The time limit which is imposed on the contributor of such a notice (which is expected to appear in the next issue of the *Journal*) demands haste and dependence on memory, particularly when the death of the subject of the notice occurs in the second half of the week. In this instance

my memory has let me down. I unreservedly withdraw the statement and offer my apology to Professor Archibald for the distress it may have caused him. In the event my phrasing following the above statement was unfortunate, as it bore the possible implication that I was at least hinting at disloyalty on the part of Professor Archibald to an old chief. Such disloyalty never entered my mind. I was for over thirty-three years a member of the teaching staff of a Medical School of some antiquity, where, on several occasions during my time, a junior was preferred for a professorial post, and I cannot recall a charge of disloyalty ever being imputed under such circumstances or the bona fides of the selectors being doubted. I regret, however, that it seemed possible to draw the implication above mentioned from the words I used. Never by word or in letter to me did Sir Henry resent the appointment of Mr. Archibald to the professorship in McGill University.

Brigadier-General F. E. Burnham writes from Haley Springs, Arrow Lakes, British Columbia:

The death of Sir Henry Gray marks the passing of another of the long line of war veterans who have gone to their reward. Those who have passed on may be spared the knowledge of the futility of their sacrifices during that great struggle. On the Western Front I had no opportunity to meet Sir Henry, but was in close touch with many who had served with him. All spoke of him with admiration and affection. Sometimes one may judge a man better by what his friends say of him than from a short acquaintance. I realized that Sir Henry Gray was a great surgeon and cultured gentleman. More than that no one can say. I have always advocated that the door of Canada be kept ajar for distinguished members of the profession who might come from abroad. Any country which will now take a hundred scientists, physicians, artists, and musicians from among the refugees of Central Europe will be immensely enriched thereby. When Sir Henry Gray came to Canada I felt that it was a great advance for medical education.

THE LATE SIR ROBERT JOHNSTONE

At the meeting of the Senate of Queen's University of Belfast, on November 23, a resolution of sympathy with Lady Johnstone in the death of her husband, Sir R. J. Johnstone, was proposed by Professor W. W. D. Thomson and passed in silence. "As a rule," he said, "doctors are bad citizens inasmuch as they stand as a body aloof from civic affairs and national politics. The medical profession, however, has in every country provided men of affairs who have risen high in the council of the nation, but with scarcely any exceptions such men have found the practice of medicine incompatible with their political and public duties. Sir Robert Johnstone was an exception to this rule, and maintained the closest relations with his profession as a consulting gynaecologist, as professor of gynaecology in this University, as surgeon to the Royal Victoria Hospital and the Royal Maternity Hospital, whilst giving much of his time to the Parliament of Northern Ireland and its commissions, to the medico-political activities of the British Medical Association, to the work of the General Medical Council as our representative, to the chairmanship of the Board of Management of his old school, the Royal Academical Institution, and to the work of the Senate and its committees. Sir Robert Johnstone worked not for money, not for fame, not for award or the applause of men, but for the joy of the working. The last year of his life saw the recognition of his achievements, and honours were showered upon him—the presidency of the British Medical Association, a knighthood, the honorary fellowship of the Ulster Medical Society, and the honorary degree of Doctor of Laws awarded by this Senate, but, alas! never conferred. The mothers of Ulster loved Sir Robert for his gentle and wide humanity and for his skill in their hour of need; his students admired the deft and decisive hands which

operated so quickly and with so little shock; his colleagues were attracted by his brilliant intellect, his broad outlook and his freedom from bias, his sound judgment, his wise counsel, his sense of humour, and his wide interests. To those privileged to attend him during the last few months the unruffled calm and the dauntless courage of the man as he faced the inevitable will never be forgotten. To few men did the years of retirement present so pleasant a prospect. He was still at the zenith of his powers, congenial work was waiting for him, a beloved companion at his side, ever ready to help his leisure, to indulge his love of literature, and to ride his numerous bobbies. And yet no word of self-pity escaped his lips as he saw the 'Delectable Mountains vanish in the Mist.' . . .

"A. J. C." sends the following tribute to the memory of NEALE LEO LOCHRANE, M.D.: A year ago died a colleague and friend whose loss was too keenly felt to let it pass unnoticed by the profession he loved. Educated at Stonyhurst, Edinburgh University (where he was a boxer of some repute) and Rome, he qualified in 1912, served as H.P., H.S., and gynaecological H.S. at the Glasgow Infirmary, and took his M.D. in 1914. In August, 1914, he was attached as M.O. to the 3rd Royal Scots, and in June, 1915, he was posted to the 12th Hants Regiment on his request to be sent over-seas. Service followed in France and Salonika, where he was mentioned in dispatches for "distinguished conduct in the field." He was finally invalided home in 1918 seriously ill with malignant malaria and phlebotomus fever. After a prolonged convalescence Lochrane passed the primary examination of the F.R.C.S. and ultimately settled down in practice in Stroud, Gloucester. There he acquired a great reputation for his immense industry, keenness, and unsparing devotion to his patients. Especially was he beloved by the poor for his charitable work among them, but this was a secret he zealously guarded during his life-time. His surgical ability was recognized by his appointment as surgeon to the Stroud General Hospital, an honour which gave him great personal satisfaction. His strength sapped by the work he loved, and by his unsparing giving of himself, he developed a pulmonary neoplasm early in 1937. A very severe operation and six months of pain brought the inevitable end, but not before he gave an example of how such an ordeal should be passed through. This last trial was lightened by the most devoted nursing of his wife. Of few of us can it be said that we have hurt no one by action or word; that we have not merited rebuke or caused resentment. Leo Lochrane was such a man—unknown to the world at large, but loved by all who understood him and worshipped by those he served.

Dr. WILLIAM VALENTINE of Earlestown, Lancashire, died recently at the age of 78. He was educated at Wigan Grammar School, proceeding to Glasgow University for his medical training, and qualified in 1885 as L.R.C.P., L.R.C.S., and L.M.Ed. Dr. Valentine started professional work in Earlestown fifty-three years ago and built up a large practice by his devotion to duty, winning the esteem and affection of his patients, as shown by the crowded church at his funeral service. He held many public appointments and was the prime mover in raising a fund to build a cottage hospital in his district, and lived to see it greatly enlarged in the form of the Earlestown War Memorial Hospital. During the great war he was medical officer at the Lady Gerrard's War Hospital at Garswood Park. Dr. Valentine joined the British Medical Association fifty years ago, was an original member of the St. Helens Division, and had been chairman and a member of the Executive Committee. He was a widower and leaves a grown-up family to mourn his loss.—A. A. W. M.

We regret to record the death on November 25, at Hereford, of Dr. GEORGE AUGUSTUS TULLIS at the age of 76. Dr. Tullis was educated at the University of Edinburgh, where he graduated M.B., C.M. in 1884. He

proceeded M.D. (with honours) in 1887, and for his thesis discussed Mediterranean-gastric remittent fever. For a time he was a member of the General Council of his university. For some years Dr. Tullis was in practice at Southsea, and then, in 1906, settled in Winchester, where he became honorary physician to the Royal Hants County Hospital and medical officer to the Winchester Dispensary and to Clayesmore School. He had been a member of the Society for the Study of Diseases in Children, the old Clinical Society of London, and the Section of Disease in Children of the Royal Society of Medicine, and had acted as medical referee to several insurance companies. In 1903 he read a paper on infantile scurvy before members in the South-East Hampshire district of the Southern Branch of the British Medical Association, a report of which was published in the *British Medical Journal*. Dr. Tullis was appointed consulting physician to the Royal Hants County Hospital when he retired in 1933, and went to live at Hereford. He had been a member of the British Medical Association for fifty-four years, joining in 1885, the year after he qualified.

The death has occurred of Dr. GEORGE WILLS BLOMFIELD of Pontefract, who had practised in that town for fifty years and had been a member of the Wakefield Division of the British Medical Association for the same length of time. He was taken ill in Aberdeen while visiting a daughter and died there on November 28. A native of Hastings, Dr. Blomfield studied medicine at the London Hospital and qualified as M.R.C.S., L.R.C.P., and L.S.A.; he took the M.D. degree of Durham University in 1903. Soon after qualifying he became medical officer at Pontefract Infirmary and then started practice in the town with his brother, the late Dr. E. E. Blomfield. For the last thirty years Dr. G. W. Blomfield had been medical officer in charge of the Military Hospital at Pontefract Barracks. He was made an honorary associate of the Order of the Hospital of St. John of Jerusalem in recognition of long service as an examiner for the St. John Ambulance Association, and he had been chairman of the local Motor Ambulance Committee. He leaves two sons, both of them members of the medical profession, and three daughters.

The following well-known foreign medical men have recently died: Geh. Rat Professor RICHARD GREEFF, for many years director of the Eye Clinic at the Charité, Berlin, aged 77; Dr. JACOB HAVERSCHMIDT, formerly professor of children's diseases and director of the Wilhelmina Children's Hospital at Utrecht; Dr. ANDRÉ RICHE, a Paris alienist, aged 69; Dr. FREDERIK VOGELIUS, an eminent Copenhagen physician, aged 72; and Dr. CARLOS COMETTO, a prominent paediatrist of La Plata, aged 60.

Medical Notes in Parliament

The House of Commons this week discussed the Government's proposals for a voluntary national register and also the report on the Official Secrets Act in relation to members of Parliament.

The second reading discussion on the Cancer Bill is proposed for December 12. Dr. Elliot promised to discuss it with the Conservative Health and Housing Committee on December 7. He also arranged to confer on the same Bill that day with representatives of municipalities.

The text of the Workmen's Compensation Acts (1925 to 1934) Amendment Bill, introduced by Miss Ward and issued on December 6, contains proposals for compensation for miners' nystagmus.

There was laid on the table of the House of Commons on December 6 the Registration of Stillbirths Regulations (Scotland), 1938.

Medical Services in Air Raids

Sir FRANCIS FREMANTLE, on November 30, moved that medical services were a cardinal factor in the national preparation in case of air raids, and that a detailed and complete scheme should be planned without delay under responsible co-operation between the British Medical Association, other representatives of the medical profession and of the hospitals, and the Government Departments concerned. He said a scheme should be devised covering, first, the personnel of the medical and auxiliary services; secondly, the institutions and their equipments; thirdly, method of communication between different parts of the medical services and the civilian defence service; and, fourthly, the ambulance service for the transport of the wounded. In June of this year a special branch of the Ministry of Health was created to deal with emergency medical services, and Dr. Hebb, Director-General of Medical Services at the Ministry of Pensions, was transferred to it. This ought to have a considerable increase of staff, and much required to be done. At the request of the Committee of Imperial Defence the British Medical Association started a register of members of the profession in May, 1937. That register must be revised every year, and the Government had undertaken the cost of its revision. The result of the questionnaire issued by the Association showed that 95 per cent. of the profession were prepared to give their services in one way or another. It was agreed that Government Departments and hospitals should be staffed in case of an air raid only through and according to this register. Nevertheless irregular applications still continue to be made from some Departments.

One difficulty which arose when the crisis came was uncertainty on the actual position and equipment of, and the demands that would be made on, first-aid posts. In London, according to the Home Office, first-aid posts were not to have any medical officers. Patients would be sent on to the general hospitals, which had been cleared of ordinary patients so that they might be used as clearing stations. If there were no medical officers at the first-aid posts the casualty clearing stations would be blocked with minor cases. In an air raid, beside wounded members of the civil population there would be cases of nervous breakdown, hysteria, mania, and mental disorder with which it would be difficult to deal. Some of the primary cases would need morphine, which non-medical people could not be allowed to administer. Sir Francis was sure that the supply of medical men would suffice for first-aid posts in London, but the question was whether it would suffice elsewhere. The Home Office said the first-aid posts had nothing to do with the Ministry of Health, although that Ministry had charge of hospitals and medical personnel. Why should first-aid posts be under the Home Office when ambulances, stretcher squads, casualty clearing stations, and hospitals were all under the Ministry of Health? To these problems had been added that of evacuation.

Co-operation was needed between the two Departments and the medical profession. The position was so serious that the British Medical Association, the Royal College of Physicians, and the Royal College of Surgeons sent a joint deputation to the Minister for Co-ordination of Defence on November 8. A full statement put before the Minister by Sir Kaye Le Fleming showed that the British Medical Association had established a central emergency committee representative of every branch of medical practice for the supply of medical services. They still required co-ordination of the actual demand, and the Minister promised that this would receive consideration.

The medical officer of health was commonly forgotten when considering medical services, especially in the countryside. He was responsible for the services in schools and in county hospitals and for the whole Poor Law system. These would be much affected by air raids. The medical officer for one county recently had to close a village school because of a virulent outbreak of diphtheria, yet he was informed that one hundred children were to be evacuated from that village. According to the air raid handbook the medical officer of

health was the controlling official of first-aid parties, first-aid posts, and ambulances, in addition to his ordinary work. What was his status in regard to voluntary hospitals and to municipal and auxiliary hospitals? What was the position in connexion with the St. John Ambulance Brigade and the Red Cross Societies? The Committee on Evacuation, presided over by Sir John Anderson, in its report made in July devoted only two lines to health services. Nurses, dispensers, laboratory workers, clerks, stretcher-bearers, and messengers would all have to be brought in with proper organization, and if during an air raid telegraph wires and telephones were broken down special communication must be organized for the medical services.

THE POSITION OF HOSPITALS

Sir HENRY MORRIS-JONES seconded the motion. He asked if the first-aid posts in London were to be in trenches in the parks or in annexes to the big hospitals, or where they ought to be—in concrete underground shelters. In London, he understood, fifteen voluntary hospitals and nineteen municipal hospitals had been earmarked for casualty clearing stations. A large number of voluntary hospitals, including some big teaching hospitals, tuberculosis hospitals, children's hospitals, and maternity hospitals, were to carry on as usual. He hoped that hospitals in London of whatever kind, unless clearly outside the radius of possible bombardment, would evacuate all the sick to their homes or to hospitals in the country. The boards of management of hospitals were seriously concerned about their position. Were preparations being made to have underground operating theatres in the clearing hospitals? The question of finance required attention. Many orders given by hospitals in the last crisis were without legal sanction, and King Edward's Hospital Fund for London had made a distribution of £100,000 in advance of this year's grant. Were the hospitals and the country adequately equipped for an emergency in drugs, dressings, blankets, etc.? Thousands more stretchers were required, and these should be of a uniform pattern. Motor-ambulance drivers should be trained to drive with gas masks on and lights dimmed. More use should be made of water transport on the Thames and the canals. The staffs of hospitals should know whether they would be wanted in hospitals, in the territorial service, or in their own civilian occupation. There should be a mobilized force of doctors for transfer to any centre which had suffered intensive bombardment. Were medical students to be kept in London or sent to the country to become fully qualified?

Dr. EDITH SUMMERSKILL said that in the last crisis she found many cases of hardship among patients who were evacuated from casualty clearing hospitals and sent to their homes. Hospitals should be built in the country immediately or buildings should be earmarked for patients. The Home Office or the Ministry of Health had made the fantastic suggestion that tents should be used as casualty hospitals, but the British Red Cross in Abyssinia had pointed out that tents were a favourite target and that there would be no protection against splinters, gas, or blast. In one hospital in London with 2,000 beds 400 people were expected to be brought in every hour when the crisis came. That hospital found great difficulty in obtaining instruments, cotton-wool, dressings, and morphine. They wanted half a ton of plaster-of-Paris for treatment of fractures, but could only obtain 2 cwt. That hospital could not get splints, so the medical superintendent set the staff to work sawing boards to make them. There was also a lack of bleaching powder.

GOVERNMENT REPLY: REGIONAL ORGANIZATION

Mr. BERNAYS, replying for the Government, said Sir Francis Fremantle had inaugurated a most valuable debate. The Government had a plan for the expansion of the medical services in time of war. It was a regional organization for dealing with casualties on the basis of first making beds available in existing institutions and then expanding by means of satellite annexes. There were registers of doctors and of nurses and a scheme for filling all needs from those registers on a unified basis. The Ministry of Health was at work on further plans which would form the basis of regional discus-

sion. If war had come medical personnel would have been directed, through the Central Emergency Committee of the British Medical Association, to places where the needs were greatest. The register compiled by the British Medical Association was a file, not an order to move. It was impossible to give the order to move until the air raids began. At the outbreak of war the best place for a doctor was with his own patients, and the most obvious air-raid dressing station was a doctor's own consulting room. It was most important to avoid immobilizing doctors by concentrating them in one place before there was actual need for their services. Proper co-operation was most important, and a big step had been taken towards it by arranging that not all the Territorial Army hospitals originally designated would be mobilized at the outbreak of war. That would make hundreds of doctors and nurses available for the treatment of civilians. Sir John Anderson was giving attention to the question of the requirements which might be conflicting. With regard to nurses arrangements were made during the crisis to put hospitals in touch with the local nursing organizations, but more complete organization was necessary and a central register was being established of nurses and nurse auxiliaries who would be available in time of war. A plan was under consideration for recruitment of additional nurses and for training girls to do first-aid work.

The Government was conscious of the need for expanding the potential hospital service, and as a preliminary had surveyed existing hospital accommodation in England and Wales. A similar survey was made in Scotland. If hostilities had started there would have been 150,000 beds available for air-raid casualties, and at the end of a fortnight that number would have increased by 100,000. The Home Secretary appointed a committee of medical experts under the chairmanship of Sir Charles Wilson to consider what was required for the casualty organization in the London area. Its conclusions were embodied in a circular which was sent to every county council, county borough council, and voluntary hospital authority in the country informing them that every hospital must be ready to clear as many beds as possible on receiving warning that an emergency had arisen, and also must prepare schemes for expanding their hospital accommodation. Later the Ministry of Health made direct contact with hundreds of hospitals. The Ministry could not allot a precise part to every one of the 3,000 hospitals in the country, but it intended to work out a detailed war book or scheme of operations with which the hospitals could conform.

DOCTORS TO STAFF AIR-RAID POSTS

He appreciated the importance which was placed upon air-raid posts. The Ministry of Health had now been given responsibility for those posts and also for the ambulance services, and it was the policy of his Department that every air-raid post should be staffed by a doctor. The best man for the post was probably the man in a local practice in the area where the post was established. He was not in a position to reply to-night to the question whether air-raid posts would be in underground shelters. A circular dealing with these questions would shortly be issued to local authorities. Local authorities would continue to be responsible for preparing schemes for ambulance organization and also for first-aid posts, but the Ministry would see that these were complementary to the hospital service and that the first-aid posts were placed and designed to relieve the hospitals so far as possible.

In additional equipment the Ministry had ordered 50,000 beds and mattresses and 90,000 stretchers. They expected final deliveries in a few weeks. The London County Council had been authorized to spend £4,000 in providing ten of their large fever hospitals with surgical equipment, and the question of difficulty in getting necessary medical requisites was actively in hand in his Department. The majority of stores could be used in the future and did not involve a loss. The Ministry of Health would consider exceptional claims for loss if the voluntary hospitals would make these. He gave details of preparations made to evacuate patients from London from the general hospitals, and said they were to be removed to smaller towns approximately fifty miles distant.

HOSPITAL ACCOMMODATION

Hospital officers had been reviewing the hospital accommodation in their regions to determine where it must be increased and improved. The next step was for hospital officers to get into touch with all hospital authorities and agree what part they would be expected to play. Local discussions had been arranged, and it was hoped shortly to arrange regional conferences at which proposals could be considered with the hospital authorities and representatives of the medical profession. As soon as plans were settled equipment would be distributed and work undertaken to improve facilities. The next stage would be to consider what was required in completely new hospital accommodation. A decision had not yet been taken on the use of tents.

He agreed with Sir Francis Fremantle on the importance of medical services in civil evacuation and that a strain would be thrown on medical services in the receiving areas. The Department would seek the assistance of the medical profession in considering what emergency services must be provided. The Society of Medical Officers of Health was formulating suggestions. It would be necessary to concert plans with the British Medical Association for transferring doctors to country districts where an influx of new patients called for the strengthening of the medical organization.

Captain ELLISTON said the compilation of the register by the British Medical Association was an act of great patriotism. If great masses of the population were to be evacuated they must take their doctors with them. He hoped they would avoid the mistakes of the last war, when leading consultants, instead of becoming consultant physicians in military hospitals, did what was almost first-aid work at the front. He was sure that if the British Medical Association was responsible for the arrangements to use the services of medical men to the greatest advantage steps would be taken to protect the practices of doctors who went on active service.

The resolution proposed by Sir Francis Fremantle was then carried unanimously.

Hospital Service in Air Raids

In the House of Lords on December 1 LORD GREVILLE called attention to the hospital service of London in an emergency, and moved a resolution calling for a detailed scheme to be drawn up and issued to hospitals, giving exact instructions on what steps should be taken in case of air raids. He said that the question of air-raid precautions and the treatment of casualties had been under consideration for some two years, and the voluntary hospitals, through the Voluntary Hospitals Association, had endeavoured to get some information from the Government Departments on the subject. If there had been a little less secrecy and a little more consultation in the past few years a great deal of the rush and expense of a few weeks ago would have been avoided. The hospitals had never really had a chance of expressing an opinion on the Government's scheme, and had not yet been asked to express one. He thought that fundamentally parts of the scheme were wrong. He did not think it was right to fill the London hospitals with all the leading surgeons in the profession. London would become a front-line trench, and, therefore, totally unsuitable for collecting large numbers of casualties within its borders. He hoped that the Home Office, the Ministry of Health, and the authorities concerned with the evacuation and treatment of the wounded would really consult the hospitals a little more and give serious consideration to the question of the overcrowding of London hospitals.

VISCOUNT GAGE, replying for the Government, said it had been freely admitted that the crisis did catch the Government incompletely prepared in several directions. Having recounted what had been done and what the hospitals had been told, he added that there were matters on which the Government was in considerable difficulty. On the question of medical staff, owing to their long training, the number of qualified doctors in the country could not suddenly be expanded, even if the services of some of the advanced medical students were utilized. As opposed to the last war there were two entirely

new medical problems. First, they had not only the service needs to think about, but the additional needs of these areas in which the evacuation of London generally was to take place; and, secondly, there was the question of air-raid casualties in London itself and elsewhere. Not unnaturally there was considerable divergence of expert opinion as to the extent of the medical demands that these casualties would make, and that must really depend on events. There were only two certain principles to guide them—first, that every doctor in the country must be employed to the best possible advantage, and, secondly, that the doctors must possess a considerable element of mobility. He could not say that the plans for the proper utilization of medical staff had even now been worked out completely, but they were being worked out and, had the crisis developed, the registers already in the possession of the British Medical Association would, to a large degree, have prevented unnecessary waste of effort. The organization of mobile medical units had already begun. In the course of a few weeks all the hospitals would be visited, detailed plans would be agreed with them, and they would know exactly what their task would be. He understood, though he could not give a precise answer, that the question of the evacuation of hospital patients was being considered.

The motion was withdrawn.

Criminal Justice Bill

In the House of Commons on November 29 Sir SAMUEL HOARE moved the second reading of the Criminal Justice Bill. He said that in almost all cases imprisonment was the worst possible way of dealing with uncontrolled, objectionable, and sometimes dangerous young people. Prison, particularly for short sentences, often turned them into little heroes. It made a dangerous break in their lives and gave them no training for the future. One of the main objects of the Bill was to effect an immediate reduction in the number of young persons received into prison and to provide for the ultimate abolition of imprisonment as a method of treatment for young offenders convicted for such offences as were dealt with by courts of summary jurisdiction. It was proposed to raise the age to 16, below which no child could be sent to prison after conviction; that in future no young person between 16 and 17 could be sentenced to imprisonment without a certificate from the court that the young person was of a depraved and unruly character; and that no summary court should send to prison anyone between 17 and 21 unless a careful investigation had been made into the individual case.

REMAND CENTRES

They proposed a series of new institutions for dealing with the young. For the young before conviction there would be two kinds of remand homes. The first would be for children under 14, to deal with the problem cases, the abnormal cases, which needed careful medical investigation and often mental treatment. There would also be remand centres for young persons between 17 and 23, where, again, there would be opportunities for the investigation of problem cases at older ages, and also the kind of mental investigation, in certain cases, as in the remand homes for the younger children.

MENTAL TREATMENT FOR OFFENDERS

The Bill also contained provisions for making it easier to provide medical examination and mental treatment for the old offender. Where the old could not afford to pay there was a provision under which funds could be provided by the State, though where the offender could afford to pay the sum would be recovered from him. It was proposed to transfer the Criminal Lunatic Asylum of Broadmoor from the direct control of the Home Office to that of the Board of Control. This change was not being made because there was any fault to find with the administration of Broadmoor, but because they felt that, with the growing development of this branch of medical science, it was better to bring all the mental institutions under a single control. The power of release, as was inevitable, would remain in the hands of the Home Secretary.

They were abolishing the anomalous description "criminal lunatic." He had never thought that there was any justifica-

tion for a description of that kind, for the essence of crime was that a man or woman must know what he or she was doing, and, in the nature of things, a lunatic could not be responsible for his actions. Accordingly, in future, Broadmoor would be called the State Mental Institution, and the inmates State mental patients. They had accumulated a considerable body of evidence on this side of penal treatment. They had had in progress in recent years a very scientific investigation into a number of cases of young offenders in Wormwood Scrubs. He hoped to be able to publish the report in the immediate future, but the conclusion which it reached was that here again it was dangerous to generalize and to regard mental treatment as a panacea against all sorts of evils, but that in a number of selected cases, particularly in the cases of the young, it undoubtedly did good. They felt that the time had come to make these proposals for a definite step forward along this line of alternative treatment in dealing with offenders, and particularly young offenders.

ABOLITION OF CORPORAL PUNISHMENT

He was attempting to approach these problems from the angles of prevention and reformation. In such a scheme there was no place for the remnants of a period which looked at crime principally from the angle of retribution and deterrent punishment. He therefore proposed to sweep away the remnants of former dispensations, now little more than the stage properties of Victorian melodrama—penal servitude, hard labour, ticket of leave, and the name "criminal lunatic." The Bill contained a provision to enable them in the future to do away with the Prison Commissioners and to merge the prison administration in the general administration of the Home Office. Consistently with this attitude he was proposing the abolition of corporal punishment except for cases of mutiny and gross assault in prisons, which were very rare, a year or even two passing without a single case. He proposed the abolition of corporal punishment because it was out of date and did not deter the particular individual on whom it was inflicted from offending again or protect society from similar crimes in future. The Cadogan Committee had come unanimously to the conclusion that the time had arrived for abolition.

SUPPLY OF PSYCHIATRISTS IN THE PROVINCES

During the debate Mr. BLINSON said he was very pleased that power was taken in Clause 19 to supply mental treatment for those delinquents who required it. He was afraid that the Home Secretary's advisers, living and working in London, might not realize how difficult that clause would be to work in the provinces unless the Home Office took very strong steps and supplied plenty of initiative. There was any number of highly trained psychiatrists and specialists in London, but the whole of the provinces were an absolutely arid waste so far as they were concerned. They might get an odd psychiatrist in large towns like Manchester or Liverpool, but there was nothing like the supply of trained doctors in the provinces that there was in London. Clause 19 could not be worked unless the Home Office was prepared to take steps to supply that shortage, the reason for which was obvious. These were specialists, and specialization in practice generally depended on hospital work in the towns where the practice was. It was very difficult for a London-trained specialist to go, say, to a northern town or outside London and build up a practice, and until some steps were taken to enable London-trained doctors to do so there would not be the supply of psychiatrists required if the Bill was to work properly.

There were methods by which this difficulty could be overcome. There were a number of child guidance clinics up and down the country, some of which already had psychiatrists, generally part-time, and the psychiatrists themselves were attempting to build up a practice in the towns while they were working for the child guidance centres. A number of other child guidance clinics would have part-time specialists if they could afford them. If the Home Office was prepared to co-operate wherever possible with child guidance clinics and with progressive education authorities for the provision of

this service a great deal could be done at a not overwhelming expense. He gathered from the Bill that psychiatric training was to be provided at the State remand centres wherever there was one, and these centres, he thought, could be made the nucleus for the development of psychiatrist services on a far wider scale than the remand centres themselves. He hoped that there would be a number of these centres in the provinces, but there would not be one in every small town. They should utilize the trained doctors in these remand centres, use them as travelling psychiatrists to go from court to court, or to beat the service of any court within a given area, again co-operating with child guidance clinics and education committees, and all the time trying to establish part-time services.

After further discussion the debate was adjourned to December 1.

The debate was resumed on December 1. Sir ALFRED BEIT said that a complaint which he thought was justified was of the difficulty of access to medical opinion other than that of the prison doctor. In some cases these doctors were first-rate men. Nobody could deny, having seen the hospital at Wormwood Scrubs, that they had built a first-class establishment complete with operating theatre at that prison, but prison doctors varied in knowledge and in quality, and they sometimes gave him the impression of reluctance to consult outside doctors.

Mr. GEORGE LLOYD said that the Home Office was investigating better ways of serving food in prison, and hoped to tackle more scientifically the question of diets a little later. An independent medical opinion was rarely asked for, but it was granted in proper cases.

The Bill was read a second time and sent to a standing committee. The financial resolution in connexion with the Bill was also agreed to in committee.

Summary of Cancer Bill

Dr. ELLIOT, supported by the Secretary of State for Scotland and other Ministers, presented the Cancer Bill on November 30. The Bill's full title is "A Bill to make further provision for the treatment of cancer, to authorize the Minister of Health to lend money to the National Radium Trust, to prohibit certain advertisements relating to cancer, and for purposes connected with the matters aforesaid." The first clause states that it shall be the duty of every county and county borough in England (in Scotland of every county and large burgh), either singly or in regional groups, to secure adequate facilities for the diagnosis and treatment of persons suffering, or suspected to be suffering, from cancer, and to submit within one year from the commencement of the Act or such longer period as the Minister may allow arrangements which shall provide: (1) facilities for the diagnosis of cancer; (2) facilities for treatment either in hospitals maintained by local authorities or in voluntary hospitals; (3) for the payment in such cases as the council considers necessary of all or any travelling expenses (including the travelling expenses of a companion) reasonably incurred by persons for the purpose of availing themselves of the services provided under the arrangements; (4) for such other matters as appear incidental to or consequential on the arrangements for the treatment of cancer.

CONSULTATION WITH HOSPITALS AND DOCTORS

Before submitting its arrangements to the Minister each council shall consult, first, the Radium Commission; secondly, representatives of the governing bodies and the medical and surgical staffs of the voluntary hospitals providing services in or for the benefit of its area; and, thirdly, such local organizations of registered medical practitioners as the council considers to represent the opinions of such practitioners practising in its area. The Minister may approve with or without modifications the arrangements submitted to him by a council, and it will then be the duty of the council to carry these into effect. From time to time, or when required by the Minister, the council may make and submit to him alterations or extension of the arrangements.

A special proviso reads: "Nothing in this section shall authorize the establishment by any council of a domiciliary service by medical practitioners."

Certain sections of the Public Health Act, 1936, and the Public Health (London) Act, 1936, are made applicable to the new service, which will (*inter alia*) enable the local authority to recover the expenses of treatment in suitable cases. In Scotland such recovery will be possible under the Local Government (Scotland) Act, 1929. The Minister may require two or more councils to combine to such extent and on such terms as he may, in default of agreement between the councils concerned, direct. A joint board or joint committee discharging the functions of two or more councils shall have power to appoint such persons as it thinks fit to be additional members of the board or committee.

The memorandum attached to the Bill declares that its purpose is to establish a cancer service under which, in every part of the country, modern facilities for diagnosis and treatment of cancer will be available. At the present time, the memorandum continues, such facilities exist in some voluntary and in some municipal hospitals, but in many areas the provision is far from adequate. Semi-officially it has been explained that centres with teams of specialists and clinicians will be established for the diagnosis of patients submitted to them through the councils or practitioners or who may offer themselves for examination.

PURCHASE OF RADIUM AND CYCLOTRON APPARATUS

Clause 2 of the Bill provides for an Exchequer grant approximately equivalent to 50 per cent. of the total additional expenditure incurred by local authorities. It is explained semi-officially that in poorer localities the percentage of this grant will be considerably higher.

Clause 3 authorizes the Minister to lend up to £500,000 to the National Radium Trust for the purchase of radium and other radio-active substances and of equipment for radio-therapeutic treatment. No money is to be lent for this purpose after ten years from the commencement of the Act. It is explained semi-officially that loans will be available for purchasing deep x-ray apparatus and cyclotron apparatus, which will probably be retained centrally and lent as required. In anticipation of the passage of the Bill a contract has been made for the purchase of radium from Canada.

ADVERTISEMENT BAN

Clause 4 prohibits under penalty—in the case of first conviction a fine not exceeding £50, and in the case of subsequent conviction a heavier fine or imprisonment—the publication of any advertisement (a) containing an offer to treat any person for cancer or to prescribe any remedy therefor, or to give any advice in connexion with the treatment; or (b) referring to any article or articles of any description manufactured, produced, imported, sold, or offered for sale in terms which are calculated to lead to the use of that article or articles of that description in the treatment of cancer. A proviso is added that it should be a valid defence in any proceedings under the clause to prove that the advertisement was published only to registered medical practitioners, registered nurses, registered pharmacists and authorized sellers of poisons, persons undergoing training with a view to becoming registered in these occupations, or persons carrying on a business which includes the sale or supply of surgical appliances. It is also provided that it shall be a defence to prove that the advertisement was published only in a publication of a technical character intended for circulation mainly among persons of the classes mentioned above. It is further provided that the section shall not apply to the publication of an advertisement by a local authority or by the governing body of a voluntary hospital. The term "advertisement" in this section includes any notice, circular, label, wrapper, or other document, and any announcement made orally or by any means of producing or transmitting sounds.

The financial memorandum to the Bill states that "it is not possible at present to forecast accurately what the total additional expenditure on account of the new service will be, but

on such statistics as are available and on the assumption that existing facilities for diagnosis and treatment remain undiminished it is estimated that when this service is in full operation the additional expenditure will amount to approximately £600,000 a year for England and Wales and £100,000 for Scotland." It is proposed that the moneys to be advanced to the National Radium Trust shall be repayable to the Minister with interest by annuities spread over appropriate periods. The additional staff required by the Ministry of Health and Department of Health for Scotland by reason of the Bill will, it is estimated, cost about £2,500 a year in the earlier stages after the Bill becomes law and somewhat less in later years.

Mr. Chamberlain announced on December 1 that the second reading of the Bill and consideration of the necessary financial resolution would be taken on December 6, but this second reading was subsequently postponed to allow local authorities further time for examining the financial provisions.

Pasteurization of Milk

Professor W. W. Jameson and Professor G. S. Wilson of the London School of Hygiene addressed the Conservative Health and Housing Committee on November 30 on the scientific evidence in support of the pasteurization of milk. At the close of the meeting the chairman (Sir Francis Fremantle) was asked to report the following resolution to the Prime Minister:

That in view of the consensus of scientific opinion, this committee thinks it desirable that the councils of urban areas with a population of not less than 40,000 should be given the power to enforce pasteurization of all milk supplies.

Register of National Voluntary Service

Announcing on December 1 a decision to compile registers for national voluntary service, Sir JOHN ANDERSON said there would be registers of all volunteers enrolled for the various reserve, auxiliary, and civil defence services, registers of those earmarked as reserves for the different services, and a register of the unallocated reserves. Arrangements were being made for the compilation of separate registers of persons possessing exceptional professional or technical qualifications; many scientific and technical institutions had already taken steps to compile such registers, and these would be available. These registers, with the records already available of men included in a special list of vital occupations, would constitute the National Voluntary Register. If this country became involved in war a complete national register would be necessary, and to ensure completeness it would have to be compiled under compulsory powers. Such a register would not only be of great value in connexion with a scheme of food rationing, but would enable the whole of the national resources both of manpower and woman-power to be marshalled and conserved for a conflict which might be prolonged.

Employment of Medical Refugees

Mr. GARRO JONES, on December 1, asked Dr. Elliot to consider the establishment, in co-operation with local authorities, voluntary organizations, or otherwise, of hospitals and clinics to be staffed by medical and other refugees and placed in areas where specialist and general facilities for treatment of disease are inadequate. Dr. ELLIOT replied that responsibility for health matters was by statute entrusted to local authorities, who had power to provide institutional accommodation. The employment of personnel was at the discretion of the local authorities, and he did not think it would be possible for him to take steps as suggested.

Medical Students' Instruction in Obstetrics

Sir JOSEPH LEECH asked on December 1 whether, to reduce maternal mortality, the Ministry of Health was taking steps to require that a higher standard of gynaecological tuition be given to medical students "so that inexperienced midwifery need no longer be permitted by the licensing authorities." Dr. ELLIOT said that the Interim Report of the Departmental Committee

on Maternal Mortality had been transmitted officially to the General Medical Council with special reference to the education of medical students in obstetrics. Since that correspondence the resolutions of the Council in regard to professional education which related to instruction in midwifery, etc., had been revised on November 24, 1932, and on May 29, 1936, with effect from November 1, 1938. The standard both for medical students and for midwives was being steadily raised.

Health Services in Northern Rhodesia.—Mr. MALCOLM MACDONALD announced on November 23 that additional provision for health services would be made in the 1939 Estimates of Northern Rhodesia. A disease survey of the territory was being undertaken, and campaigns initiated against syphilis, yaws, and skin affections. Proposals put forward by Sir Alan Pim and Mr. Milligan for extension of the Northern Rhodesia health services were receiving consideration.

Dental Benefit.—Asked by Mr. DAVID ADAMS on November 24 to take steps to graft on to the health insurance system a scheme of statutory dental benefit under which such treatment would be as freely available as medical benefit. Dr. ELLIOT replied that provision of dental benefit as a statutory benefit available to all insured persons would require an increase in the weekly rates of contribution at present paid by insured persons and their employers. The proposal could only be considered, when the time was opportune, in relation to demands for other major extensions of the national health insurance and contributory pensions schemes. In the meantime dental benefit must remain an additional benefit available only to the members of those approved societies which devoted part of their surplus funds to its provision.

"Iron Lungs."—Sir ROBERT YOUNG asked on December 1 whether the Minister of Health was in a position to increase the number of "iron lungs" in this country. Dr. ELLIOT, in reply, mentioned the offer of Lord Nuffield to supply these appliances gratuitously to all hospitals in the country which required them. He expressed his appreciation of this generous action. Sir FRANCIS FREMANTLE pointed out that a cheaper apparatus for the same purpose was constructed from rubber and other materials.

Tuberculosis in Wales.—The report of the Committee which investigated the problem of tuberculosis in Wales has been received, and will be published as a Parliamentary paper.

Medical News

A meeting of the Harveian Society of London will be held at 26, Portland Place, W.C., to-day (Friday, December 9), at 8.30 p.m., when Sir Alfred Webb-Johnson will deliver his presidential address on "The History of Surgery in London."

Dr. Leonard Colebrook will give a Chadwick Public Lecture on "The Control of Puerperal Fever" on Tuesday, December 13, at 5.30 p.m., at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., with Dame Louise Mellroy in the chair.

The Benjamin Ward Richardson Lecture on "The Hygienic Treatment and Disposal of Offal and By-products in Abattoirs" will be delivered by Mr. John Austin at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., on Tuesday, December 13, at 5.30 p.m.

The annual dinner of the Medico-Legal Society will be held at the Connaught Rooms, Great Queen Street, Kingsway, W.C., on Friday, December 16, at 7.15 p.m., with the president, the Hon. Mr. Justice Humphreys, in the chair.

A meeting of the Illuminating Engineering Society will be held at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W., on Tuesday, December 13, at 7 p.m., when Mr. W. D. Wright, D.Sc., will read a paper on "The Response of the Eye to Light in Relation to the Measurement of Subjective Brightness and Contrast."

In our advertisement columns this week the Southern Rhodesian Government Service invites applications for a pathologist for appointment as Director of a Public Health Laboratory in Southern Rhodesia. The salary is £1,000 per annum, rising by annual increments of £50 to £1,250. Applications are also invited by the Board of Control for a Commissioner on the Board's Staff at a salary of £850 per annum, rising to £1,180.

A meeting of the Pharmaceutical Society of Great Britain will be held at 17, Bloomsbury Square, W.C., on Tuesday, December 13, at 8.30 p.m., when Mr. W. G. Templeman will deliver a lecture on "Plant Growth Hormones and their Uses."

A sessional meeting of the Royal Sanitary Institute will be held at Leicester Town Hall on Friday, December 16, at 5 p.m., when discussions will take place on "The Progress of Cremation," to be opened by Dr. E. K. Macdonald, and on "Ministry of Health Model Series IV, Building By-laws (1937): the Problem of Revision of Existing By-laws," to be opened by Mr. Harold Webster.

The annual general meeting of the Jewish Health Organization of Great Britain will be held at 19, Rampart Street, E., on Sunday, December 11, at 3 p.m., when Dr. J. Alison Glover will give an address.

The Lausanne Medical Graduates' Association held a luncheon and meeting on November 24 at the Langham Hotel, London, the president for 1934-8, Dr. D. A. Imrie, being in the chair. There were three toasts: The King; the University of Lausanne and the L.M.G. Association; and Our Guests and Visitors. Dr. F. W. Crossley-Holland replied on behalf of the guests. Dr. H. W. Abbott was elected president for 1938-42, and Dr. C. T. Gasking president-elect for 1942-6. Laudatory remarks and many expressions of gratitude for help given by the hon. secretary, Dr. C. A. H. Franklyn, were made by Drs. Abbott, Bellamy, Gasking, and Imrie. The hon. secretary then presented his report and financial statement, and Dr. Robert Fleming was appointed a vice-president.

The House of the British Medical Association, including the Library, will be closed for the Christmas holiday from 5 p.m. on Friday, December 23, to 9 a.m. on Wednesday, December 28 (Library 10 a.m.). Owing to the holiday the *Journal* for December 24 will go to press on Tuesday, December 20, and all editorial communications and advertisements intended for that issue should reach the Editor and Advertisement Manager respectively by the first post on Monday, December 19, at the latest. Material for the issue of December 31 should reach the Editor or Advertisement Manager by the first post on Friday, December 23.

Sir Milsom Rees is again offering two £100 scholarships at Port Regis Preparatory School to the sons of medical men. Candidates must be under 9 years of age when the examination is held during the first week in March, 1939. Applications should be addressed to the Headmaster, Port Regis, Broadstairs.

From December 17 the address of the Health and Cleanliness Council will be Aldwych House, Aldwych, W.C.2.

Mr. Howard Stevenson, surgeon to the Royal Victoria Hospital, Belfast, was returned unopposed on December 5 as Unionist M.P. for Queen's University in the by-election caused by the death of Sir Robert Johnstone, former President of the British Medical Association.

The Lord Chancellor has added the name of Mr. Gerald S. Hughes, M.B., B.S.Lond., F.R.C.S., to the Commission of the Peace for the City of York.

The Water Examination Department of the Metropolitan Water Board has been transferred to the Board's new laboratories at 177, Rosebery Avenue, E.C.1 (telephone: Terminus 3300), to which address all communications should be sent.

Dr. Patricia H. S. Shaw and Dr. J. E. Outhwaite (Middle Temple) and Dr. T. L. Hughes (Gray's Inn) were called to the Bar on November 17.

Professor Émile Sergent of Paris has been made Commander of the Order of Leopold of Belgium.

EPIDEMIOLOGICAL NOTES

Acute Poliomyelitis

The incidence of poliomyelitis in England and Wales continues to fall, though a slight increase was recorded in London. The chief counties affected were London 7 (Deptford 2; Battersea, Bethnal Green, Camberwell, Greenwich, and Hammersmith 1 each); Glamorgan 6 (Cardiff 4, Swansea 1, Pontardawe 1); Essex 4 (Chelmsford rural 2, Braintree and Bocking 1, Harwich 1); Lancaster 4 (Liverpool 3, Southport 1); Derby 3 (Long Eaton, Ashbourne, and Bakewell 1 each); Southampton 3 (Southampton, Eastleigh, and Hartley Wintney 1 each). There were three cases in Edinburgh.

Enteric Fever

In England and Wales notifications of enteric fever fell from 31 to 21 and in London from 11 to 9, but in Eire an increase from 5 to 10 was recorded. The chief centres affected were London 9 (Shoreditch 5, Hampstead 2, Chelsea and Islington 1 each); Middlesex 3 (Wembley 2, Ruislip-Northwood 1); Anglesey 2 (in Aethwy). Of the 9 typhoid fever cases in Eire 4 were in Tralee, 2 in Waterford, and 1 each in Castletown (Cork), Dublin, and Sligo. One case of paratyphoid fever was notified in Dublin. The Shoreditch outbreak began on November 8, and 1 patient has died. At the time of going to press 2 further cases have been notified in the Borough of Shoreditch, making a total of confirmed cases of 25 in the borough and 5 outside the borough but probably connected with the borough cases.

Survey of Diphtheria in 1938

The provisional data on diphtheria in 1938 furnished to the Health Section of the Secretariat of the League of Nations indicate that diphtheria is on the increase in the U.S.A. and in Europe, with the exception of the Scandinavian countries and in Eastern and South-East Europe. In the U.S.A. and in England and Wales the expected seasonal increase is earlier in its appearance than in 1937. In the former country 19,307 cases were reported in 1938 up to October 8, compared with 16,554 during the corresponding period in 1937, while in the latter comparative figures are 54,490 in 1938 and 48,926 in 1937. In Germany 130,600 cases were reported up to November 8, compared with 123,389 in 1937. In France 14,145 cases were notified during the first nine months of 1938, as compared with 13,322 during the similar period of 1937. Increases were also reported in Belgium, Czecho-Slovakia, Holland, and Italy. The decline of diphtheria in 1938 compared with 1937 amounted to 50 per cent. in Sweden, 34 per cent. in Denmark and Finland, 20 to 23 per cent. in Hungary, Yugoslavia, and Bulgaria, and 14 per cent. in Poland.

Typhus in Morocco

The epidemic of typhus in Morocco which started in October, 1937, to which reference has been made at intervals in these notes, has not yet abated despite the measures taken to control the disease. It is difficult to obtain exact figures of incidence, but unofficial estimates put the number at 30,000 cases with 4,500 deaths among natives. Official figures are available for Marrakesh and district; the latest report puts the number as 4,215 cases with 474 deaths among natives and 174 cases with 50 deaths among European residents. Extensive use was made of the Blanc vaccine in prophylaxis: immunity was conferred on some 85 per cent. of persons inoculated, while in the remainder the majority had the disease in a mild form. Those who had an unmitigated attack did not establish foci of infection in communities which had been partially immunized. Areas in which Blanc vaccination had been carried out in 1925 remained free from the disease. Although no fatalities were recorded, the vaccine

produces severe reactions, especially in Europeans. Weigl preparation was used for vaccination of a few private European residents, but no conclusive evidence is available of the degree of immunity conferred.

Quarterly Returns of Births and Deaths

ENGLAND AND WALES

Births.—In the third quarter (ended September 30) of 1938, 158,228 live-births were registered, or 362 less than the number recorded in the corresponding quarter of 1937, corresponding to an annual rate of 15.3 per 1,000 of the estimated mid-year population of 1937. Though the number registered is less than that for 1937 it is higher by over 5,000 than the average figure for the third quarters of the preceding five years. Of the total births 6,471 (4.09 per cent.) were illegitimate, 132 in excess of the figure for 1937: 6,033 stillbirths were recorded (3.7 per cent. of the total births registered), 33 more than in the third quarter of 1937.

Deaths.—Deaths at 102,602 were 16,575 less than in the preceding quarter but 2,301 more than in the corresponding period of 1937. Infant mortality was 41 per 1,000 registered live births: this rate was 6 per 1,000 below the average of the ten preceding third quarters. The highest death rates from influenza, 0.13, were recorded in Blackpool, Dudley (Lincoln), and Stretford, and in Stockton-on-Tees 0.12. A death rate of 0.79 from diphtheria was recorded at South Shields, where the disease was epidemic during 1937. References to the prevalence and severity of diphtheria in South Shields and the measures undertaken to combat it have been referred to previously in these notes. Other high deaths from diphtheria were recorded in Chester 0.36, St. Helens 0.30, Barking 0.26, Stanley (Durham) 0.23, and Barnsley 0.22. Death rates from measles were 0.07 in Blackburn, Kingston-upon-Hull, Stoke-on-Trent, and Swindon, and 0.06 in Barrow-in-Furness and Stockton-on-Tees. Higher rates were recorded for whooping-cough: 0.18 in Tynemouth, 0.12 in Bath, and 0.09 in Kingston-upon-Hull. The highest death rates for diarrhoea and enteritis among children under 2 years of age were in Mitcham 34.5, Portsmouth 24.5, Heston and Isleworth 23.9, Brentford and Chiswick 21.7, and Oxford 20.1. The natural increase of population was 55,626, compared with increases of 55,432, 55,661, and 58,289 in the corresponding quarters of 1935, 1936, and 1937 respectively.

SCOTLAND

Births.—At 21,417 births were 2,582 fewer than in the preceding quarter, the rate 17.0 per 1,000 population being 2.3 below that recorded for that quarter and 0.2 below the average of the preceding five years. Of the total births 6.3 per cent. were illegitimate, 0.1 below that for the immediately preceding quarter and 0.3 below the last five years' average for the third quarter of the year.

Deaths.—Deaths numbered 13,804 (11.0 per 1,000 population), or 1,800 fewer than in the previous quarter, while the rate is 1.6 less. The rate is, however, 0.2 above the average for this quarter of the last five years. Deaths of children under 1 year numbered 1,232, equivalent to an infant mortality rate of 5.8 per 1,000 registered live births: the rate is 7 less than in the previous quarter and 2 less than the five-year average for this quarter. The rates for legitimate and illegitimate children were 56 and 81 per 1,000 respectively. The principal epidemic diseases contributed 307, or 2.2 per cent. of all the deaths registered during the quarter: of these, 78 were from diphtheria, 59 from influenza, 58 from whooping-cough, 24 from cerebrospinal fever, and 18 each from scarlet fever and measles. The death rate from this group of diseases is 8 less than the five-year average for this quarter: from measles 3 less, from scarlet fever and whooping-cough 2 less, from diphtheria 1 less, from cerebrospinal fever the same, and from influenza 1 more.

In the United Kingdom and Eire 200,875 births and 128,823 deaths were registered during the quarter, showing an increase of population, owing to excess of births over deaths, of 72,052.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended November 26, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns (9 in 1937) in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 19 | 6 | 11 | 2 | — | 22 | 5 | 5 | 2 | — | | |
| Deaths | | 1 | 1 | | | | 2 | — | | | | |
| Diphtheria | 1,535 | 181 | 272 | 54 | 30 | 1,830 | 234 | 259 | 66 | 52 | 1,461 | 234 |
| Deaths | 31 | 4 | 6 | 5 | — | 53 | 6 | 6 | 3 | — | | |
| Dysentery | 73 | 7 | 31 | — | — | 351 | 91 | 25 | 4 | — | | |
| Deaths | | | | | | | | | | | | |
| Encephalitis lethargica, acute | 3 | — | — | — | — | 4 | — | — | — | — | | |
| Deaths | | 2 | | | | | 3 | | | | | |
| Enteric (typhoid and paratyphoid) fever | 21 | 9 | 1 | 10 | 1 | 151 | 8 | 7 | 26 | 1 | 33 | |
| Deaths | 1 | — | — | — | — | 8 | 1 | — | — | 1 | | |
| Erysipelas | | | 79 | 4 | 4 | | | 108 | 10 | 3 | | |
| Deaths | | 2 | | | | | — | | | | | |
| Infective enteritis or diarrhoea under 2 years | 37 | 11 | 8 | 6 | 1 | 46 | 9 | 14 | 6 | 4 | | |
| Deaths | | | | | | | | | | | | |
| Measles | | 21 | 14 | | | | | 337 | | | | |
| Deaths | 3 | — | — | — | — | 18 | — | 3 | 1 | 3 | | |
| Ophthalmia neonatorum | 87 | 10 | 38 | | — | 86 | 8 | 22 | | 1 | | |
| Deaths | | | | | | | | | | | | |
| Pneumonia, influenzal† | 659 | 71 | 7 | 1 | 13 | 950 | 96 | 22 | — | 3 | 1,025 | 96 |
| Deaths (from influenza) | 28 | 4 | 5 | 1 | 5 | 52 | 10 | 12 | — | 2 | | |
| Pneumonia, primary | | | 365 | 7 | | | | 468 | 8 | | | |
| Deaths | | 13 | 15 | 6 | | | 19 | | 11 | 12 | | |
| Polio-encephalitis, acute | 3 | 3 | | | | 3 | — | | | | | |
| Deaths | | — | | | | | — | | | | | |
| Poliomyelitis, acute | 39 | 7 | 3 | — | — | 12 | 1 | — | — | — | | |
| Deaths | | — | | | | | | | | | | |
| Puerperal fever | 5* | 5 | 19 | 2 | — | 9* | 9 | 21 | — | — | | |
| Deaths | | 1† | | | | | 1† | | | | | |
| Puerperal pyrexia | 150 | 17 | 19 | — | — | 184 | 25 | 8 | — | — | | |
| Deaths | | | | | | | | | | | | |
| Relapsing fever | 1 | — | | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Scarlet fever | 1,969 | 175 | 324 | 62 | 76 | 2,715 | 207 | 632 | 97 | 130 | 2,717 | 354 |
| Deaths | 1 | — | 2 | 1 | — | 6 | — | 1 | 1 | — | | |
| Small-pox | 3 | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | | | | | | | | | | | | |
| Whooping-cough | | 169 | 298 | — | 15 | | | 51 | — | 23 | | |
| Deaths | 7 | 1 | 5 | — | — | 21 | 7 | — | — | 4 | | |
| Deaths (0-1 year) | 291 | 59 | 68 | 26 | 18 | 376 | 70 | 105 | 34 | 18 | | |
| Infant mortality rate (per 1,000 live births) | 48 | 48 | | | | 63 | 58 | | | | | |
| Deaths (excluding stillbirths) | 4,291 | 824 | 609 | 169 | 151 | 5,404 | 1,119 | 723 | 183 | 147 | | |
| Annual death rate (per 1,000 persons living) | 10.5 | 10.5 | 12.4 | 11.4 | 13.4 | 13.3 | 14.1 | 14.8 | 12.5 | 13.0 | | |
| Live births | 5,789 | 1,145 | 809 | 321 | 201 | 5,776 | 1,118 | 830 | 277 | 183 | | |
| Annual rate per 1,000 persons living | 14.2 | 14.6 | 16.5 | 21.7 | 17.8 | 14.2 | 14.1 | 17.0 | 18.9 | 16.2 | | |
| Stillbirths | 256 | 38 | | | | 255 | 43 | | | | | |
| Rate per 1,000 total births (including stillborn) | 42 | 32 | | | | 42 | 37 | | | | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.
† Death from puerperal sepsis.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS.—All communications should be addressed to the Advertisement Manager (office hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are

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SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh), and of the Office of the Cumann Doctúirí na h-Éireann (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone 62550 Dublin.)

QUERIES AND ANSWERS

Painful Micturition

"G. P." writes: I should be obliged for information as to dietetic and medicinal treatment in a case in which there is smarting on micturition, especially at night. The patient is aged 71 and has an enlarged prostate and some nasal sepsis. The urine is loaded with uric acid and oxalates.

Case for Diagnosis

Mr. C. A. HUTCHINSON, F.R.C.S.Ed. (Bath), in reply to Dr. E. S. Hawkes (November 19, p. 1070), writes: In addition to the dental investigation suggested by "Nemo" (November 26, p. 1126), I would like to stress the need for thorough investigation of the paranasal sinuses. By this I do not mean the more or less cursory examination by anterior and posterior rhinoscopy, with possibly transillumination, so frequently considered sufficient to give the sinuses a "clean bill of health," but careful rhinoscopy by a rhinologist, and on the discovery of any suspicious signs, suction lavage of the sinuses with bacterial investigation of the sinus washings. The facts that the patient looks ill, has extreme lassitude, and that there is a definite periodicity in the pyrexial attacks suggest the strong possibility of a "latent" chronic sinusitis, which ordinary methods of investigation would fail to reveal; whereas in all probability fuller investigation along the lines suggested above would yield instructive and, I hope, definitely helpful findings.

Condensation Water from Theatre Skylight

Dr. A. A. MASSER (Penistone, near Sheffield) writes: In reply to Dr. E. S. Hemsted's inquiry (December 3, p. 1188) for a remedy against water condensation on windows, I suggest that he apply to the glass daily the "antidimming outfit" as supplied with the Special Service Respirator. This is spread uniformly with a cloth over the glass and will last a whole day, and prevent any dimming by condensation on the windows. The same antidimming substance can be obtained from any opticians.

Dr. CONSTANCE OTTLEY (Hove) also writes: I would suggest that the following contrivance would meet the case: a sheet of glass, slightly larger than the skylight, is fixed (perhaps suspended by chains) a short distance below the skylight and slanted slightly from the horizontal in such a way that any water condensed on the under side of the glass or dropping from the skylight on to its upper side can run off harmlessly and drop on the floor beyond the operating table.

LETTERS, NOTES, ETC.

Medical Register: Office Edition

The Registrar of the General Medical Council informs us that orders for the Office Edition of the *Medical Register*, 1939, published by the Council at the special price of 10s. a copy, post free, must be received, with a remittance, at the office of the Council not later than December 31, 1938. This edition differs from the ordinary edition to the extent that it does not contain reprints of the Medical and Dentists Acts and other preliminary matter, and is printed on more inexpensive paper and bound in boards. It includes, however, the same entries relating to registered medical practitioners as are included in the ordinary edition, and is therefore equally serviceable to public authorities and others who find it necessary to ascertain whether particular persons are registered medical practitioners or not. The Council also prepares monthly lists of names added to, and removed from, the *Register*, and particulars of the terms and conditions upon which copies of these lists may be made available can be obtained on application to the office of the Council, 44, Hallam Street, Portland Place, London, W.1.

A Warning

The Secretary of the Essex Public Medical Service writes: The other evening I had a visitor who introduced himself as "Dr. Wilson of Rochford"; he had no time to stay, in fact a taxi was waiting, but he would like to see me on the following day to talk over several matters. He had to go to St. George's Hospital to be present at operations on two of his patients, and as he would probably have to stay in town over the night, and had come away with little cash, he would be obliged if I would lend him a pound or two. That evening I phoned up Dr. Wilson of Rochford (who had not been out of the place) and St. George's (where he was unknown). I informed the police, and later a detective from Scotland Yard brought a number of photos, one of which I recognized as that of "Dr. Wilson"; the photo had been taken in prison. This man, it appears, is a clever and plausible rogue who has victimized many doctors and medical organizations. He is wanted on many charges in London and in provincial towns. He always poses as Dr. Somebody, is always on the way to an urgent case, and usually has a taxi waiting. He plays his part well. He is 70 years of age; jolly manner; short and thick-set; full, flabby face with reddish complexion; bald, with fringe of whitish hair above the ears.

Quick Sales

Dr. J. S. LOUGHRIDGE (Belfast) writes: It may interest your readers to know how the representatives of a certain well-known encyclopaedia are making "quick" sales. A girl calls and asks if one is willing to receive a copy of their encyclopaedia without obligation: she explains that the publishers are "giving away" a number of copies to a few carefully selected people as an advertisement. The obligation, after acceptance, amounts to £29 10s.

Calendars and Diaries

The 1939 diaries and calendars of Messrs. John Walker and Co. Ltd. (5 and 6, Warwick Lane, E.C.4) are well up to the standard of previous years, both in appearance and in usefulness. The desk diaries, with spaces for the half-hour and quarter-hour appointments, are especially suitable for the busy medical practitioner. Pocket diaries can be obtained with one page (or less) for every day of the year, according to individual requirements. The bindings leave nothing to be desired, being both attractive and serviceable. The prices range from 1s. upwards.

The Dental Manufacturing Co. Ltd. (97, Great Portland Street, W.1) have issued their diary of appointments for 1939, containing space for half-hourly appointments, as well as several pages of information of use to dental practitioners. The separate address book, clipped inside the back cover, should be much appreciated. The price of the plain edition of the appointments book is 6s. 6d. (postage 6d. extra).

Hormone Therapy

We have just received from Organon Laboratories, 77, Newman Street, London, W.1, a booklet describing the standardized biological products prepared by this firm, and entitled *Hormone Therapy*. Copies of these will be sent to practitioners on application.

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Bulletin of the Johns Hopkins Hospital

Baltimore vol. 63 September, 1938

- Prognosis in Cases of Tuberculosis of Testis, Adenoids, and Cervical Lymph Nodes. J. Bordley and J. W. Baylor.—p. 132.
 Dietary Protein and Reorganization of Serum Albumin. I. Method of Assay and Discussion of Principles; II. Comparison of Potency Value of Beef Serum, Beef Muscle, and Casein. A. A. Weech and F. Goetsch.—pp. 154 and 161.
 Intracardiac Tumour producing Signs of Valvular Heart Disease. C. W. Wainwright.—p. 157.

Deutsche Medizinische Wochenschrift

Berlin vol. 64 October 1, 1938

- Experts and Expert Opinions in Social Insurance. Martreck.—p. 1429.
 Objective Demonstration of Predilection to Disease. F. Curtius.—p. 1431.
 Past and Present Occupational Diseases in Germany. F. Koelsch.—p. 1435.
 Exact Estimation of Recovery of Injured Persons from Head Injuries. W. Schellwirth.—p. 1436.
 Is Bechterew's Disease a Vertebral "Arthritis"? W. Steffens.—p. 1438.
 Tasks of Orthopaedics. G. Hohmann.—p. 1440.
 Connection between Hiatus Rupture and Cardiac Disturbances. R. B. Wahn.—p. 1443.
 Outlook for Surgical Treatment of Undescended Testicle. Turk.—p. 1445.
 Vitamin Treatment of Radiological Injuries. K. Speckheimer.—p. 1446.
 Face Protection for Doctors. Osten-Sacken.—p. 1447.
 Employability in Industry of Persons with Reduced Working Capacity (Heart Disease, Gastric and Duodenal Ulcer, Diabetes). H. Westcott.—p. 1448.
 Experiences and Results with Ambulant Diabetes Service (concluded). G. Thiele.—p. 1450.

Undescended Testicle.—According to Turk's statistics, good results can be obtained in 88.5 per cent. of cases by the operative treatment of undescended testicle provided the patient is under 14. To be successful, hormone treatment should not be started later than the ninth or tenth year.

Edinburgh Medical Journal

Edinburgh vol. 45 October, 1938

- Haemorrhoids and their Treatment. W. J. Stuart.—p. 665.
 Oestrogenic and Androgenic Substances in Pregnancy. A. M. Hain.—p. 678.
 "Sprained Ankle." I. S. Smilie.—p. 692.
 Streptococcal Diseases. S. Thomson.—p. 695.
 Recovery and Rehabilitation. J. Cunningham.—p. 712.
 Zinc-prothamine-insulin. D. M. Dunlop.—p. 194.

Sprained Ankle.—A useful article describing in detail the method of strapping a sprained ankle.

Streptococcal Diseases.—From a study of the incidence of streptococcal diseases in Edinburgh over a period of years Thomson concludes that there is more correlation between the incidence of acute rheumatism and scarlet fever than between any two of the notifiable streptococcal diseases—namely, scarlet fever, erysipelas, and puerperal fever.

Journal of the American Medical Association

Chicago vol. 111 September 24, 1938

- Training of Gastro-enterological Internist. H. Beckus.—p. 1145.
 Pellagra and Nicotinic Acid. R. Matthews.—p. 1149.
 Pregnancy and Tuberculosis. J. Shillen and E. Bogen.—p. 1153.
 Ten-and-a-half-day Chimpanzee Embryo. "Yerkes A." J. Elder, C. Hartman, and C. Heuser.—p. 1156.
 Hypertension in Patient with Solitary Ischaemic Kidney. G. Freeman and G. Hartley.—p. 1159.
 Pelvic Injuries during Pregnancy and Labour. D. Thorp and W. Fray.—p. 1162.
 Neurological Note on Traffic Lights. H. Fabing.—p. 1166.
 "Cold Vaccines." H. Diehl, A. Baker, and D. Cowan.—p. 1168.
 Hypertension and Health Diagnosis. W. Emerson and J. Irving.—p. 1174.
 Use of Vitamin D Preparations in Prevention and Treatment of Disease. E. Park.—p. 1179.

Cold Vaccines.—In the University of Minnesota, Diehl, Baker, and Cowan inoculated large groups of students with coryza vaccines. A control group receiving sterile solutions of sodium chloride under the impression that they were coryza vaccines was observed. This group experienced an average of 25 per cent. more colds per person than that inoculated with vaccines. All students were subjected to an oto-laryngological examination. It was found that the condition of the nose and throat was not related to the frequency of colds in the cold-susceptible group. The authors do not believe that the slight reduction of colds after inoculation justifies the time and expense involved, or that vaccines reduce the complications of colds.

Klinische Wochenschrift

Berlin vol. 17 October 1, 1938

- Hypofunction of Pancreas. W. Beraer.—p. 1385.
 Endogenous Deficient Assimilation of Vitamin C causing Chylosteatorrhea. G. Gschubert.—p. 1399.
 Chemotherapy of Pneumonia and of Pneumococcal Septicaemia. B. Kenke and A. Seidler.—p. 1394.
 Experimental Investigation into Mechanism of Leucocytosis. A. G. Beer.—p. 1395.
 Elimination of Arsenic given by Mouth and by Injection. K. Riser.—p. 1397.
 Value of Glucose given by Rectum. J. H. Tormack.—p. 1400.
 Concentration of Uterin in Blood and Urine of Gonorrhoeal Patients and its Practical Importance. W. Gentler.—p. 1401.
 Haematological Changes in Acute Interventions. L. Mowin and C. Seller.—p. 1405.
 Chemical Method of Determination of Vitamin C. F. Widenhofer and H. Sam.—p. 1407.
 New Practical Blood-agar Dish. A. Seidler.—p. 1410.
 Effect of Impaired Hepatic Function from Chronic Poisoning on Disintegration of Alcohol. H. A. Oelkers.—p. 1410.

Chemotherapy.—The authors recommend intravenous injections of quinine in all cases of pneumococcal pneumonia and pneumococcal septicaemia.

Lancet

London vol. 2 October 1, 1938

- "Heart Sounds in Normal and Pathological Conditions. E. Braun-Menendez.—p. 761.
 Duration of Action of Zinc-prothamine-insulin. R. S. Aitken.—p. 765.
 Air Embolism. Three Cases. G. R. Osborn and J. C. C. Dawson.—p. 770.
 Carcinoma of Tongue: Late Results of Treatment. R. Phillips.—p. 772.
 Osteomalacia of Spine following Abuse of Laxatives. E. Meulengracht.—p. 774.
 Foot Trouble with Normal Feet. L. S. Michaelis.—p. 776.
 Undulant Fever with Severe Haemorrhage. S. H. G. Robinson.—p. 777.
 Inducing Light Hypnosis by Hyperventilation. W. Sargant and R. Fraser.—p. 778.

Heart Sounds.—In a summary of the work of various South American investigators graphic methods of recording the heart sounds are described. There are four sounds, of which the third is often audible and the fourth (auricular), although only sometimes audible, can always be recorded in man from the oesophagus. The causation of the sounds in gallop rhythm is discussed, and a phonocardiographic analysis of auriculo-ventricular heart-block is given.

Medical Journal of Australia

Sydney vol. 2 August 27, 1938

- Some Recent Advances in Therapy. A. Holmes.—p. 319.
 Simple Procedures in Treatment of Painful Feet. B. Keen-Cohen.—p. 325.
 Painful Feet. E. Price.—p. 332.
 History of Renal Physiology. F. Arden.—p. 335.
 Recovery of Heart after Myocardial Infarction. E. McQueen.—p. 341.

Medizinische Klinik

Berlin vol. 34 September 30, 1938

- *Treatment of Incontinence of Urine in Women. H. Martius.—p. 1283.
Complete or Partial Prostatectomy? W. Hoffmeister.—p. 1285.
Prostatic Hypertrophy and its Treatment. G. Brandt.—p. 1286
Indications for Transurethral Diathermo-coagulation of So-called Prostatic Hypertrophy. P. Blümel.—p. 1288.
Pre- and Post-operative Treatment in Prostatic Hypertrophy. W. Stachler.—p. 1290.
Semeiology of Affections of Urinary System. R. Schmidt.—p. 1292.
Diagnostic Value of Sternal Puncture. W. Grunke.—p. 1295.
Peculiar Mode of Syphilitic Infection. H. Raab.—p. 1298.
Advances in Urology. P. Hüsck.—p. 1299.

Incontinence of Urine in Women.—Wound healing after an operation for urinary fistula is encouraged by injections of folliculin. The injections have also proved useful in the treatment of functional incontinence of urine.

Medizinische Welt

Berlin vol. 12 September 24, 1938

- Importance of Alimentary Alcohol Curve in Physiology and Medical Jurisprudence. A. Bickel.—p. 1377.
Differential Diagnosis of Gastro-intestinal Diseases. S. Lauter.—p. 1382.
Age and the Adrenals. W. Hoilmann.—p. 1390.
Prevention and Cure of Static Flat-foot. R. Drenkhahn.—p. 1393.
Treatment of Tonsillitis with Bismuth Injections. G. Buhre.—p. 1394.

Berlin vol. 12 October 1, 1938

- Thyroid and Circulatory System. H. Löhr.—p. 1409.
Free and Encapsulated Pericardial Effusions. L. Stehr and G. Grötter.—p. 1413.
X Rays and Pelvic Measurement. H. Naendrup.—p. 1416.
Aetiology and Therapy of Drug Rashes. E. Keeser.—p. 1420.
Withholding of Liver Therapy as Grounds in Action for Negligence. H. Schulten.—p. 1422.
Therapeutic Methods of Administration and Dosage of "Eidoral." G. Gebser.—p. 1424.

Münchener Medizinische Wochenschrift

Munich vol. 85 September 30, 1938

- Indications and Prognosis of Operations for Senile Cataract. R. Braun.—p. 1497.
Habitual Abortion. M. Kneer.—p. 1501.
Treatment of Lung Embolism. L. Müller.—p. 1505.
Active Treatment of Deformities of Legs. H. Schwan.—p. 1507.
Female Gonorrhoea. C. Gauss.—p. 1508.
Haemoptysis and Mitral Stenosis. O. Scheurer.—p. 1514.
Results of Bühler's Technique in Treatment of Fractures of Spine. G. Becker.—p. 1519.

Nature

London vol. 142 September 17, 1938

- Effects of Be-D Radiations upon *Picla faba*. M. Nakaidzumi and K. Murati.—p. 534.
Isotopic Constitution of Potassium in Normal and Tumour Tissue. A. Lasnizki and A. K. Brewer.—p. 538.
Acute Group of Papain. C. V. Ganapathy and B. N. Sastri.—p. 539.
Excretion from Luminous Root Nodules. G. Bond.—p. 539.
British Association Discussions. Supplement:
Significance of Swanscombe Skull.—p. 509
Ritual.—p. 511.
Animal Locomotion.—p. 513.
Mechanism of Evolution.—p. 514.
Repercussions of Synthetic Organic Chemistry on Biology and Medicine.—p. 524

London vol. 142 September 24, 1938

- Neutrons and Origin of Life. J. Tandberg.—p. 572.
Chemical Nature of Proliferation-promoting Factors from Injured Cells. J. R. Loofbourrow, E. S. Cook, and Sister M. M. Stimson.—p. 573.
Mutation of Blood-group Genes. R. Eldon-Dew.—p. 575.
Pleistocene Site in Malay Peninsula. H. D. Collings.—p. 575.
Differentiation of Heterochromatic Regions during Meiosis. D. Kostoff.—p. 577.

New England Journal of Medicine

Boston vol. 219 September 29, 1938

- Trauma incident to Sports and Recreation. A. Thorndike.—p. 457.
Quantitative Differences in the Effects of Alcoholic Beverages. H. W. Haggard, L. A. Greenberg, and L. H. Cohen.—p. 466.
Study of Seventy-five Transfusions with Placental Blood. B. C. Grodberg and L. L. Carey.—p. 471.
Relief of Chronic Backache and Sciatica by Minor Surgical Measures. W. A. Steel.—p. 474.
Pneumococcus Pneumonia. F. I. Lord.—p. 483.

Nordisk Medicinsk Tidskrift

Stockholm vol. 16 September 24, 1938

- Neurological Manifestations in Undulant Fever. T. Dalsgaard-Nielsen.—p. 1487.
Time and Motion Study of Two Old and Two New Haemometric Methods of Examination. O. Sundberg.—p. 1493.
*Pirquet Examination of 400 Athletic Youngsters. A. Bruusgaard.—p. 1498.
Two Rare Cases of Haemolytic Anaemia. S. Bjuggren.—p. 1501.

Pirquet Examination.—The proportion of Pirquet-positive males in Oslo between the ages of 10 and 25 would seem to have diminished considerably in the period 1928 to 1936, especially among the younger males. While there has been a marked decline in the notifications of tuberculosis in childhood and adolescence, there has been a comparative rise in the incidence of this disease between the ages of 25 and 30.

Stockholm vol. 16 October 1, 1938

- Mapharside (Mapharsen); New Salvarsan Preparation. V. Genner.—p. 1527.
*New Remedy for Sea-sickness. H. Ekerfors.—p. 1531.
Problem of Sterilization within the Hospital. C. Naeslund.—p. 1535.
History of Art of Embalming. Y. Lewegren.—p. 1539.

Sea-sickness.—Clinical and pharmacological tests of β -phenyl-isopropylamine (benzedrine) have been carried out by Ekerfors in 116 cases, the clinical results being favourable in 87 per cent. A comparison of the action of this drug with that of belladonna preparations proved definitely favourable to the former.

Presse Médicale

Paris vol. 46 September 28, 1938

- *Vitamin B₁ in Treatment of Pain of Nervous Origin. F. Coste and J. Metzger.—p. 1433.
*Trial Treatment of Asthma with L-ascorbic Acid (Vitamin C). D. Hargreaves, Gh. Bazavan, M. Criscuta, and M. Cioranescu.—p. 1435.
Return to Work and Social Prospects of Sufferers from Pulmonary Tuberculosis. A. Fabre.—p. 1438.

Vitamin B₁ and Pain.—Coste and Metzger have been using injections of vitamin B₁ in the treatment of pain. They give a short account of eighteen cases of lumbago, sciatica, cervicobrachial neuralgia, scapulo-humeral periarthritis, arthritis of the hip, post-herpetic neuralgia, etc. Most cases were relieved or cured, at times far more rapidly than could be accounted for by the usual mechanism as seen, for instance, in beriberi or in alcoholic polycuritis.

Vitamin C and Asthma.—The authors give the results of their treatment of twenty cases of asthma; fifteen reacted favourably. As a rule the effect of the treatment was less marked in cases with acute attacks than in cases with prolonged successive daily attacks.

Paris vol. 46 October 1, 1938

- *Foetor Oris. G. Sanarelli.—p. 1449.
*Haemorrhagic Rectitis. P. Outy and R. Stieffel.—p. 1452.

Foetor Oris.—The author, after discussing the various views held on this subject, comes to the conclusion that true foetor oris is of local origin and is due to various forms of putrid fermentation in the buccal cavity.

Haemorrhagic Rectitis.—The authors describe two cases of this disease and stress the importance of differentiating it from haemorrhagic rectocolitis, which is a much more serious condition.

Schweizerische Medizinische Wochenschrift

Basle vol. 68 October 1, 1938

- Late Professor Otto Naegeli. Memorial, Biographical, and Scientific Notes.—p. 1109.
Endocrine Research and Gynaecology at the Present Day: Part II. O. Keller.—p. 1119.
New Physiological Explanation of Contrecoup. K. Lenzengraber.—p. 1121.

Ugeskrift for Læger

Copenhagen vol 100 September 22, 1938

- *Urethritis Simplex or "Cataract of the Urethra." W. Genner.—p. 1069.
Treatment of Infections of Urinary Tract with Calcium Amygdalate.
F. Schroder and C. Johansen.—p. 1074.
Treatment of Infections of Urinary Tract with Granulatum Catu Amygdalatis.
K. Rasmussen.—p. 1052.

Urethritis Simplex.—In the course of three months of dispensary practice Genner found among male patients fifty-seven cases of gonorrhoea and fifteen of urethritis simplex. In his private practice he observed ninety-three cases of urethritis simplex to 138 cases of gonorrhoeal urethritis in the same period. He concludes that urethritis simplex is much more common in both sexes than has hitherto been suspected.

Copenhagen vol 100 September 29, 1938

- Observations of Spine in Denmark on Hitherto Diet or in Diseases of
Digestive Tract. L. Meulendrecht.—p. 1091
State of Teeth on Island of Bornholm. H. C. Olsen.—p. 1116
*Contact Ulcer. G. Hagerup.—p. 1117.

Contact Ulcer.—Though there is little in the medical literature about contact ulcer of one or both vocal cords, Hagerup finds that it is a quite common condition.

Wiener Klinische Wochenschrift

Vienna vol 51 September 23, 1938

- Diabetes and Pregnancy. T. Ankr.—p. 1041
Gastrocardiac Symptom Complex. O. A. Zimmermann-Manninen.—p. 1046
Diagnosis of Bone Diseases due to Disturbances of Ductless Glands. A. Winkler.
Faser.—p. 1047.
Osteous Metastatic Purulent Meningitis. E. Urbanetsch.—p. 1051
"Hunger Diseases." E. Rhal.—p. 1054
Craniom of Usual Treatment of Pemphigus. A. Binzer.—p. 1057
New Reaction in Cerebrospinal Fluid for Diagnosis of Neurosyphilis.
K. Mezey.—p. 1058.

SPECIAL JOURNALS

American Journal of Public Health

New York vol 23 September, 1938

- Health Hazards in Dry Cleaning Industry: Preliminary Report of Survey of
Dry Cleaning Establishments in Detroit Metropolitan Area. W. H. Cary
and J. M. Hepler.—p. 1029.
Methods of Estimating Postnatal Populations. H. S. Shryock.—p. 1042
Handicaps in Normal Growth and Development of Rural Negro Children.
H. A. Poindexter.—p. 1048.
Critical Discussion of Some Methods and Standards for Certified Milk.
J. H. Brown.—p. 1053.
More Effective School Health Programme. J. T. Phair.—p. 1059
Cultural Methods for Detection of Typhoid Carriers. E. J. Core and
J. A. Kasper.—p. 1065.
Present Status of Vitamin Mixes. E. V. McCollum.—p. 1069.
Postgraduate Education of Physicians in Paediatrics. M. E. Weisman.—p. 1072
What Every Health Officer Should Know:
Vital Statistics. J. S. Whitney.—p. 1077.
Industrial Hygiene. L. D. Bristol.—p. 1080.
Health Education. M. P. Connolly.—p. 1083.
Public Health Nursing. N. Deutsch.—p. 1087.
Federal Facilities to expedite Emergency Sanitation Measures. R. E. Tarbett.
—p. 1091.
*Scarlet Fever Control. E. R. Krumbiegel.—p. 1096.

Scarlet Fever Control.—This investigation was undertaken to determine the protective value of the five standard injections of scarlet fever toxin among Dick-positive subjects during a period of exceptionally high incidence of the disease in Milwaukee. Over a three-year interval it was found that the incidence rate was fourteen times higher in non-immunized Dick-positive reactors than among similar subjects who had undergone the full immunizing course. A previous attack of scarlet fever gave better protection than the immunizing course or a Dick-negative reaction. The practical value of re-Dick-testing was considered negligible. A culture filtrate as free as possible from endotoxin is desirable, at least for skin-testing.

- Chylous Peritonitis without Perforation of Bile Passages. T. Burghle and
A. Bora.—p. 1059.
Aetiology of Milkman's Nodes. S. Tappeiner.—p. 1061.

Vienna vol 51 September 30, 1938

- *Toxaemias of Pregnancy. H. Siegmund.—p. 1069.
Duality of Gonadotropic Hormones of Anterior Pituitary. E. Tschetne.
—p. 1072.
Pain and Sympathetic Nervous System. A. Auerberg.—p. 1076.
Treatment of Migraine. O. Zaycek.—p. 1080.
Can Infection be presented in Fresh Wounds? W. Ehalt.—p. 1081.
Felly's Syndrome. W. Breu and H. Fleischhaeyer.—p. 1081.

Toxaemias of Pregnancy.—Siegmund divides the toxaemias of pregnancy into three groups: (1) Disturbances in the endocrine-vegetative system; symptoms include hyperemesis, pyalism, waterbrash, and atonic constipation, and occur during the first three months. (2) Disturbances occurring preponderantly in any one organ, which may be skin, liver, biliary tract, haemopoietic or central nervous system; the symptoms become apparent at any time during pregnancy. (3) Symptom-complexes which include oedema of pregnancy, albuminuria, essential hypertension, and eclampsia. They occur commonly in the latter third of pregnancy and appear to be due to the influence of the foetus. Prophylaxis is comparatively easy; pregnant women should be encouraged to eat carbohydrate and vitamin-rich food. Proteins, fats, sodium chloride, and fluids should be restricted.

Wiener Medizinische Wochenschrift

Vienna vol 53 September 24, 1938

- Raw Fruit Diet in Nutritional Disturbances of Childhood. A. V. Reuss.—
p. 1023
Application of "Thioestri Ointment and Emulsion" in Dermatological Therapy
and its Results in Treatment of Eczema, Erythematism, and
Femur. K. Rothaug and E. Hein.—p. 1026.
Investigation of Cerebrospinal Fluid in Pellagra. K. G. Fitzinger.—p. 1028
Principle of Buffer Therapy in Disturbances of Stomach. S. Gereb.—p. 1030.

American Journal of Surgery

New York vol 52 October, 1938

Eye Section

- Use of Orbicularis Palpebrarum Muscle in Surgery of Eyelids. J. M. Wheeler.
—p. 7.
Surgery of Secondary Glaucoma. A. Greenwood.—p. 10
Technique of Extraction of Intraocular Foreign Bodies. W. B. Lancaster.
—p. 14.
Technique of Scleral Fixation of Extraocular Muscles. P. C. Jameson.—p. 25.
Present Status of Tendon Transplantation of Ocular Muscles. L. C. Peter.
—p. 30
Certain Post-operative Complications of Cataract Operations, with Special
Reference to Study of 1,004 Operations. C. Betters and D. W. Bogart.
—p. 39.
Management of Complications of Intraocular Surgery. E. L. Goar.—p. 62.
Conjunctival Flap in Ophthalmic Surgery. J. Green.—p. 69
Ectropion and Entropion of Eyelids. W. W. Weeks.—p. 78.
Surgical Technique in Tenotomy of Inferior Oblique Muscle. J. W. White.—
p. 83.
Review of Some Modern Methods for Ophthalmic Plastic Surgery. E. B.
Spaeth.—p. 89.

Ear, Nose, and Throat Section

- Aural Surgery: Theoretical and Technical Advances in Recent Decades.
P. D. Kerrison.—p. 103.
Acute Encephalitis or Toxic Encephalopathy simulating Brain Abscess.
P. J. Zentay.—p. 112.
Sinus Thrombosis. L. Friesner, J. G. Druss, J. L. Goldman, and
H. Rosenwasser.—p. 116.
Diagnosis and Treatment of Otogenic Meningitis. S. J. Kopetzky.—p. 131.
Radical Mastoid Operation. J. M. Brown.—p. 142.
Education of Deaf and Hard-of-hearing Child. M. A. Goldstein.—p. 151.
On Diagnosis and Treatment of Otitis Media. L. K. Guggenheim.—p. 156.
Malignant Diseases of Paranasal Sinuses. G. B. New.—p. 170.
Dietary Treatment of Chronic Sinusitis. B. R. Shurly.—p. 174.
On Application of Zinc Sulphate Solution in Prevention of Pithomyelitis.
E. W. Schultz.—p. 178.
Applied Physiology of Nose and Accessory Nasal Sinuses. A. Proetz.—p. 190.
Pathways of Referred Pain from Nose. R. A. Fenton.—p. 194.

- External Operations on Frontal Sinus. H. I. Lillie.—p. 199.
 Deep Abscess of Neck; Surgical Treatment. J. F. Barnhill.—p. 207.
 Oral Lesions in Oto-laryngology. D. M. Lierle and R. Nomland.—p. 220.
 Use of Physical Therapy in Diseases of Ear, Nose, and Throat. J. L. Myers.—p. 232.
 Types of Laryngeal Obstruction and their Treatment. L. Richards.—p. 239.
 Treatment of Stricture of Oesophagus. C. A. Healy.—p. 260.
 Surgical Indications in Perforation of Oesophagus by Foreign Bodies. J. R. Head.—p. 266.
 Benign Tumours and Tumour-like Conditions in Tracheo-bronchial Tree. C. Jackson and C. L. Jackson.—p. 275.

American Journal of Tropical Medicine

Baltimore vol. 18 September, 1938

- *Yellow Fever Vaccination with Cultured Virus (17D) without Immune Serum. H. H. Smith, H. A. Penna, and A. Paoliello.—p. 437.
 *Beriberi or Inanition? I, Effect of Starvation with and without Vitamin B. E. B. Vedder and A. H. Chinn.—p. 469.
 *Beriberi or Inanition? II, Administration of Vitamin B₁ to Rats receiving Unbalanced Diets. E. B. Vedder.—p. 477.
 Biological Effects of Fluctuation of Water Level on Anopheline Breeding. E. H. Hinman.—p. 483.
 Threshold of Parasite Density in Relation to Clinical Activity in Primary Infections with *Plasmodium vivax*. M. F. Boyd.—p. 497.
 Vernal Vivax Activity in Persons simultaneously inoculated with *Plasmodium vivax* and *Plasmodium falciparum*. M. F. Boyd and S. F. Kitchen.—p. 505.
 Demonstrable Maturity of Gametocytes as Factor in Infection of Anophelines with *Plasmodium vivax* and *Plasmodium falciparum*. M. F. Boyd and S. F. Kitchen.—p. 515.
 Deficient Homologous Immunity following Simultaneous Inoculation with Two Strains of *Plasmodium vivax*. M. F. Boyd, W. H. Kupper, and C. B. Matthews.—p. 521.
 Effect of Small Amounts of Quinine administered on Single Day on Subsequent Course of Infections with *Plasmodium vivax* and *Plasmodium falciparum*. M. F. Boyd and S. F. Kitchen.—p. 525.
 *Mosquito Studies: On Recovery of Stain in Adults developing from Anopheline Larvae stained *in vitro*. A. A. Weatherbee and P. G. Hasell.—p. 531.
 Final Report on Use of Atebrin in Prophylaxis and Treatment of Malaria. W. N. Bispham.—p. 545.
 Identification of Avian Malaras. R. D. Manwell.—p. 565.
 Lesions of Syphilis in American Indians. G. C. Shattuck.—p. 577.
 Susceptibility and Resistance of Various Species of *Peromyscus* (American Deer Mice) to Infection with *Trypanosoma hippicum* and Possibility of Certain "Wild Mice" being Reservoir Hosts to Pathogenic Trypanosomes. A. Packehanian.—p. 587.
 Venereal Fusio-spirochaetosis. E. von Haam.—p. 595.
 *Studies on Oxyuriasis: VII, Clinical Improvement following Treatment with Single Doses of Tetrachlorethylene. W. H. Wright, J. Bozicevich, and L. S. Gordon.—p. 609.

Yellow Fever Vaccination.—Inoculation of 59,000 persons with cultured virus, strain 17D, shows that it is a safe and efficient method of large-scale immunization. Any reaction is mild, consisting of headaches, low-grade fever, and influenzal-like pains, and appears on the sixth or seventh day; no delayed reactions have been encountered. Antibodies appear in the blood between the seventh and twenty-first day after inoculation and persist for at least a year.

Beriberi and Inanition.—Rats starved to death showed degenerative nerve changes which could not be prevented by the administration of vitamin B₁. Rats fed on protein gained weight and had no degeneration of peripheral nerves; those fed on fat also had no nerve degeneration although they suffered from inanition; but those fed on carbohydrate developed degeneration of nerves in spite of vitamin B₁ daily. These facts throw doubt on the theory that the nerve degeneration of polyneuritis is due to pyruvic acid.

Mosquito Studies.—Anopheline larvae were stained in various ways; Giemsa, Wright, methylene-blue, and Congo-red stains were relatively non-toxic and could be recognized in the adult mosquitos several weeks after emergence.

Oxyuriasis.—A single dose of tetrachlorethylene produced a favourable clinical result; three weeks after treatment anal swabs were negative in 47 per cent. of treated cases.

Annales d'Hygiène Publique, Industrielle et Sociale

Paris New Series No 10 October, 1938

- *Commercial Combustion of Household Refuse in Modern Incinerators. L. Hugoueney.—p. 429.

- Organization of Campaign against Paludism in Chile (Regions of Arica-Iquique and Antofagasta). Monnier.—p. 443.
 Dryeries for Sheep Pelts. P. Bellon.—p. 446.
 Report of First International Congress of Cosmobiology (Nice, June 2-7, 1938).—p. 456.

Incineration of Refuse.—The commoner methods of disposal of household and other refuse are reviewed, to the advantage of incineration in modern, specially constructed plant. Analyses of the material content of refuse for certain French towns are given, as also the basic elements in dry refuse, the incinerated ash, and the flue gases. On the hygienic side the absence of nuisance to the public and the protection afforded to employees by automatic handling of the material are commented upon, while on the commercial side the production of electricity and utilization of the ash for manufacture of paving is shown to be a substantial set-off to overhead charges and cost of running.

Annales de Médecine

Paris vol. 44 October, 1938

- Septicaemia and Pyaemia caused by *B. funduliformis*. A. Lamierre, J. Reilly, and A. Laporte.—p. 165.
 Septicaemia caused by *B. fragilis*. M. Ternois.—p. 201.
 Septicaemia caused by *Streptobacillus moniliformis*. M. Morin.—p. 219.
 *Clinical Studies in Forty-eight Cases of Septicaemia caused by Haemolytic Streptococci. J. A. Lièvre.—p. 245.
 Some Observations on *B. coli* Bacteraemia. R. Roch.—p. 271.
 Clinical, Pathological, and Bacteriological Studies in Case of Septicaemia with Endocarditis caused by *C. diphtheriae*. P. Lenti and S. Wirz.—p. 293.

Haemolytic Streptococcal Septicaemia.—An unusual number of the cases observed were due to crysipelas or to an eruptive fever, and in only two cases did the cause remain unknown. The signs and symptoms are described and the treatment is discussed; blood transfusions gave encouraging results; treatment with sulphanilamide is not included in these observations.

Archives d'Ophthalmologie

Paris vol. 9 September, 1938

- *Ocular Complications of Spirochaetosis Icterohaemorrhagica. L. Guillaumat.—p. 785.
 Motor Affections of Lids. R. Thurel.—p. 795.
 Glioma of Retina in Tonkin according to Thirteen Confirmatory Histological Observations. P. Keller.—p. 813.

Spirochaetosis Icterohaemorrhagica.—This disease is sometimes due to bathing in fresh or soft water. A case is described in which there was iridocyclitis, choroiditis, and a secondary optic-neuritis with jaundice, fever, and nephritis. Injection of the conjunctiva appears early. The recorded cases are reviewed, the difficulties of diagnosis discussed, and rivers where infection is likely are indicated. The prognosis is favourable.

Archives of Ophthalmology

Chicago vol. 20 September, 1938

- *Intraocular Tension in Cases of Sarcoma of Choroid and Ciliary Body. J. H. Dunnington.—p. 359.
 Clinical Significance of Retinal Changes in Leukaemia. G. G. Gibson.—p. 364.
 Bilateral Congenital Ectopia Lentis with Arachnoidactyly (Marfan's Syndrome) J. Laval.—p. 371.
 Nature and Management of Heterophorias. J. T. Maxwell.—p. 375.
 Optochiasmus Arachnoiditis: Importance of Mixed Type of Atrophy of Optic Nerve as Diagnostic Sign. D. Vail.—p. 384.
 Research Studies of Eye: Some Technical and Practical Notes. A. Busacca.—p. 395.
 Advantages of Use of Emulgants in Ocular Operations, especially in Extraction of Cataract and in Plastic Operations. A. Busacca.—p. 406.
 Rotation of Check in Ophthalmology. J. F. S. Esser.—p. 410.
 Biochemistry of Lens: XII, Studies on Glutathione in Crystalline Lens. L. Rosner, C. J. Farmer, and J. Bellows.—p. 417.
 Retinitis Proliferans: Clinical and Histological Studies. B. A. Khen.—p. 427.
 Studies of Visual Fields in Cases of Verified Tumour of Brain. D. Kravitz.—p. 437.
 Retinitis Pigmentosa with "Hole" in Macula: Case Report. C. A. Peters.—p. 471.
 Hypersensitivity to Larocaine. F. H. Theodore.—p. 474.
 Binocular Vision and Orthoptic Procedure. D. J. Shadd.—p. 477.
 Simplification of O'Connor Clinch Operation. M. E. Smukler.—p. 502.
 New Model Gonioscope. J. M. McLean.—p. 502.

Sarcoma of Choroid.—Raised intraocular tension has been regarded as a valuable sign for differentiating between sarcoma of the choroid and detachment of the retina. Analysis of forty-six cases shows that in 86.9 per cent. the tension was equal to or less than that in the normal eye.

Archives of Surgery

Chicago vol. 37 October, 1938

- *Pathogenic Bacteria in Air of Operating Rooms: Their Widespread Distribution and Methods of Control. D. Hart.—p. 521.
Acute Osteomyelitis of Long Bones of Adults. I. Zidek.—p. 531.
Fibrosarcoma: Four Cases. C. D. Allen and J. W. Pardale.—p. 546.
Malignant Endometriosis of Ovary resembling Arrhenoblastoma: Report of a Case in Girl aged 19. C. R. Tuttle.—p. 554.
Myeloid Sarcoma of Urinary Bladder. F. F. Hirsch and B. M. Brown.—p. 562.
*Dead (On) Fascia Grafts in Tendon Defects: Experimental Study. E. D. Weisberg.—p. 570.
Congenital Anomalies of Genitalia associated with Unilateral Renal Agenesis, with Particular Reference to True Unicornate Uterus: Report of Cases and Review of Literature. H. B. Shumacker.—p. 586.
Concentration of Procaine in Cerebrospinal Fluid of Human Being after Subarachnoid Injection. H. Koster, A. Shapiro, and A. Leikensohn.—p. 601.
Effect of Biliary Operations on Liver: Their Relation to Concentration of Bile Acids in Bile. H. K. Gray, W. L. Butsch, and J. M. McGowan.—p. 607.
Subacromial Bursitis: Clinical, Roentgenographic, and Statistical Study. S. R. Roberts.—p. 619.
Endometriosis of Umbilicus: Vicious Menstruation following Hysterectomy. R. Boyer.—p. 642.
Vaginal Hernia: Review of Literature. W. E. B. Hall.—p. 651.
Review of Urological Surgery (to be concluded). A. I. Scholl, F. Hinman, A. V. Lichenberg, A. B. Heller, R. Gutierrez, G. J. Thompson, J. T. Priestley, E. Wilder, and V. J. O'Connor.—p. 667.

Pathogenic Bacteria in Air.—Pathogenic bacteria are universally present in the air of operating theatres. The degree of contamination is directly proportionate to the number of occupants. Staphylococci are present in the upper respiratory tract of a large proportion of the population and, in the author's opinion, wound infection by organisms of this type, as in the case of other pathogenic bacteria, arises more frequently from sedimentation from the air than from faulty handling of the skin. The importance of exclusion of staphylococcus carriers and of shielding sterile supplies from sedimentation from the air is emphasized.

Dead Fascial Grafts.—This is an experimental study showing that in animals heterogeneous grafts preserved in 70 per cent. alcohol are well tolerated and gradually replaced, a local fibroblastic reaction leading to reconstitution of the tendon defect so treated.

Beiträge zur Klinik der Tuberkulose

Berlin vol. 92 August 22, 1938 Heft 2

- Contribution to Tuberculosis of Skull. E. Wesemer.—p. 109.
Lung and Circulatory Functions with Load as Measure of Working Capacity of Sufferers from Diseases of Lung. W. Vorwerk.—p. 116.
Results of Gold Therapy in Pulmonary Tuberculosis: 168 Cases. M. Ebers.—p. 130.
Contribution to Clinical Functional Tests of Respiration and Circulation. H. W. Knipping.—p. 144.
*Morphology and Origin of Intraclavicular Tuberculous Round Infiltrations. E. Uehlinger.—p. 170.

Intraclavicular Tuberculous Round Infiltrations.—Small, round, sharply defined shadows are often seen in lung fields apparently devoid of other lesions, and a tuberculous origin has been attributed to them. Uehlinger reports in detail a case with full post-mortem (including histological) findings, and reviews the whole subject. He refers to the round infiltrations as pre-phthisical infiltrations, describes their varying histological appearances, and discusses their fate. It is rare for complete resorption to occur, but they may remain unaltered in size for many years or they may gradually enlarge, or cavitate spontaneously following a non-tuberculous inflammation in the neighbourhood. The latter event would explain the development of phthisis as a sequel to non-tuberculous pulmonary illnesses.

British Journal of Anaesthesia

Manchester vol. 16 October, 1938

- Pentothal Acid: New Basal Anaesthetic. J. S. Horsley.—p. 1.
Student Anaesthetist. P. Ayre.—p. 19.
Anaesthesia and the Law. H. G. Dodd.—p. 16.
*Pregnancy: A Contraindication to Spinal Analgesia. F. B. Mallinson.—p. 22.
Dyspnea in Anaesthetics.—p. 28.
*Anaesthesia in Cardiac Surgery. J. K. Haster.—p. 30.

Spinal Analgesia and Pregnancy.—Mallinson describes a death during operation for ruptured ectopic gestation under spinal analgesia, and discusses the physiology of pregnancy with special reference to possible danger from spinal analgesia. He concludes that the method is contraindicated in this condition.

Anaesthesia in Cardiac Surgery.—Details are given of the procedure adopted and of the results obtained at the cardiovascular clinic at Lambeth Hospital. The standard anaesthetic used is ether vapour given with oxygen by a Tiegell-Henle apparatus, after a moderate premedication with amnopen-scopamine and nembutal.

British Journal of Dermatology and Syphilis

Publication Number 1339-1938

London vol. 50 October, 1938

- Dermatomyositis and Pityriasis Atrophicans Vascularis: Clinical and Histological Comparison. G. B. Dowling and W. Freudenthal.—p. 519.
*Emulsifying Bases in Dermatology. P. B. Mumford.—p. 549.

Emulsifying Bases.—The formula which Mumford recommends consists of: Three parts of liquid paraffin; two parts of petroleum jelly (white); and two parts of a mixture of the higher fatty alcohols (hexadecyl and octadecyl alcohols) containing 10 per cent. acid esters (phosphated) of the alcohols.

British Journal of Radiology

London vol. 11 November, 1938

- Encephalography with Small Quantities of Air (Largely). M. Weinreb.—p. 705.
Position for Radiography of Fourth Ventricle. T. Garratt Hardman.—p. 726.
Pathological Findings in Two Cases of Traumatic Rupture of Kidney. A. S. Johnson.—p. 736.
Case of Carcinoma of Stomach presenting Some Unusual Relief Markings. T. D. Overend.—p. 739.
On Depth Doses from Telecobalt Units. W. V. Maynard and J. Honeyburne.—p. 741.
Dose Considerations with Radium Surface Applicators of Small Area. J. E. Roberts.—p. 755.
*Two-gramme Radium Unit. F. L. Warburton.—p. 762.

Two-gramme Radium Unit.—A description is given of a new appliance constructed largely of tungsten alloy for the use of a two-gramme radium unit. The unit is extremely flexible. Protection for the staff is provided by shutting off the beam in the unit itself when not in use.

British Journal of Surgery

Bristol vol. 25 October, 1938

- On Abdominal Injuries and their Recipients. G. Gordon-Taylor.—p. 217.
Evolution and Development of Surgical Instruments. C. J. S. Thompson.—p. 232.
Trans-sphenoidal Decompression for Pituitary Adenoma. G. Phillips.—p. 242.
Unusual Case of Progressive Streptococcal Ulceration. H. H. Langston.—p. 254.
*Investigation into Condition of Bladder Mucosa in Relation to Stone Formation. J. Gray.—p. 259.
*Saccular Aneurysms of Internal Carotid Artery in Cavernous Sinus. G. Jefferson.—p. 267.
Carcinoid Tumours of Appendix. T. Moore.—p. 303.
Two Cases of Endothelioma of Pleura. N. R. Barrett and J. St. C. Elkington.—p. 314.
Operation for Recurrent Dislocation (Subluxation) of Sternoclavicular Joint. A. S. B. Bankart.—p. 320.
*Aspiration Biopsy. I. A. B. Cathie.—p. 324.
Calcification of Bursa of Coracoclavicular Ligament. H. J. McCurnick.—p. 329.
*Nerve Supply of Gastro-oesophageal Junction. G. A. C. Mitchell.—p. 333.
*Extradural Haemorrhage. K. G. McKenzie.—p. 346.

- Spinal Epidural Suppuration, with Special Reference to Osteomyelitis of Vertebrae. F. A. R. Stammers.—p. 366.
- Recurrent Dislocation of Shoulder: Plea for Simple Operation. E. W. H. Groves.—p. 375.
- Granulomatous Ulcers resembling Tuberculous Ulcers of Stomach. M. G. Kini and M. N. Rao.—p. 379.
- Simultaneous Perforation of Multiple Peptic Ulcers. W. E. Austin.—p. 387.
- Behaviour of Blood Volume in Intestinal Obstruction and Strangulation. I. Aird.—p. 418.
- Sarcoma of Intestine in Children. A. Simpson-Smith.—p. 429.
- Case of Sarcoma in Infraspinatus Muscle. C. P. G. Wakeley.—p. 439.
- Case of Benign Teratoma of Testicle in Infant. C. P. G. Wakeley.—p. 443.
- Case of Intussusception of Normal Appendix into Caecum. G. T. Mowat.—p. 444.
- Case of Calcification in Epicondylar Bursa at Elbow. A. R. Hamilton.—p. 446.
- *Surgical Treatment of Obstructive Jaundice in Pancreatic Disease. J. Fraser.—p. 393.

Bladder Mucosa and Stone Formation.—In rats on a vitamin-A-deficient diet marked hyperplasia with active mitosis of the bladder epithelium was followed by metaplasia to the squamous type. Urinary calculi formed frequently in the bladder. Somewhat similar changes have been noted in biopsy specimens removed from the bladders of Chinese patients suffering from vesical calculus, but only one of eleven cases showed clinical signs of vitamin A deficiency.

Saccular Aneurysms of Internal Carotid.—This is a comprehensive study based upon a large number of cases. Clinically it is shown that three distinct syndromes may be recognized characteristic of the posterior, middle, and anterior cavernous regions, differing from each other in the degree of involvement of the trigeminal and oculomotor nerves. The radiographic changes of enlargement of the superior orbital fissure, parasellar calcification, and enlargement of the carotid canal are well illustrated.

Aspiration Biopsy.—An accuracy of 60 per cent. obtained by this method of examining smears of material aspirated from superficial lesions compares well with the results of surgical biopsy.

Gastro-oesophageal Junction.—Dissection shows that in man the sympathetic supply to the cardia comes, in part directly, from the lateral sympathetic chains from the sixth to the tenth segments and from the splanchnic nerves, in addition to fibres accompanying the inferior phrenic and left gastric arteries and fibres coming from the hepatic plexus. Left gastric sympathectomy, therefore, only produces a partial denervation of the human cardia. The possibilities of more extensive procedures in the treatment of cardiospasm are discussed.

Extradural Haemorrhage.—A review of twenty cases, illustrating the possible sites of clot formation, including the syndrome of extradural haemorrhage in the posterior fossa. The possibility of operation for the relief of acute cerebellar compression is discussed.

Obstructive Jaundice in Pancreatic Disease.—The results of an analysis of 1,035 cases—as reported to the Association of Surgeons. Early operation is advocated on account of the difficulty of precise diagnosis between chronic pancreatitis and malignant disease, and the advantage gained in operating before hepatic and renal function are seriously impaired.

Canadian Public Health Journal

Toronto vol. 29 September, 1938

- Contribution of Radiology to Cancer Problem. G. E. Richards.—p. 425.
- Tuberculosis Mortality and Morbidity in Counties of Lincoln and Welland, Ontario. C. G. Shaver.—p. 434.
- *Results of Immunization of Nurses against Scarlet Fever. R. A. H. Mackeen and R. Wilson.—p. 439.
- *Blood Groups in Poliomyelitis. I. H. Erb, H. S. Doyle, and F. C. Heal.—p. 441.
- Communicable Diseases, Past, Present, and Future. J. K. McLeod.—p. 443.
- Control of Communicable Disease: Federal Responsibility. J. J. Cameron.—p. 446.
- Demonstration of Types of *B. typhosus* by Means of Preparations of Type II. Vi Phase. I. Principles and Technique. J. Clarcie and Chun Hui Yen.—p. 448.

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Immunization of Nurses.—At the St. John General Hospital (New Brunswick) immunization of nurses against scarlet fever has been practised since 1924. In the preceding five-year period, of 224 nurses in training eleven contracted scarlet fever (5 per cent.). From 1925 to 1937, out of 1,132 nurses there were only five cases (0.4 per cent.). The authors conclude that toxin immunization is of definite value and is unattended by disability.

Blood Groups in Poliomyelitis.—Previous investigations on small numbers of patients suggested that there was a relationship between the blood group and resistance to poliomyelitis infection. Working with a series of 703 patients and 1,000 controls, the authors confirm the findings of Madsen, Engle, and Jensen (Denmark) that susceptibility bears no relation to the blood group of the patient.

Current Researches in Anaesthesia and Analgesia

Elmhurst, N.Y. vol. 17 September-October, 1938

- *Use of Inert Gases in Anaesthesia Atmospheres: Relationship to Problem of Post-operative Pulmonary Complications. G. E. Burford.—p. 241.
- Avertin: Appreciation and Comparison. D. A. Wood.—p. 252.
- *Studies on Pharmacological Properties of Trichlorethanol. H. Molitor and H. Robinson.—p. 258.
- *Use of Helium in Anaesthesia. U. H. Eversole.—p. 264.
- Department of Anaesthesia, Hartford Hospital: Report for 1937. R. M. Tovell.—p. 268.
- Proposed Method for Evaluating Safety of Anaesthetics. A. H. Kibler.—p. 272.
- Evipan in Dental Surgery. O. P. Clark.—p. 286.
- Some Observations on Anaesthesia Abroad. W. L. Garth.—p. 292.
- Two Unusual Complications in Patients under Cyclopropane Anaesthesia. H. R. Griffiths.—p. 298.

Inert Gases and Post-operative Pulmonary Complications.—Burford discusses the pathology of atelectasis, and reviews the recent work upon this subject. He puts forward the theory that the condition is due to lack of inert gases in the respired atmosphere—for example, nitrogen, helium, or hydrogen.

Trichlorethanol.—The action of trichlorethanol has been studied experimentally, and compared with that of tribromethanol, alone and in solution in amylene hydrate. Trichlorethanol has been shown to be slightly less toxic and to have a greater hypnotic effect than tribromethanol; apart from the fact that it occasionally causes extrasystoles, its effects are in general very similar to those of tribromethanol.

Helium in Anaesthesia.—Eversole gives an account of the history, properties, and clinical use of helium. Its value in anaesthesia depends on its low specific gravity and rapid rate of diffusion, which render it useful in the relief of various types of respiratory obstruction.

Journal of Hygiene

Cambridge vol. 38 September, 1938

- Leptospiral Infections in Rats: Presence of Specific Leptospiral Immune Bodies in Serum and their Relationship to Carrier Conditions. J. Smith.—p. 521.
- Bacterial Content of Ice-cream in Relation to Manufacture, Storage, and Standards of Purity. D. A. Bardsley.—p. 527.
- Further Observations upon Influence of Growing Family upon Diet in Rural Districts in Sussex. F. Brockington.—p. 547.
- Some Observations on Rideal-Walker Test. A. C. Thaysen.—p. 558.
- Investigation of Normal Agglutinins for Typhoid and Paratyphoid Bacilli in Human Sera in Victoria, and Interpretation of Widal Test. T. S. Gregory and N. Atkinson.—p. 566.
- Mortality of Haemolytic Streptococcus on Skin and on Other Surfaces. I. M. L. Burtenshaw.—p. 575.
- Growth of *Salmonella typhi* and Certain Other Members of the *Salmonella* Group in Milk and Butter Stored at Atmospheric Temperatures. E. J. Pullinger and A. E. Kemp.—p. 587.
- Study of English Diets by Individual Method: III, Pregnant Women at Different Economic Levels. R. A. McCance, E. M. Widdowson, and C. M. Verdon-Roe.—p. 596.
- *Experiments on Staphylococcus Food Poisoning. F. C. Minett.—p. 623.
- Adsorbent Effects of Various Dusts on Diluted "Old Tuberculin". S. L. Cummins and E. M. Williams.—p. 638.

Staphylococcal Food Poisoning.—The feeding of culture filtrates to monkeys, dogs, or cats was found unsatisfactory as a test for the presence of staphylococcus enterotoxin, but intraperitoneal injection in kittens, as recommended by Dolman,

gave consistent results. This test served to demonstrate the formation of enterotoxin by sixteen out of thirty-eight strains of *Staphylococcus aureus* obtained from cases of mastitis in cows or from normal cow's milk; some strains of *Bact. coli* from calves with enteritis also formed it, but mastitis streptococci did not. The formation of the toxin during storage was demonstrated in both milk and cream layer cake infected with *Staphylococcus aureus*. The properties of the toxin are described.

Journal of Neurology and Psychiatry

London vol. 1 October 1938

- Brown-Séquard Syndrome: Case of Unusual Aetiology. I. B. Gayler and J. W. Howie.—p. 301.
Recent Studies of Morphology of Neutrons in Health and Disease. J. G. Greenfield.—p. 309.
Case of Aphasia with Special Reference to Problems of Repetition and Word-finding. K. Goldstein and J. Marmor.—p. 329.
Thalamic Hypertrophy or Glomeration of Optic Thalamus. S. Nevin.—p. 342.
Critical Review: Technique and Application of Electro-encephalography. W. Grey Walter.—p. 359.

Morphology of Neurone.—In this paper the author describes in detail the normal nerve cell and fibre, and the effects on it of such processes as ischaemia, cerebral oedema, avitaminosis, and infection with neurotropic viruses. The axonal reaction and transneuronal degeneration are also discussed.

Case of Aphasia.—The patient, aged 56, had aphasic disturbances, characterized by a striking impairment of ability to name objects and of his capacity for reflection, following a left middle cerebral thrombosis. There was also a marked change in personality with loss of the capacity for abstract conception. The anatomical findings are described and the clinical picture is discussed in relation to these findings.

Journal of Pathology and Bacteriology

London vol. 47 September, 1938

- Production of Homogeneous Suspensions of Vaccinia Elementary Bodies and Histology of Associated Skin Lesions. C. R. Amies.—p. 205.
Structure of "Rough" and "Smooth" Colonies. K. A. Bisset.—p. 221.
Antitoxic Basis of Tumour Transplantation. P. A. Gorer.—p. 231.
Diffuse Leptomeningeal Tumour in Child, with Comments on "Sarcomatosis" of Meninges. R. A. Willis.—p. 253.
Haemophilus para-influenzae Endocarditis. A. A. Miles and J. Gray.—p. 257.
Oestrogens of Testis and of Adrenal in Relation to Treatment of Enlarged Prostate with Testosterone Propionate. C. W. Emmens and A. S. Parker.—p. 279.
Mesenteric Chyladenitis with Steatorrhea and Features of Addison's Disease. L. E. Glynn and M. L. Rosenheim.—p. 285.
Histological Types of Meningioma and Comparison of their Behaviour in Tissue Culture with that of Certain Normal Human Tissues. J. O. W. Bland and D. S. Russell.—p. 291.
Atypical Amyloidosis with Macroglobulinaemia. W. G. Barnard, F. B. Smith, and J. L. Woodhouse.—p. 311.
Reactivity of Some Diptheria Prophylactics. P. J. Moloney and M. D. Orr.—p. 315.
Suprascapular Tumour in Dog. E. G. White.—p. 323.
Polycythemia terminating in Leuco-erythroblastic Anaemia. D. M. Stone and D. Woodman.—p. 327.
Sensitivity of Rheumatic Subjects to Streptococcal Products. C. A. Green.—p. 337.
Aneurysm of Left Ventricle due to Left Coronary Artery taking Origin from Pulmonary Artery. W. G. Barnard.—p. 345.
Adrenal Topography in Guinea-pig. R. D. Wright.—p. 347.
Tube for Cultivation of Gas-forming Anaerobes. P. B. White and L. Ward.—p. 349.
Rapid Preparation of Sections Suitable for Examination with Oil-immersion Objectives. R. D. Reid.—p. 348.
Experimental Tar Tumours in Dogs. R. D. Passey.—p. 349.
Oxytic Cells in Gastric Carcinoma. R. D. Wright.—p. 352.
Simple Medium for Cultivation of Tubercle Bacillus. S. R. Jamieson.—p. 353.

Influenza Bacillus Endocarditis.—Two cases of endocarditis are recorded which were due to *Haemophilus para-influenzae*, and the characters of these and other strains are fully described. A survey of the literature of "influenza bacillus endocarditis" suggests that the condition is usually due to this organism; in no case when *H. influenzae* itself was alleged to have been found has its identity been proved by demonstrating its dependence in culture on the presence of both X and V factors.

Streptococcal Allergy in Rheumatism.—A series of skin sensitivity tests in acute and subacute rheumatism with a variety of

streptococcal products showed that the endotoxin of *Streptococcus pyogenes* is the only reagent to which these patients react more often (75 per cent. positive) than do non-rheumatic controls (24 per cent. positive). Attempted desensitization by injections of this material sometimes caused reactions resembling transient relapses of the disease.

Journal de Radiologie et d'Électrologie

Paris vol. 22 October, 1938

- Secondary Electromotor Phenomena in Nerves. A. Strohl and A. Djourné.—p. 481.
Anomalies of Vertebral Articular Processes. F. Willemin and M. Cantatiff.—p. 490.
Rapid Evolution of Cyst of Lungs with Formation of Air Layer between Cystic Membrane and Contents. Brun. J. de Beaujeu, and Bize.—p. 495.
Role of Lung and Pleura in Visualization of Aorta in Lateral View. R. Kirsch and L. Arnold.—p. 501.
Case of Oesophageal Diverticulum. Estève.—p. 505.
Simplified Technique for Local Short-wave Applications by Means of Solenoid Electrode. A. Nicolle.—p. 507.
Teaching of Physiotherapy and of Diagnostic Radiology at Montreal. A. Laquerrière.—p. 510.

Journal of Tropical Medicine and Hygiene

London vol. 41 October 1, 1938

- Achromia Flava Amycetica (Pseudomycosis Flava, Achromia Flava Tropicalis). A. Castellani.—p. 309.
Viability of Some Common Pathogenic Fungi. P. K. Fraser.—p. 310.
Climate, Diet, and Toxic Substances in their Association with Adrenal Condition. A. Clark.—p. 315.
Intestinal Obstruction and Atrophic Lesion of Appendix caused by Ascaris. S. Zahawi.—p. 316.

London vol. 41 October 15, 1938

- Classification of Certain Groups of Intestinal Bacteria belonging to Family Bacillaceae, Tribe Eubacteriae, and Tribe Enterococcaceae. A. Castellani.—p. 325.
Mycotic Urethritis: Contribution to Study of Non-gonorrhoeal Urethritis. C. Pisacane and A. Cerpolino.—p. 332.

Medical Clinics of North America

Philadelphia vol. 22 September, 1938

- Skin Manifestations in Early Syphilis. G. D. Astrachan.—p. 1243.
Late Cutaneous Manifestations of Syphilis. F. Wise and J. Wolf.—p. 1261.
Syphilitic Joint Disease. C. McEwen and E. W. Thomas.—p. 1275.
Neurosyphilis: Its Early Diagnosis and Management. S. P. Jewell.—p. 1287.
Treatment of Syphilis. A. C. Cipollaro.—p. 1295.
Physical Therapy in Dermatology, exclusive of X Rays and Radium. H. D. Niles.—p. 1311.
Cardinal Points in Diagnosis of Drug Eruptions. E. W. Abramowitz.—p. 1323.
Cutaneous Tuberculosis. S. H. Silvers.—p. 1333.
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Further Clinical Observations on Treatment of Pertussis with Gold Tribromide. J. Epstein.—p. 1495.
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Evaluation of Cardiac Status of Surgical Patient. C. A. Poindexter.—p. 1505.
Spastic Paraplegia: Their Differential Diagnosis. J. L. Joushian.—p. 1513.
Male Sex Hormone. J. Eidelstein.—p. 1537.

Mentegracht Treatment of Bleeding Peptic Ulcer.—The treatment is essentially a programme of liberal feeding immediately upon the hospitalization of a patient for haematemesis and melaena from ulcer. The diet is supplemented by the administration of iron compounds (ferrosi lactatis) and a mixture (sod. bicarb., mag. subcarb., extr. hyoscyam.) designed to exert an antacid and antispasmodic effect. Thirty cases treated in this way were compared with thirty cases treated by the Lenhartz method. In one patient haemorrhage

recurred three months after discharge, but recovery was prompt under the new treatment. No deaths were recorded, as compared with six deaths among the Lenhartz group. Of those surviving, one had a recurrence of the haemorrhage and another developed perforation and required immediate surgical intervention. In Meulengracht's own report the mortality rate from haemorrhage was reduced from 8.1 per cent. to 1.3 per cent. in a series of 368 consecutive cases.

Primary Bronchogenic Staphylococcal Pneumonia.—Primary staphylococcal pneumonia in children is more frequent than the secondary form. The incidence is increasing, and it occurs more often in very young infants. These children quickly develop empyema or pyopneumothorax. Continued aspiration or the closed drainage operation is advisable. Toxoid therapy and vaccine treatment have some prophylactic value; treatment with antitoxin may be effective in uncomplicated cases. Certain strains of staphylococci are more toxic than others; their colonies have a bright yellow colour and are haemolytic.

Office International d'Hygiène Publique: Bulletin Mensuel

Paris vol. 30 July, 1938

- Conventions, Laws, and Sanitary Regulations: I, Germany; II, Chile; III, France; IV, Great Britain; V, Greece; VI, Sweden.—p. 1387.
- Rats and their Fleas in Customs Warehouses at Kobe. T. Otomo, S. Koga, and I. Tanaka.—p. 1435
- Memorandum published by British Minister of Health on Method to be followed in Examination of Rats in Respect of Diagnosis of Plague. M. T. Morgan.—p. 1437.
- Prophylaxis of Plague in Madagascar. Passa.—p. 1440
- New Observations on Value of Agglutination "O" for Diagnosis of Cholera Vibrio J. Taylor.—p. 1442.
- On Diagnosis of Cholera Vibrio. C. Russo.—p. 1455.
- Agglutination Reactions of Sera immunized by Antigen "O" of Cholera Vibrio in Relation to Diagnosis. G. Otsubo.—p. 1506.
- Vibrio of Type "El Tor" responsible for Epidemic presenting all Appearances of Cholera in Isle of Celebes (Dutch Indies) C. E. de Moor.—p. 1510.
- Pathogenic Vibrio "El Tor" isolated in Dutch Indies J. J. van Loghem.—p. 1520.
- *Review of Measures adopted to Prevent Introduction of Cholera into Philippine Islands in 1937 H. F. Smith.—p. 1524.
- Cerebrospinal Meningitis in French Colonies in Africa in 1937. Sorel.—p. 1546.
- Epidemic of Cerebrospinal Meningitis in Military Region (Chefferie) of Belgian Congo. J. E. van Campenhout.—p. 1556.
- Confirmation of Presence of Undulant Fever in Iraq. Shawket Al Zahawi.—p. 1559.
- On "Ship-board Epidemics" of Paludism. R. Meunier.—p. 1563.
- Distribution of Quinine in India. A. J. H. Russell.—p. 1566.

Cholera Prophylaxis in Philippines.—Ships from cholera-infected ports are constantly calling at the Philippine Islands (Port of Manila), and consequently special preventive measures must be adopted. These measures comprise anti-cholera vaccination before embarkation at an infected port, modified quarantine on arrival so as not to cause undue delay of voyage, and immediate bacteriological examination of the evacuations of suspected persons irrespective of travelling class. Pending results of examination, passengers may remain on board or may be accommodated at the quarantine station. The delay seldom exceeds the period of normal sojourn of the ship in port. Positive cases are removed to hospital. Each ship and each passenger is dealt with according to the merits of the case, and every consideration shown so far as is compatible with safety. The published figures indicate that the measures adopted are attended by remarkable success.

Surgery, Gynecology and Obstetrics

Chicago vol. 67 October, 1938

- Alteration of Blood Supply as Cause for Normal Calcification of Bone. H. C. Blaire.—p. 413.
- Salivary Gland Tumours N. W. Swinton and S. Warren.—p. 424
- Acute Safety of Ether, Divinyl Ether, and Chloroform in Production of Obstetric Degree of Analgesia. W. B. Draper and R. W. Whitehead.—p. 436
- *Swollen Atrophic Hand. A. Oppenheimer.—p. 446.
- Normal and Pathological Developments from Cells Lining Graafian Follicle. W. S. Gardner.—p. 455
- Scotosis S. Kleinberg.—p. 467.

- Renal Function Tests in Differentiation of Bright's Disease from So-called Specific Toxaemia of Pregnancy. L. C. Chesley.—p. 481.
- Blood Volume and Haemoglobin after Transfusion. W. L. Sibley and J. S. Lundy.—p. 490.
- Technique of Gastro-duodenectomy. C. A. Pannett.—p. 495.
- Radical Treatment of Intractable Pruritus Ani. S. D. Manheim and L. J. Druckerman.—p. 500.
- Carcinoma of Major Vestibular (Bartholin) Gland. S. M. Rabson and L. H. Meeker.—p. 505.
- Technique for Transfusion of Blood into Abdominal Aorta. E. B. Tuohy.—p. 510.
- Carcinoma of Rectum and Rectosigmoid: Ligation of Internal Iliac Arteries. H. B. Keyes.—p. 512.
- Modified Well Leg Traction Splint and Distractor Combined. C. H. Watt.—p. 515.
- Aberrant Pancreatic Tissue in Gastro-intestinal Tract: Two Cases and Review of Literature. M. Danzic.—p. 520.
- Reliable Control for Steam Sterilization. C. W. Walter.—p. 526.

Swollen Atrophic Hand.—A review is given of fourteen cases in which a peculiar swelling, accompanying atrophy of the skin, interosseous muscles, and sometimes of the bones of one hand, was found to be correlated with unilateral bony constriction of intervertebral foramina in the upper cervical spine on the side of the affected hand. The article is fully illustrated and the method of treatment described, together with the results obtained in seven cases.

Zeitschrift für Klinische Medizin

Berlin vol. 134 August, 1938

- Nephrosis. T. Fuhr.—p. 533
- Agranulocytosis. K. A. Seggel.—p. 563.
- Studies of Normal and Pathological Physiology of Movements of Human Stomach: III. Observations on Blood Sugar Level, Gastric Motility, and Complaints. F. Brauch.—p. 581.
- Angina Pectoris Simplex and Haemodynamic Heart Test. W. Raab.—p. 595.
- *Some Blood Changes in Necrosis of Heart and of Striped Muscle. W. Hauss and T. Yamamoto.—p. 604.
- Treatment of Obesity with Diet, alternately using Two Food Materials. R. Boller and W. Pilgersdorfer, with M. Exner.—p. 614.
- Value of Radiology in Diagnosis of Diseases of Small Intestine. G. Wachner and S. Zollner.—p. 634.
- Relation between Pernicious Anaemia, Polypl, and Cancer of Stomach. G. Velde.—p. 653.

Blood Changes in Necrosis of Heart and of Striped Muscle.—In twenty-five patients with myocardial infarction a higher blood sedimentation rate and an increase in blood sugar content, non-protein nitrogen, and leucocytes were observed. The same results were obtained in dogs with small, sterile, artificial muscular necroses of the thigh. It is assumed that in both instances the changes are due to the resorption of necrotic products.

Zeitschrift für Urologie

Leipzig vol. 32 1938 Heft 10

- *Peridural Anaesthesia. C. Alken.—p. 649.
- Phosphatic Stones in Urinary Passages. A. T. Jensen and J. E. Thygesen.—p. 659.
- Treatment of Prostatic Hypertrophy causing Chronic Retention of Urine by Transurethral Resection of Prostate. J. Farkas.—p. 667.
- Combined Vesico-vaginal and Vagino-ureteric Fistulae. E. Michadovsky.—p. 680
- Kymographic X-ray Investigations of Normal and Pathological Movements of Excretory Urinary Passages. M. Maintz, J. Meese, and G. Wullenweber.—p. 682.
- Combined Bromide and Calcium Treatment in Urological Balneology. H. Strauss.—p. 690.
- New Stricture Bougie for Anterior and Posterior Urethra and New Metal Bougie for Posterior Urethra. G. Dittmann.—p. 694.
- Hypernephroma of Right Half of Horseshoe Kidney. G. Nicollet.—p. 694.
- Case of Pyocyanus Osteomyelitis of Vertebral Column following Pyelonephritis. T. Kusunoki.—p. 702.

Peridural Anaesthesia.—According to the author this is the ideal method of anaesthesia for the great majority of urological operations. Many advantages over spinal (intradural) anaesthesia are claimed, and in 1,000 operations under peridural anaesthesia there were no fatalities attributable to the anaesthetic. A fall of blood pressure with collapse of a grave nature did occur in eleven cases, but all responded to the injection of coramine and similar drugs. The anaesthesia lasts for two and a half to three hours. The technique is said to be simple.



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THE LANCET, October 29, 1938. Pages 983-987

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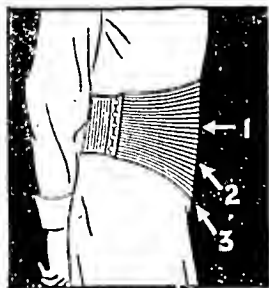
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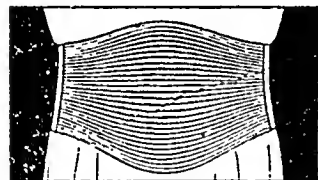


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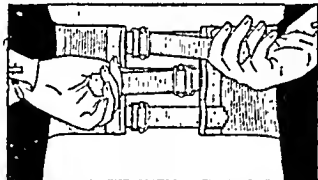
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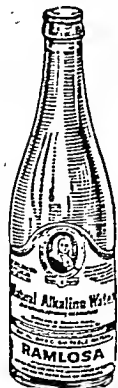
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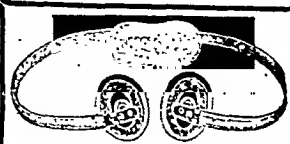
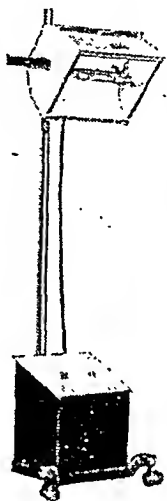
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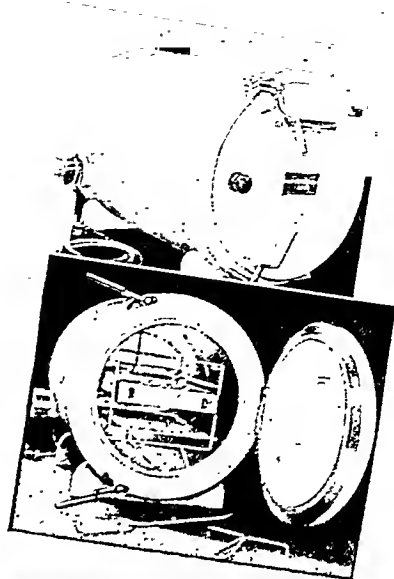
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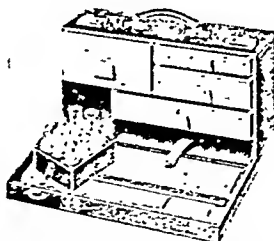
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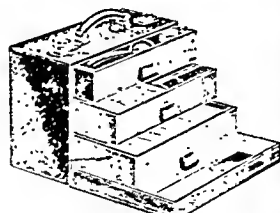
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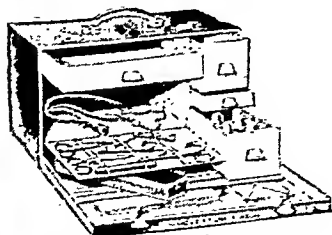
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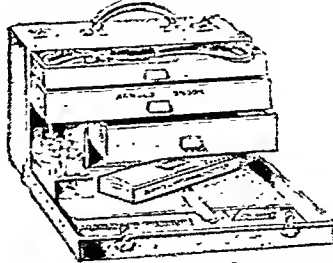
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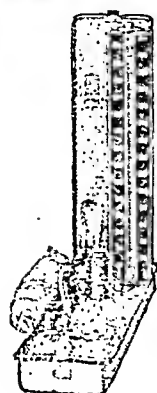
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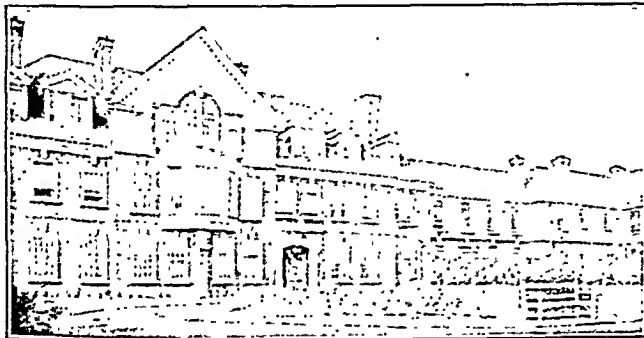
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Notice is hereby given that the Council, on March 9th next, will elect a Member of the Board of Examiners in Dental Surgery in the vacancy occasioned by the retirement of Mr. F. N. Doubleday, who is eligible.

Persons duly registered under the Dentists Acts, 1878-1923, desirous of being elected, should make application, in writing, to the Secretary, on or before Monday, January 2nd, 1939.

KENNEDY CASSELS, Secretary.

December 10th, 1938.

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Applications, accompanied by the names of three persons to whom reference may be made, should be submitted not later than December 31st, 1938, to the Dean, Guy's Hospital Medical School, S.E.1, from whom further particulars regarding the appointment may be obtained.

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Applications (twelve copies) must be received not later than first post on January 16th, 1939, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars should be obtained.

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The Council will shortly proceed to the appointment of a SECOND SURGICAL TUTOR, at a salary of £400 a year.

Further particulars may be obtained from the Registrar, The University, Leeds, 2, who will receive applications for the post on or before December 23rd.

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ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry at the end of March, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list. Marriage Allowance is paid under the same conditions as for other Naval Officers.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1939.

ROYAL NAVAL DENTAL SERVICE

Applications are invited for appointment to commissions as DENTAL OFFICERS in the ROYAL NAVY.

Candidates, who must be British subjects below the age of 28 years, must hold the degree of diploma of a British University or College of Surgeons, and be registered under the Dentists Act or Medical Act. Unmarried candidates are preferred. No examination in professional subjects will be held, but candidates will be required to attend at the Admiralty for interview, and for physical examination as to their fitness for service in any part of the world.

Successful candidates will be appointed to short service commissions as Surgeon Lieutenants (D) and will receive a grant of £50 towards the cost of providing the necessary uniform on entry. Vacancies in the permanent list will be filled by selection from among officers holding short service commissions who desire to make the Royal Naval Dental Service their permanent career. Officers not transferred to the permanent list will, on the termination of their short service engagement after six years' service, be eligible for a gratuity of £1,000.

Opportunities are available for officers on the permanent list to obtain post-graduate study. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances. Naval Dental Officers are included in the Scheme for Marriage Allowance under the same conditions as for other Naval Officers.

Application forms and copies of the regulations for entry and conditions of service, rates of pay and allowances, etc., may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of Dental Schools.

ROYAL VICTORIA INFIRMARY, Newcastle-upon-Tyne. (R35 Bedd.)

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Applications are invited for the post of Medical Registrar, to take up duty on February 1st, 1939. Candidates must be registered in Medicine and in Surgery. The salary is at the rate of £250 per annum (non-resident).

Further particulars regarding duties, times of attendance, etc., may be obtained from the undersigned, to whom applications, with copies of not more than three testimonials, should be sent not later than December 31st, 1938.

S. DUNSTAN,

House Governor and Secretary
December 5th, 1938.

SOUTHERN RHODESIAN GOVERNMENT SERVICE

VACANCY FOR PATHOLOGIST

Required by the Government of Southern Rhodesia a PATHOLOGIST for appointment as Director of a Public Health Laboratory in Southern Rhodesia.

Applicants should be experienced in all branches of laboratory work, including Bacteriology, Biochemistry, Haematology, Protozoology, etc.

Salary will be at the rate of £1,000 per annum, rising by annual increments of £50 per annum to £1,250 per annum.

The appointment will be on contract for the first year, for a probationary period of two or three years, thereafter the incumbent will be considered for appointment to the pensionable staff and particulars regarding pension and leave may be obtained from the Official Secretary, Office of the High Commissioner in London.

The successful applicant will be required to assume duty at the Public Health Laboratory, Bulawayo, Southern Rhodesia, as soon as possible and by steamship passage from England to Cape Town and railway fare from Cape Town to Bulawayo will be paid by the Government.

Applications, accompanied by testimonials, references, etc., and full information as to when services will be available, if appointed, should reach the Official Secretary, Office of the High Commissioner for Southern Rhodesia, Rhodesia House, 429, Strand, London, W.C.2 on or before December 16th, 1938.

COUNTY MENTAL HOSPITAL, Prestwich, near Manchester

Applications are invited for the whole-time appointment of SENIOR ASSISTANT MEDICAL OFFICER at the above Mental Hospital. The salary is £700 per annum, an additional £50 per annum will be paid for the possession of a Diploma in Psychological Medicine.

The selected candidate must be single, and will be required to live in the Hospital and will be provided with board, lodgings, etc., for which a charge of £150 per annum is made.

The appointment will be subject to the provisions of the Asylums Officers' Superannuation Act, and the successful candidate will be required to pass a medical examination.

Applications, giving full particulars, with copies of testimonials, should be forwarded to us to reach the Medical Superintendent on or before January 4th, 1939, address as above.

SURREY COUNTY COUNCIL

PUBLIC HEALTH DEPARTMENT

FARNHAM COUNTY HOSPITAL (19' Bedd.)

ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of Assistant Medical Officer at the Farnham County Hospital, Hale Road, Farnham.

Candidates must have held resident hospital appointments and should preferably possess a higher qualification.

The tenure of the appointment is limited to a period of five years, but the appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922. The cash salary is at the rate of £350 per annum, rising by annual increments of £25 to a maximum of £450 per annum, together with full residential emoluments valued at £125 per annum.

Applications, stating age, qualifications and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the County Medical Officer, County Hall, Kingston-on-Thames, so as to be received not later than December 21st, 1938.

County Hall, Kingston-on-Thames, Clerk of the Council.
December 9th, 1938.

BOROUGH OF ILFORD.

APPOINTMENT OF TEMPORARY ASSISTANT MEDICAL OFFICER OF HEALTH (PART TIME) FOR AIR RAID PRECAUTIONS.

Applications are invited from registered medical practitioners—preferably from Medical Officers retired from the Services—for the above position, which will be for a period of six months, which may be extended. The salary will be at the rate of £300 per annum.

The duties of the appointment will be part time under the direction of the Medical Officer of Health, and they will consist mainly in training volunteer personnel in First Aid and in assisting with the administration of the Casualty Services Section of the Borough A.R.P. Scheme. In addition the person appointed will be expected to assume the functions of a First Aid Commandant under the control of the Medical Officer of Health and to examine volunteer recruits for A.R.P. work.

Applications, stating age, qualifications and experience, should be forwarded to the undersigned not later than Saturday, December 17th, 1938.

CHARLES N. ROBERTS,
Town Clerk.

CITY OF STOKE-ON-TRENT EDUCATION COMMITTEE.

SENIOR SCHOOL DENTAL OFFICER.

The Stoke-on-Trent Education Committee invite applications from fully qualified and registered male dental surgeons for the post of Senior School Dental Officer.

Salary will be at the rate of £600 per annum, rising by annual increments of £25 to £700 per annum.

The successful candidate will be required to devote the whole of his time to the duties of the office and work under the direction of the Senior Medical Officer. The duties will consist of supervision of the Authority's Dental Officers, school dental inspection and treatment, the dental treatment of Maternity and Child Welfare Centre patients, and patients of the County Borough Institutions, as required. He must be prepared to undertake clinical work in addition to his supervisory duties.

Previous experience in school dental work for at least three years is essential. Canvassing will be considered a disqualification.

Forms of application may be obtained from the undersigned on receipt of a stamped, addressed foolscap envelope, and completed forms should be submitted not later than January 5th, 1939.

The appointment will date from May 1st, 1939, and will be subject to the Local Government Superannuation Act, 1937.

J. I. CARR.

Director of Education.

Education Offices

Town Hall,

Hanley, Stoke-on-Trent

November 30th, 1938

STAFFORDSHIRE COUNTY COUNCIL.

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH AND MEDICAL OFFICER OF HEALTH.

Applications are invited for the joint whole-time appointment of an Assistant County Medical Officer of Health for the Administrative County of Stafford, and Medical Officer of Health for the Stone Urban (population 6,376) and Rural (population 12,180) Districts. The salary will be at the rate of £800 per annum, subject to a deduction of 5 per cent. established under the Local Government and Other Officers' Superannuation Act, 1922.

Applicants must be fully qualified medical men with experience in public health duties and must hold the Diploma of Public Health. The person appointed will, as regards his duties as Assistant County Medical Officer of Health, act under the direction of the County Medical Officer of Health, and will be required to perform such duties as may be from time to time prescribed. As regards his duties as District Medical Officer of Health, the officer will be subject to the sole control and direction of the local Sanitary Authorities.

The joint appointment is subject to the approval of the Minister of Health and the Board of Education, and also, so far as the office of District Medical Officer of Health is concerned, to the provisions of the Sanitary Officers' (Outside London) Regulations, 1935.

The joint appointment will be subject to three calendar months' notice on either side, subject, so far as the office of District Medical Officer of Health is concerned, to the consent of the Ministry of Health.

The successful candidate will be required to undergo a medical examination and to produce a birth certificate.

Forms of application may be obtained from the undersigned, and should be returned by first post on December 15th, 1938, together with copies of not more than three testimonials.

H. I. UNDERWOOD,

Clerk of the County Council

County Buildings,

Stafford

December 5th, 1938

KENT COUNTY COUNCIL.

SENIOR RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Senior Resident Assistant Medical Officer at the County Hospital, Chatham (D40 bed).

The salary for the appointment is £350 a year, rising by £25 a year to £450 a year, together with residential emoluments, which are valued at £120 a year.

Applicants must have had obstetric experience. Forms of application can be obtained from the P. M. A. Office, Tonbridge Road, Maidstone, to whom applications must be sent by 10 a.m. on Tuesday, December 20th, 1938.

W. I. PLATTS,

Medical Officer, County Council

December 12, 1938

DENBIGHSHIRE COUNTY COUNCIL.

ADDITIONAL ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL INSPECTOR.

Applications are invited from duly qualified medical practitioners under the age of 40 for the appointment of an Assistant County Medical Officer of Health and Assistant School Medical Inspector at a salary of £500 per annum, rising by annual increments of £25 to £700 per annum. Travelling and subsistence allowance will be paid in accordance with the Council's scale.

Applicants must have had at least three years' experience in the practice of their profession subsequent in qualification, and should also have had special experience in the Medical Inspection of School Children, and in Maternity and Child Welfare Work.

As the successful applicant may later be required to take charge of a County District under the County Scheme for Full-time Medical Officers, the possession of a Diploma in Public Health or its equivalent is essential.

The appointment will be a designated post for the purpose of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

A knowledge of Welsh is desirable.

Forms of application and further information may be obtained from the County Medical Officer, County Health Offices, 16, Grosvenor Road, Wrexham.

Applications, accompanied by copies of not more than three recent testimonials, must reach the undersigned not later than first post on Wednesday, December 28th, 1938.

County Offices,

Ruthin.

December 5th, 1938.

WILLIAM JONES,

Clerk to the County Council.

BOARD OF CONTROL.

ENGLAND AND WALES.

The Board of Control (Lunacy and Mental Deficiency) invite applications from registered medical practitioners (men and women) for a vacant appointment as COMMISSIONER on the BOARD'S STAFF.

Candidates should be experienced in the care and treatment of persons suffering from mental disorder or mental defect.

The salary commences at £850 per annum, and rises by eleven annual increments of £30 to £1,180 and then to £1,200 per annum. In the case of a candidate with special experience of the administration of mental institutions the commencing salary may be advanced to a point, not exceeding £75, above the minimum of the scale.

The appointment will be subject to the usual Civil Service conditions as to pension, holidays, etc., and also, in the case of women, marriage. Subject to certain conditions, previous established service in a Mental Hospital or Mental Deficiency Institution can be aggregated with Civil Service for superannuation purposes.

Commissioners are required to devote their whole time to the Public Service.

Canvassing through Members of Parliament or in other ways will render a candidate liable to disqualification.

Forms of application, with further particulars of the appointment, may be obtained from the Secretary, Board of Control, Hobart House, Grosvenor Place, London, S.W.1.

No application can be considered unless received on the prescribed form not later than January 7th, 1939.

BOROUGH OF BERNONDSSEY.

Applications are invited from fully qualified and registered Medical Practitioners (Women—Widows or Single) for the position of ASSISTANT MEDICAL OFFICER for Maternity and Child Welfare.

The salary will be at the rate of £600 per annum, rising by two annual increments of £50 to £700 per annum, and be subject to deductions under the Council's Superannuation Acts. The person appointed will be required to pass satisfactorily a medical examination. Candidates must not have reached their 35th birthday on the date of their application. Preference will be given to applicants having special experience in the care of women and children. The person appointed will be required as a routine duty to give lectures on hygiene to audiences both of school children and of adults, and to devote the whole of her time to the work of the Council. Further particulars of the duties can be had on application to the Medical Officer of Health.

Applications on forms to be obtained from the undersigned and accompanied by copies of not more than three recent testimonials, must be delivered not later than December 19th, 1938.

FRANCIS J. R. MOUNTAIN,

Medical Officer, Spa Road, Town Clerk,

Bernonsey, S.E.16

December 2nd, 1938

LONDON COUNTY COUNCIL.

ASSISTANT DISTRICT MEDICAL OFFICERS Required for Undermentioned Districts.

(1) AREA I, DISTRICT K (SOUTH POPLAR)—Provisional salary £350.

(2) AREA VIII, DISTRICT D (PART SOUTH-WARK)—Provisional salary £212 (bs. inclusive of payment for use of doctor's surgery for Council's patients).

(3) AREA X, DISTRICT G (WOOLWICH, NORTH OF RIVER)—Provisional salary £78 (inclusive of payment for use of doctor's surgery for Council's patients).

Persons appointed required to reside in or near districts.

Application form, with further particulars, obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division 2 (A), County Hall, S.E.1.

Canvassing disqualifies.

LONDON COUNTY COUNCIL.

CONSULTANT AND SPECIALIST SERVICES.

PART-TIME OBSTETRICIAN AND GYNÆCOLOGIST (one position) required for duty at HACKNEY HOSPITAL and ST. LEONARD'S HOSPITAL, Shoreditch. Salary £800.

Officer responsible, subject to administrative control of Medical Superintendents, for obstetric and gynaecological work at these hospitals. Required to live within reasonable distance of hospitals, to visit them daily and as required.

Application forms (stamped addressed foolscap envelope necessary) from Medical Officer of Health (S.D.6), County Hall, Westminster Bridge, S.E.1, returnable by December 19th. Women eligible. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

ASSISTANT MEDICAL OFFICERS (men or women) required for mental health service. Candidates (under 35 years of age) must (1) be registered to practise both in medicine and surgery in England, (2) be of at least one year's professional standing, and (3) have held residential position in general hospital for six months or comparable general experience. Salary £470 a year, rising by £25 to £570 (additional allowance of £50 to holders of D.P.M.). No emoluments. Charges for board, lodging, etc. (at present £2 9s. a week) if required to be residence. Pensionable. Marriage terminates service in case of women.

For application form, returnable by December 28th, send stamped addressed foolscap envelope to Chief Officer (B/A), Mental Hospitals Department, Shell-Mex House, Strand, W.C.2. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited from registered medical practitioners of at least one year's standing, resident in the neighbourhood, for appointment as TEMPORARY VISITING MEDICAL OFFICER (part-time) at Earlsfield House, Children's Receiving Home, 1, Swaffield Road, Wandsworth, S.W.14. Salary £150.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division 2, County Hall, Westminster Bridge, S.E.1, returnable by December 30th. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited for one full-time permanent position of ASSISTANT MEDICAL OFFICER, chiefly in connexion with Council's school medical work. Special experience of medical examination of children essential. Salary £200 by £25 to £250.

Application forms (stamped addressed foolscap envelope necessary) from Medical Officer of Health, S.D.5, County Hall, Westminster Bridge, S.E.1, returnable by December 31st. Canvassing disqualifies.

CLAYTON HOSPITAL, WAKFIELD.

CASUALTY OFFICER in charge of Clayton Clinic. Previous practice and playing football essential. Required February 1st, 1939 for minimum period of one year. Candidates should be of British nationality, male, and under 30 years of age, with sound residence, etc.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the undersigned by December 15th, 1938.

T. L. W. MACKLOW,

Superintendent and Secretary

BOROUGH OF LALING

ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified medical men (male) with a Public Health qualification for the position of Assistant Medical Officer.

A candidate must have had at least three years' experience in the treatment of cases of infectious disease at an Isolation Hospital. The duties will include the medical care of patients in the Laling and Breiford and Church Isolation Hospital, South Laling, and the medical inspection and treatment of school children at schools and health centres in the Borough of Laling.

The person appointed will reside at the Isolation Hospital, where he must reside and be paid for his board and lodging.

He will be required to devote his whole time to the duties and will not be allowed to engage in private practice. The salary will be at the rate of £150 per annum, rising by £25 per annum to a maximum of £200, plus board and residence, as indicated above and valued at £150 per annum.

A deduction of 5 per cent. will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in conformity therewith. Candidates will be a disqualification.

Copies of the application forms and terms of appointment can be obtained from Dr. THOMAS O'D. Medical Officer of Health, Town Hall, Laling, W.S., to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than December 15th.

Town Hall, R. H. WANKLYN, Town Clerk, Laling, W.S.

BOROUGH OF LALING

ASSISTANT MEDICAL OFFICER OF HEALTH

Applications are invited from duly qualified medical men with a Public Health qualification for the position of Assistant Medical Officer of Health.

A candidate must have had at least three years' experience in the practice of his profession. The person appointed will be required to carry out medical inspection of school children and child welfare work and perform such other duties as may be allotted by the Medical Officer of Health and School Medical Officer.

He will be required to devote his whole time to the duties, and will not be allowed to engage in private practice. The salary will be at the rate of £100 per annum, rising by £25 per annum to £175.

A deduction of 5 per cent. will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in conformity therewith. Candidates will be a disqualification.

Copies of the application forms and terms of appointment can be obtained from Dr. THOMAS O'D. Medical Officer of Health, Town Hall, Laling, W.S., to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than December 15th.

Town Hall, R. H. WANKLYN, Town Clerk, Laling, W.S.

BOROUGH OF HESTON AND ISLWORTH.

Appointment of ASSISTANT MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

Applications are invited from duly qualified medical men with a Public Health qualification for the position of Assistant Medical Officer of Health and School Medical Officer.

Candidates will be required to carry out medical inspection of school children, bacteriological work, child welfare work, administer dental anaesthetics, and perform such other duties as may be allotted by the Medical Officer of Health.

The person appointed will be required to devote his whole time to the duties, to reside in the Borough, and will not be allowed to engage in private practice. The salary will be at the rate of £100 per annum, rising to £700 per annum by annual increments of £25.

A deduction of 5 per cent. will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to pass a medical examination.

Copies of the application form and terms of appointment can be obtained from the Medical Officer of Health, 92, Bath Road, Hounslow.

Applications, accompanied by copies of not more than three recent testimonials, enclosed in a sealed envelope endorsed "Assistant Medical Officer," must be delivered to the undersigned not later than noon on Friday, December 16th 1938.

Council House, HOUNSLOW, HAROLD SWANN, Town Clerk.

CITY OF BIRMINGHAM

PUBLIC ASSISTANCE COMMITTEE

BIRMINGHAM INFIRMARY

ASSISTANT RESIDENT MEDICAL OFFICER

The Public Assistance Committee invite applications from fully qualified medical practitioners for appointment as Assistant Resident Medical Officer at Birmingham Infirmary.

The Institution has accommodation for upwards of 1,000 patients, an increasing proportion of which is in need of chronic sick cases both male and female.

The Officer appointed will be required to assist in the general medical work of the Institution under the supervision of the Resident Medical Officer.

Any further particulars of the Institution and conditions can be obtained upon application to the Medical Officer of Health, Birmingham, M.D.

Salary will be at the rate of £150 per annum, rising to £200 per annum by annual increments of £25 per annum to £450 per annum, together with full residential emoluments (travelling, apartments, laundry and attendance). Four weeks' leave of absence will be granted to the successful candidate.

The appointment will be subject to the candidate satisfactorily passing a medical examination, to be held at one month's notice to terminate on either side. The salary will be subject to deductions in respect of superannuation and (subject to the necessary qualifications) in respect of the Municipal Officers' Widows' and Orphans' Pensions Scheme.

Applications, accompanied by copies of three recent testimonials, should be addressed to the Public Assistance Officer, 102, Edmond Street, Birmingham 1, and forwarded so as to reach him on or before 10 a.m. on Monday, December 19th next. Candidates in any form oral or in writing, direct or indirect, will be regarded as a disqualification.

Council House, H. C. WILSHIRE, Town Clerk, Birmingham, 1, December 2nd 1938.

BOROUGH OF WIMBLEDON

DEPUTY MEDICAL OFFICER OF HEALTH AND DEPUTY SCHOOL MEDICAL OFFICER

Applications are invited for the above appointment from qualified and registered medical practitioners under 35 years of age, having at least three years' experience in the qualification. Applicants should possess the D.P.H. and experience of School Medical work and general Public Health work is necessary.

The Officer appointed will be required to reside in the Borough, to devote his whole time to his official duties, and to work under the direction of the Council's Medical Officer of Health.

The commencing salary is £650, rising by annual increments of £25 to a maximum of £750 per annum. The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the passing of a medical examination.

Application forms can be obtained from the Medical Officer of Health, Town Hall, Wimbledon, to whom they must be returned, with copies of three recent testimonials, not later than 10 a.m. on Monday, December 19th.

Town Hall, H. R. L. MASON SMITH, L.L.B., Town Clerk, Wimbledon, SW 19, November 29th 1938.

COUNTY BOROUGH OF OLDHAM

MUNICIPAL HOSPITAL

RESIDENT ASSISTANT MEDICAL OFFICER

Applications are invited from registered Medical Practitioners for the post of Resident Assistant Medical Officer. Applicants must not be over 45 years of age.

Salary £200 per annum, with board, residence, and laundry.

Candidates should be unmarried. The appointment will, in the first instance, be for a period of six months. The successful applicant, however, will be eligible for reappointment for a further period of six months.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to pass a medical examination.

The hospital comprises 375 beds, with facilities for training experience in medicine, surgery, midwifery, and diseases of children.

Application forms may be obtained from the Medical Officer of Health, Town Hall, Oldham, and should be returned, endorsed "Resident Assistant Medical Officer," as soon as possible, but not later than 9 a.m. on Wednesday, December 28th, 1938.

Town Hall, THOMAS ALLEN, Town Clerk, Oldham, December 5th, 1938.

NORTHWICH RURAL DISTRICT COUNCIL.

NORTHWICH URBAN DISTRICT COUNCIL, WINSFORD URBAN DISTRICT COUNCIL, MIDDLEWICH URBAN DISTRICT COUNCIL.

APPOINTMENT OF WHOLE-TIME MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified and registered Medical Practitioners, not exceeding 45 years of age, who are also registered in the Medical Register as holders of a Diploma in Sanitary Science, Public Health, or State Medicine, for the above appointment.

The appointment will be made subject to the approval of the Minister of Health, the provision of Section 110 of the Local Government Act, 1933, and the Sanitary Officers' (Outside London) Regulations, 1935.

The Officer appointed will be required to commence his duties on April 1st, 1939, and devote the whole of his time to the performance of the duties of the office, which will include the Superintendence of the Joint Isolation Hospital.

He will not be permitted to engage in private practice as a Medical Practitioner, will be required to enter into an agreement with cash Authority, and to reside within the area.

He will be allowed one month's annual leave. Salary £650 per annum, rising by annual increments of £25 to a maximum of £900, together with a travelling allowance of £150 per annum.

Office accommodation and clerical staff will be provided, and the Officer appointed will be expected to attend Council and Committee Meetings of the Authorities as and when required.

Each Council will designate the position as an Isolation Post under the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Applications, endorsed "Medical Officer of Health," stating age, particulars of qualifications and local government experience (if any), supported by copies of not more than three recent testimonials, which will not be returned, must be delivered to the undersigned not later than December 24th, 1938.

Candidates of members of any Authority, directly or indirectly, will be deemed a disqualification.

HAROLD GRANTHAM, Clerk of the Northwich Urban District Council, The Council House, Northwich, December 1th, 1938.

WIRRAL JOINT HOSPITAL BOARD

CLATTERBRIDGE ISOLATION HOSPITAL (100 Beds)

The Wirral Joint Hospital Board invite applications from registered practitioners for the post of RESIDENT ASSISTANT MEDICAL OFFICER at the above-named Hospital.

Preference will be given to applicants who have had experience in Bacteriology.

The Hospital is situated within easy distance of the Liverpool Medical School, and time will be allowed, when the work of the Hospital permits, for attendance at D.P.H. or other higher qualification classes.

The appointment is for one year only and is not renewable.

Salary £200 per annum, with board, residence, and laundry.

Duties to begin February 1st, 1939. Applications, stating age, qualifications, etc., and accompanied by copies of recent testimonials, to be made not later than December 15th, 1938, to DAVID BUNTING, Clerk to the Joint Hospital Board.

61, Hamilton Square, Birkenhead.

CITY OF LIVERPOOL

RESIDENT ASSISTANT MEDICAL OFFICER.

Broadgreen Sanatorium (353 Beds)

Applications are invited for the above appointment for a period of one year at a salary of £250 per annum, together with the usual residential allowances.

Candidates must possess a registered medical and surgical qualification, and preference will be given to candidates with previous hospital experience.

The post is suitable for a candidate working for the M.D.

The Sanatorium is within easy reach of the centre of the City and the University.

Candidates, either directly or indirectly, will be considered a disqualification.

Applications to be made on forms obtainable from the Medical Officer of Health, Hospitals Department, Municipal Annex, Dale Street, Liverpool, 2, to be endorsed "Resident Assistant Medical Officer," and returned to the undersigned so as to be received not later than Wednesday, December 21st, 1938.

Municipal Buildings, W. H. BAINES, Liverpool, 2, Town Clerk, December, 1938.

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN.

St. Quintin Avenue, North Kensington, W.10
(Ladbroke 9133.)

The Board of Management invite applications for the post of **HONORARY ASSISTANT PHYSICIAN**, with beds. Applicants must be graduates of a University and must hold the M.R.C.P. (London), and the successful candidate will be required to see Out-Patients.

Applications, accompanied by copies of three testimonials, should be sent to the undersigned at the Hospital, from whom any further information can be obtained, and should reach him not later than Saturday December 17th, 1938.

H. J. ELEY, Secretary.

POPLAR HOSPITAL.

East India Dock Road, Poplar, E.14.

The Committee invites applications for the appointment of **SECOND RESIDENT OFFICER** (male) at a salary at the rate of £175 per annum, all found. Candidates must have held appointments as House Surgeon at a Hospital.

Applications must be accompanied by a statement of the candidate's qualifications and forwarded to the Secretary, with three recent testimonials, not later than Friday, December 23rd, 1938. The appointment is for a period of six months.

EAST HAM MEMORIAL HOSPITAL.

Shrewsbury Road, E.7. (104 Beds.)

Applications are invited for the post of **HOUSE SURGEON AND CASUALTY OFFICER** (male) for six months commencing January 1st. Salary at the rate of £120 per annum, with board, residence and laundry.

Applications, stating age, nationality, experience, and full particulars, together with copies of three recent testimonials, should reach the undersigned by December 14th.

REGINALD PERRY, Secretary.

THE EAST HAM MEMORIAL HOSPITAL.

Shrewsbury Road, E.7. (104 Beds.)

The General Committee invites applications for the post of **HONORARY RADIOLOGIST**.

Applications, stating age and full particulars, together with copies of three testimonials, should reach the undersigned on or before December 14th. Candidates will be expected to send copies of their applications and testimonials to and call upon Members of the Honorary Medical Staff.

REGINALD PERRY, Secretary.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.

Brompton, S.W.3.

The Committee of Management invite applications for the post of **ASSISTANT PHYSICIAN**, for which there are two vacancies.

Applications, with copies of testimonials, must reach the undersigned not later than Monday, January 9th, 1939. Candidates must be Members or have passed the qualifying examination for the Membership of the Royal College of Physicians of London.

Applications should not be addressed to individual members of the Committee of Management. Brompton, S.W.3. I. G. ROUVRAY, Secretary.

HOSPITAL FOR DISEASES OF THE SKIN.

Blackfriars

The Committee of Management will shortly appoint an additional member of the **HONORARY STAFF**. Candidates should be either Members of the Royal College of Physicians (London) or Fellows of the Royal College of Surgeons (England).

Applications, with testimonials in support, must be sent before December 12th to E. Murdy, Secretary to the Hospital for Diseases of the Skin, 71, Blackfriars Road, S.E.1, from whom any further information may be obtained.

HOSPITAL OF ST. JOHN & ST. ELIZABETH.

10, Grove End Road, N.W.5

Applications are invited for the post of **RESIDENT HOUSE PHYSICIAN** (male). The post is recommended for the degree of M.D. (London University). The appointment will be for six months from February 1st, 1939. Salary at the rate of £110 per annum, with full board.

Applications, with copies of three testimonials, should be sent to the undersigned by December 11th. Applications will be required to attend a meeting of the Medical Committee at 4.15 p.m. on Friday, December 16th at the Hospital. 10, Grove End Road, N.W.5. L. H. DUFFY-HOBBS, Secretary.

THE HOSPITAL FOR SICK CHILDREN.

Great Ormond Street, London, W.C.1.

An **OUT-PATIENT MEDICAL OFFICER** (part-time and non-resident) is required as early as possible in January. Salary £150 per annum. The duties will include those of the former Out-patient Medical Registrar.

An **OUT-PATIENT AURAL REGISTRAR** (part-time) is required as early as possible in January. Salary £175 per annum.

These appointments are tenable in the first instance for one year, but may be held for a period of two years, subject to re-election.

Candidates must possess a legal qualification to practise, and have held a responsible resident appointment at a general hospital.

Applications must be received by noon on Monday, January 2nd, 1939, and candidates must be prepared to attend for interview by the Joint Committee at 4.45 p.m. on Wednesday, January 4th, 1939.

Full instructions and forms of application are obtainable from the undersigned.

HERBERT F. RUTHERFORD,

December, 1938.

Secretary.

THE MIDDLESEX HOSPITAL AND MEDICAL SCHOOL.

London, W.1.

Applications are invited for the post of **OTOLOGICAL REGISTRAR**. The appointment will be for one year from January 1st, 1939, and the holder will be eligible to apply for reappointment, and may retain office for three consecutive years. Salary £300 per annum.

Further particulars may be obtained from the Secretary-Superintendent, to whom applications, with copies of not more than three testimonials, must be sent by noon on Wednesday, December 14th, 1938.

S. R. C. PLIMSOLL,

November 28th, 1938. Secretary-Superintendent.

THE ROYAL CANCER HOSPITAL (FREE)

(Incorporated under Royal Charter).
Tulham Road, London, S.W.3

Applications are invited for the post of **ASSISTANT SURGEON** to the Hospital. Candidates must be Fellows of the Royal College of Surgeons, England, or Masters of Surgery of a recognized British University.

The appointment is made subject to Rules and Conditions laid down by the Charter of Incorporation, details of which can be obtained from the Secretary.

Applications (eighteen copies), with copies of not more than three recent testimonials, should be sent to the undersigned by not later than the first post on Monday, December 19th, 1938.

CLEMENT COBOLD, Secretary.

THE WILLESDEN GENERAL HOSPITAL.

Hatfield Road, N.W.10.

OUT-PATIENT DEPARTMENT CLINICAL ASSISTANTS (HONORARY).

Applications are invited for appointment to the following sessions:—

Gynaecological—Thursday mornings

Surgical—Friday afternoons

Medical—Friday mornings

Applications should be forwarded to the Secretary, from whom further details of the appointments may be obtained, and should be received not later than first post on Tuesday, December 13th, 1938.

November 28th, 1938.

THE WILLESDEN GENERAL HOSPITAL.

Hatfield Road, N.W.10.

Applications are invited from fully-qualified and registered candidates (unmarried) for the appointment of a **Resident Officer**, to hold the appointment of **CASUALTY OFFICER** for a period of three months from January 1st, 1939, followed by a six months' appointment as **HOUSE SURGEON**. (Total nine months.)

Salary at the rate of £160 per annum. Applications to be received by the Secretary not later than first post on Thursday, December 15th, 1938.

November 28th, 1938.

EAST HAM MEMORIAL HOSPITAL.

Shrewsbury Road, E.7. (104 Beds.)

Applications are invited for the post of **RE-TRACTIONIST**. The holder of the post will be required to attend on Thursday afternoons. Honorary £50 per annum.

Applications should reach the undersigned on or before December 14th.

REGINALD PERRY,

Secretary.

WEST LONDON HOSPITAL.

Hammersmith, W.6. (239 Beds)

Required, **ONE HOUSE PHYSICIAN** and **THREE HOUSE SURGEONS** (males). These appointments are tenable for six months from January 1st next, subject to one month's notice on either side. The duties of the House Physician include some work in the Neurological and Dermatological Departments. The duties of one House Surgeon include some work in the X-ray Therapy Department, another some work in the Gynaecological Department, and the third some work in the Ear, Nose and Throat and Ophthalmic Departments. For this last appointment it would be desirable that candidates should be reading for the D.L.O. Salary at the rate of £100 a year, with full board and lodgings.

Candidates must be registered under the Medical Act.

Applications (which must be on printed forms obtained from me) must reach me not later than first post on Thursday, December 15th. Selected candidates will be required to call upon such members of the Medical Staff as directed; to be in attendance at a Meeting of the Medical Council at 4.30 p.m. on Friday, December 23rd, and the House Committee Meeting at 5 p.m. the same day, when the appointments will be made.

H. A. MADGE,

Secretary.

WEST HAM HOSPITAL FOR NERVOUS AND MENTAL DISORDERS.

Goodmayes, Ilford, Essex.

Applications are invited for a Male **JUNIOR ASSISTANT MEDICAL OFFICER** at the above Hospital. Candidates must be unmarried.

The commencing salary is at the rate of £350 per annum, rising by annual increments of £25 to a maximum of £450 per annum, together with emoluments consisting of board, laundry, and attendance, valued for superannuation purposes at £150. The person appointed will also be paid, in addition to his salary, the sum of £50 per annum on obtaining the Diploma of Psychological Medicine.

The appointment is subject to six months' probation, and to the provisions of the Asylums Officers' Superannuation Act, 1909, Class 1, and to a satisfactory medical examination.

The Hospital is situated ten miles from London. Applications, stating age and experience, accompanied by copies of three recent testimonials, must reach the Medical Superintendent not later than December 12th, 1938.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.

(Incorporated by Royal Charter).
High Holborn, London, W.C.1.

A **REGISTRAR** is required in commensurate duty on February 1st, 1939. Salary at the rate of £140 per annum for attendance on three afternoons a week.

Candidates must have had considerable Ophthalmic experience, and should send in applications, accompanied by copies of three testimonials, on or before December 31st, 1938, to the Secretary, from whom further particulars can be obtained.

NOTE.—Intending candidates are requested to call upon the Staff of the Hospital, a list of whom can be obtained from the General Office.

UNIVERSITY COLLEGE HOSPITAL.

Gower Street, London, W.C.1.

FIRST ASSISTANT IN THE CHILDREN'S DEPARTMENT.

The date by which applications for the appointment of First Assistant in the Children's Department may be received has been extended to January 4th, 1939. The appointment will take effect from February 1st, 1939.

R. SLOLEY, Secretary.

KING GEORGE HOSPITAL.

(Near London) (207 Beds)

HOUSE SURGEON (male) required for a period of six months. Salary at the rate of £110 per annum. Forms of application may be obtained from the undersigned, to whom they should be returned duly completed, at or on or after Dec. 15th.

G. ALFRED HIPWORTH,

Secretary and Superintendent.

THE WEIR HOSPITAL, WEIR ROAD.

BIRMINGHAM, S.W.12. (10 Beds.)

JUNIOR RESIDENT MEDICAL OFFICER required at the end of December 1938. Candidates must be fully qualified and registered. Salary £110 per annum, with board, residence, and laundry. Applications, with copies of three testimonials, should be sent to the Secretary, from whom further information may be obtained.

HAMMERSMITH COUNTY COUNCIL **ASSISTANT COUNTY MEDICAL OFFICER**

Applications are invited for the post of Assistant County Medical Officer. Possession of a Diploma or Degree in Public Health is essential, and previous experience in the various branches of public health, especially tuberculosis, and school medical service, work is desirable.

Salary £300 a year, rising on approved service, by increments to £750 in respect to deductions under the Local Government Superannuation Act, 1937, in addition to travel expenses.

Applications, with copies of not more than three recent testimonials on a form which, with the conditions of appointment, may be obtained from the County Medical Officer, The Castle, Weymouth, should be sent to him as soon as possible, and not later than December 15th, 1938. Convancing is prohibited.

The successful candidate will not be expected to take up his duties before April 1st, 1939.

The Castle, Weymouth, Dorset.
L. A. BARRER, Clerk of the County Council.
December 5th, 1938

CITY OF LIVERPOOL

RESIDENT ASSISTANT MEDICAL OFFICER.
Southsea Road Hospital (1220 Beds)

Applications are invited for the above appointment for a period of one year at a salary of £200 per annum, together with the usual residential allowance.

Convancing, either directly or indirectly, will be considered a disqualification.

Applications to be made on forms obtainable from the Medical Officer of Health, Hospitals Department, Dale Street, Liverpool, 2, to be returned to "Resident Assistant Medical Officer" and returned to the undersigned as to be received not later than Wednesday, December 21st, 1938.

Margaret Baines, W. H. BAINES, Liverpool, 2, Town Clerk.
December, 1938

ROYAL FREE HOSPITAL. Gray's Inn Road, W.C1

Applications are invited from duly qualified and registered medical practitioners for the post of **ANAESTHETIC REGISTRAR** at the above hospital for one year from February 1st, 1939, with option to apply for reappointment for two subsequent years.

The post is a non-resident one and carries with it a remuneration of £150 per annum.

Candidates should have had experience in all forms of anaesthetics, including dental work.

They should submit applications, with copies of three recent testimonials, stating age and qualifications, to the undersigned on or before January 7th, 1939.

PICHAUD T. BARTLEY, Secretary

WEST END HOSPITAL FOR NERVOUS DISEASES. 73, Welbeck Street, W.1.

The Committee of Management invites applications for the post of **HONORARY CLINICAL ASSISTANT (Out-Patient Dept.)**

Candidates are requested to obtain further information from the undersigned, to whom applications, with copies of not more than three recent testimonials, should be sent not later than Monday, December 19th.

J. P. WELTHALL, Secretary and House Governor

CHARING CROSS HOSPITAL

Applications are invited for the post of **HONORARY CLINICAL ASSISTANT** in the X-ray and Electrotherapeutic Department. Honorarium £50 per annum.

Candidates should have by preference the qualification of D.M.R.E.

Applications, together with copies of three recent testimonials, should be sent to the undersigned not later than January 2nd, 1939.

GEORGE J. IONIS, Secretary
Charing Cross Hospital, W.C.2.

LONDON HOSPITAL.

There is a vacancy for the post of **FIRST ASSISTANT** to the Ophthalmic Department. Candidates must be fully qualified medically. Honorarium £150 per annum.

Applications should be made to the Secretary, from whom further particulars may be obtained, and should arrive not later than Saturday, January 14th, 1939.

H. L. MILSON, Secretary.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL. Shooter's Hill, London, S.E.18 (General Hospital (112 Beds))

The Board of Management invites applications from suitably qualified male candidates for appointment as **CASUALTY OFFICER** for six months from January 1st, 1939. The remuneration will be at the rate of £100 per annum, plus board, residence, and laundry. The candidate appointed will act as deputy for the Resident Surgical Officer, with general care of the patients for major surgery.

The closing date for the receipt of applications (which should be made on the prescribed form obtainable from the undersigned) is Monday, December 12th, 1938, and short-listed candidates will be invited to meet the Appointments Committee (at the Hospital) on Thursday, December 15th, at 4.45 p.m.

R. S. G. HUTCHINGS, Secretary.

LONDON CHEST HOSPITAL. Victoria Park, E.2. (Bus, Tram and Rly., Cambridge Heath, L.N.I. Rly.)

REGISTRAR, LAB. NOSE AND THROAT (DIPT. (MALE)) PART-TIME.

Applications are invited for the above post. The appointment will be for a period of one year.

Honorarium £50 per annum.

Applications, with copies of three testimonials, should be sent to the undersigned on or before January 13rd, 1939.

THOMAS BROWN, Secretary.

CROYDON GENERAL HOSPITAL

Applications are invited from qualified and registered medical men for the post of **CASUALTY HOUSE SURGEON**. Salary £125 per annum, with board, residence, and laundry.

Applications, stating age and qualifications, accompanied by copies (which will not be returned) of three testimonials, to reach the undersigned not later than Saturday, December 17th.

The candidate appointed will be required to take up duties on January 1st, 1939.

GEORGE H. DAVIS, Home Governor and Secretary.
December 10th, 1938

GENERAL LONDON OPHTHALMIC HOSPITAL. Ludd Street, London, W.C1

LOCAL is required for the **SENIOR HOUSE SURGEON** for two months from February 1st. Further particulars may be obtained from the Secretary at the Hospital.

SOUTHPORT GENERAL INFIRMARY

The Council of the above Institution invites application for the appointment of **ONH. HONORARY ASSISTANT PHYSICIAN** (male or female).

Candidates must be fully qualified and registered under the Medical Act, and in all respects comply with the Rules and By-Laws of the Infirmary, copies of which may be obtained from the Secretary.

Candidates must reside within the County Borough of Southport. Convancing will disqualify, but candidates may send to members of the Council copies of their application and testimonials.

Applications, accompanied by not more than four testimonials, must be forwarded to the Secretary, the Infirmary Office, Pilkington Road, Southport, on or before December 30th, 1938, marked "Honorary Assistant Physician".

ROYAL MANCHESTER CHILDREN'S HOSPITAL. Pendlebury, near Manchester. (232 Beds.)

RESIDENT HOUSE SURGEON.

Applications are invited for the post of Resident House Surgeon for a period of six months, commencing February 1st, 1939. Salary £100 per annum.

Candidates having previous experience in the administration of anaesthetics will be given preference.

Applications, stating qualifications and past experience, together with testimonials, to be sent to the undersigned not later than Thursday, December 29th, 1938.

Convancing, directly or indirectly, may disqualify. By Order,
H. HEARDMAN, Secretary.

ROYAL HALIFAX INFIRMARY. Hospital recognized by the Royal College of Surgeons (England) (250 Beds.)

Wanted, a **SECOND HOUSE SURGEON**: also a **THIRD HOUSE SURGEON** (Male, unmarried). Candidates must be duly qualified and registered. The appointment will be for six months from January 1st to June 30th, 1939. Salary, including all services required in connection with Paying Patients' Ward, £175 per annum, and £150 per annum, respectively, with residence, board, and laundry. The Resident Staff consists of Resident Surgical Officer and three House Surgeons. The Hospital contains Maternity and Paying Patients' Blocks. Also a Pathological Department, a large Eye, Ear, Nose and Throat Department, Radiological Department, and Radium Clinic.

Particulars of the duties may be obtained from the undersigned, to whom applications, stating age and nationality, together with testimonials, should be sent.

December 14th, 1938. A. MIDGLEY, Secretary.

ROYAL BERKSHIRE HOSPITAL. Reading (138 Beds)

Applications are invited for the following resident appointments which fall vacant on February 1st, 1939.

One **HOUSE SURGEON** to the **SPECIAL DEPARTMENTS** (Eye, Ear, Nose and Throat) (male).

One **CASUALTY OFFICER** (male).

Appointments are for six months, and candidates must be fully qualified and registered.

Remuneration at the rate of £150 per annum, with board, residence and laundry.

Applications, stating age and experience, with copies of testimonials, to be sent to the undersigned on or before January 7th, 1939.

H. E. RYAN, Secretary and House Governor.

ROYAL BUCKINGHAMSHIRE HOSPITAL. Aylesbury (115 Beds)

Applications are invited for the posts of **SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS** (males) for six months beginning January 1st, 1939. Salaries £200 and £150 p.a. respectively, with full board, residence in own flat, and laundry.

Previous Hospital experience is desirable. Opportunity will be afforded to undertake all branches of medical and surgical practice, including anaesthesia and in work with London consultants.

Selected candidates will be required to attend for interview by the Medical Committee on Friday, December 16th, 1938.

Applications must reach the undersigned by Monday, December 12th, 1938.

F. G. DAWES, Secretary.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL. Cheetham (Non-Sectarian) (102 Beds.)

Applications are invited for the following posts: **JUNIOR HOUSE SURGEON** and **CASUALTY OFFICER (male)**. Salary £125 per annum.

Both appointments are for six months, and include board, residence and laundry.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be forwarded to the undersigned not later than Thursday, December 22nd, 1938.

By Order of the Board of Management
D. ROBERTS, Superintendent and Secretary

WEST KENT GENERAL HOSPITAL. (Incorporated) Maidstone (135 Beds.)

Applications are invited for the post of **HOUSE SURGEON**, who must be a male, of British nationality, and unmarried.

Salary at the rate of £175 per annum, with board, apartments, and laundry.

Candidates must possess registered qualifications. Applications, stating qualifications and experience, together with copies of testimonials, should be sent to the undersigned not later than December 23rd, 1938. The successful candidate will be required to take up residence on January 1st, 1939.

EDWARD J. GREGG, House Governor and Secretary.

STANNINGTON CHILDREN'S SANATORIUM.

Wanted late in December, well-qualified **WOMAN (LOCUM TENENS)**, with experience in Tuberculosis, to act as **ASSISTANT MEDICAL OFFICER** for five-six weeks. Fee £7 7s. per week.

Apply, with copies of recent testimonials, to Medical Superintendent, Stannington Sanatorium, Morpeth, Northumberland.

ESSEN AND COLCHESTER MENTAL HOSPITALS.**SEVERALLS MENTAL HOSPITAL.**

Applications are invited for the post of **MEDICAL SUPERINTENDENT** at Severalls Mental Hospital, Colchester. Applicants must be registered under the Medical Act, and have had previous Mental Hospital experience, and be not more than 45 years of age. Salary £1,100, rising by annual increments of £50 to £1,350 per annum, with unfurnished house, coals, firewood, light, garden produce washing, garage, and upkeep of garden.

A deduction will be made from the salary in accordance with the Asylums Officers' Superannuation Act 1909.

Copies of not more than three recent testimonials must be sent with the application so as to reach the undersigned on or before December 22nd, 1938.

The appointment is subject to three months' notice on either side.

Direct or indirect canvassing will disqualify any applicant.

Forms of application must be obtained from the undersigned.

H. H. GEPP,

Clerk to the Committee of Visitors
66 Duke Street, Chelmsford.
November 22nd, 1938.

BIRMINGHAM UNITED HOSPITAL.**FULL-TIME ASSISTANT TO THE RADIO-LOGICAL DEPARTMENT.**

Applications are invited for the above post. The appointment is for one year, the holder being eligible for re-election.

Salary £400 p.a. to £450 p.a. according to experience.

Candidates must be registered Medical Practitioners and must possess a Diploma in Radiology.

Applications must be sent to the undersigned (from whom all further particulars can be obtained), stating age, experience, and qualifications, with copies of recent testimonials, not later than December 17th.

G. HURFORD, Secretary.

Birmingham United Hospital.
The Centre Hospital,
Edgbaston, Birmingham, 15.
November 29th, 1938.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

Applications are invited for the following posts:
(a) **HOUSE SURGEON**, vacant on February 1st, 1939.

(b) **HOUSE PHYSICIAN**, vacant on February 1st, 1939.

Each appointment is tenable for a period of six months, but is terminable at an earlier date by one month's written notice on either side.

The salary of each officer will be at the rate of £130 per annum, with board, residence and laundry.

Candidates (male), who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four testimonials, to the undersigned on or before Wednesday, December 21st, 1938.

J. A. BEARDSALL,

Secretary-Superintendent.

COUNTY MENTAL HOSPITAL,
Prestwich, near Manchester.

LOCUM TENENS (with a possibility of permanency) male **MEDICAL OFFICER**, are not exceeding 35, required at the above Hospital, which is a Training School. Salary £7 7s. per week, with board, lodging and laundry. Copy testimonials only must be sent.

Candidates must be unmarried and registered under the Medical Act. Appointment terminable by one week's notice on either side.

Apply as soon as possible, stating age, hospital and other experience, qualifications and full particulars, to the Medical Superintendent as above.

ROYAL EAST SUSSEX HOSPITAL,
Hastings.

Applications are invited for the post of **SENIOR HOUSE SURGEON** (female), vacant January 1st, 1939. The appointment is for a period of six months. Salary at the rate of £200 per annum, with board-residence.

Candidates must be duly registered medical practitioners.

Applications, with copies of recent testimonials, to be addressed to the Secretary.

WILFRID G. KEMSLEY.

BOOTHAM PARK MENTAL HOSPITAL,
York.

Wanted, **JUNIOR ASSISTANT MEDICAL OFFICER** (lady or gentleman). Salary £300 p.a., with the usual emoluments.

Apply, with copies of testimonials, to the Medical Superintendent.

LEICESTER ROYAL INFIRMARY.**PART-TIME VENEREAL DISEASES OFFICER**
(Female).

Applications are invited for the position of **Senior Medical Officer** (woman) in charge of Women's V.D. Clinics under general administrative control of the Director of Venereal Diseases Service. Salary £350 per annum.

The appointment is for a part-time Medical Officer, who will be allowed to engage in private, but not panel, practice. It is understood that an additional part-time appointment valued at £150 per annum will be offered to the successful candidate.

Applicants must be qualified in accordance with the new regulations of the Ministry of Health.

Full details on application to the House Governor and Secretary.

November 30th, 1938.

PRESTON AND COUNTY OF LANCASTER
QUEEN VICTORIA ROYAL INFIRMARY.

The post of **HOUSE PHYSICIAN** becomes vacant on January 25th next.

The duties involve the care of 70 beds and attendance at Electro-Cardiograph, Asthma and General Medical Clinics. There are efficient X-ray and Pathological Units.

The usual salary is at the rate of £150 per annum, with board, residence and laundry. Six months' appointment. The Board of Management is, however, prepared to pay a salary of £200, rising after six months to £250 per annum, to a successful candidate who has a higher degree in medicine, or who has had previous experience as a House Physician for a six or twelve months' appointment.

Applications, stating age, qualifications and experience, with copies of testimonials, should be forwarded to Mr. JOHN GIBSON, Superintendent, Royal Infirmary, Preston.

LINCOLN COUNTY HOSPITAL.

Wanted, **SENIOR HOUSE SURGEON**, male, unmarried. Salary at the rate of £250 per annum, rising to £300 per annum at the conclusion of six months' approved service. Board, residence, and washing will also be provided.

Every candidate for the appointment must be registered under the Medical Acts.

Applications, stating age and other particulars, with copies of not more than three testimonials, are to be sent to the undersigned, from whom further particulars may be obtained.

ARTHUR MOORE,

Lincoln. Secretary-Superintendent.
November 26th, 1938.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASE OF THE THROAT AND CHEST.

Wanted, an **ASSISTANT MEDICAL OFFICER** (male) for the Crossley Sanatorium, Delamere Forest, Cheshire (113 beds).

Salary £200 per annum, with board, apartments, and laundry. Candidates must be registered. The appointment offers an opportunity for gaining experience in modern methods of treating Pulmonary Tuberculosis.

Applications, stating age, with copies of testimonials, to be sent not later than December 24th to W. HUNT, Secretary, 45, Hardman Street, Manchester, 5.

ROYAL CORNWALL INFIRMARY,
Truro. (180 Beds.)

SENIOR HOUSE SURGEON wanted for January 1st, 1939. Salary £150 per annum, with board, residence, laundry, and attendance. Previous Hospital experience essential.

Applications, stating age, nationality and experience, to be forwarded to the undersigned.

A Junior House Surgeon will be appointed on March 1st, 1939.

Truro. W. E. GRENFELL,
November 22nd, 1938. Hon. Secretary.

ROTHERHAM GENERAL HOSPITAL.
HONORARY OPHTHALMIC SURGEON.

The Hospital Committee invite applications for the post of **Honorary Ophthalmic Surgeon** at the above Institution.

Prompt replies to this advertisement are desirable, and full particulars can be obtained from the Secretary, G. W. ROBERTS, S. Moorgate Street, Rotherham.

FREE EYE HOSPITAL, SOUTHAMPTON.

Applications are invited for the post of **ORTHOPTIC TEACHER** as from January 1st, 1939. Whole-time appointment. Commencing salary £180. Must be unmarried. Facilities given for taking private patients on terms to be arranged.

Applications, giving experience and qualifications, to be sent to the undersigned.

E. T. KEMP, Secretary.

THE WEST NORFOLK AND KING'S LYNN
GENERAL HOSPITAL.
(112 Beds.)**RESIDENT SURGICAL OFFICER.**

Applications are invited for the above post, which will become vacant on January 9th, 1939. Salary £300 per annum.

The duties include much operative work, and preference will be given to a candidate holding the F.R.C.S. Eng. diploma.

Applications, stating nationality, age, together with copies of recent testimonials, should be sent to the undersigned.

JOSEPH E. SEARJEANT, F.C.C.S.,
House Governor and Secretary.

HOUSLOW HOSPITAL,
Staines Road, Middlesex.**HOUSE PHYSICIAN AND CASUALTY OFFICER.**

Applications are invited from male registered practitioners of British nationality for the above post. The appointment is for six months, from last February, 1939, with eligibility for appointment for a further period. Salary £100 p.a., with board, residence and laundry.

Applications, with copies of three recent testimonials, should be sent to the undersigned not later than first post on Tuesday, December 20th.

A. MOVBRAY BARKER,
Secretary.

THE BOLTON ROYAL INFIRMARY.
(318 beds, including two Auxiliary Hospitals.)**ASSISTANT PATHOLOGIST.**

Applications are invited from qualified medical men or women for the above post. Postgraduate experience in the routine methods of a general hospital laboratory is essential.

The appointment is a whole-time one. Salary £600 per annum.

Further information may be obtained from the undersigned, to whom applications, stating age, nationality and experience, and enclosing two copies of recent testimonials, should be sent as soon as possible.

H. CORLESS,
Secretary.

THE VICTORIA INFIRMARY OF GLASGOW.
(495 Beds.)**APPOINTMENT OF A VISITING ANAESTHETIST.**

The Governors invite applications for the above appointment. The salary attached to the appointment is £400 per annum. Particulars of the duties may be obtained from the Medical Superintendent at the Infirmary. Fourteen copies of application and testimonials to be lodged with the undersigned not later than December 24th.

40, St. Vincent Place, JOHN W. ROBSON,
Glasgow. Secretary and Treasurer.
December 2nd, 1938.

THE ROYAL INFIRMARY, SHEFFIELD.

The Board of Management invite applications for the post of **OPHTHALMIC HOUSE SURGEON**.

The salary attached to the post is £120 per annum, with board and residence.

The successful applicant will be expected to take up his duties on January 1st, 1939.

The Ophthalmic Department contains 69 beds and an Out-Patient Department which is open daily.

Applications, with copies of testimonials, to be sent forthwith to the General Superintendent and Secretary.

November 11th, 1938.

THE KIDDERMINSTER AND DISTRICT
GENERAL HOSPITAL (145 Beds).

SENIOR HOUSE SURGEON (male) required. Salary £150 per annum, with residence, board and laundry.

JUNIOR HOUSE SURGEON (male) required. Salary £100 per annum, with residence, board and laundry.

Applications, together with not more than three testimonials, should be forwarded immediately to the undersigned.

F. W. BARNETT,
House Governor and Secretary.

THE STAFFORDSHIRE GENERAL INFIRMARY, Stafford.

(145 Beds, including 14 Private Wards
Three Residents.)

HOUSE SURGEON required, to take up duties on January 1st. Salary £175 per annum, with board-residence.

Applications, stating age and giving particulars of experience, together with copies of three recent testimonials, should be sent to me forthwith.

Stafford. A. E. COLLINS,
December 3rd, 1938. Secretary.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumshugh Gardens, Edinburgh).

(a) British Islands

| Town or District | Town or District | Town or District |
|---|---|--|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(contd.) | CONTRACT PRACTICE—(contd.) |
| ABERTYSWYG MEDICAL AID SOCIETY. (Medical Officer) | MID RHONDDA MEDICAL AID SOCIETY. (Contract Medical Officer) | OAKDALE, MON. (Medical Officer for Medical Aid Association) |
| BLAFNAVOX MEDICAL SOCIETY (Medical Officer) | SLATH AND DISTRICT (Medical Aid Association) | PUBLIC HEALTH |
| GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme) | OGMORE VALLEY, GLAMORGAN (Owensham Colliery Medical Aid Society) (Workmen's Medical Scheme) | HERTFORDSHIRE COUNTY COUNCIL (Assistant County Medical Officer) |
| LWYNYPFA, CLYDACH VALE, PINYPPAIG, GLAMORGAN (Workmen's Medical Scheme) | | WIGTOWN COUNTY COUNCIL (Assistant Medical Officer of Health) |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch |
|--|--|---|---|--|--|
| NEW SOUTH WALES (All Friends Society Appointments) | The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W. | VICTORIA (All Friends Society Appointments) | The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria. | WESTERN AUSTRALIA (Contract and Locum Practises) | The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia. |
| QUEENSLAND (Brisbane Associate Friendly Societies Institute) | The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17. | | | | |

December 7, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

HULL ROYAL INFIRMARY.

Applications are invited for the post of SECOND CASUALTY OFFICER (male), vacant December 10th.

Salary £150 per annum, plus board, residence and laundry.

In addition to carrying out duties in the Casualty Department the officer appointed will act as House Surgeon in one of the Honorary Assistant Surgeons, and will thus obtain Ward and Theatre experience. He will be eligible for promotion to a more senior post when a vacancy occurs.

The appointment will be for a period of six months, but will be determinable at any time by one month's notice on either side.

Applications, giving particulars of age, experience and nationality, together with copies of testimonials, should be addressed to the undersigned.

R. J. CARLESS,
November 28th, 1938. House Governor.

COSSHAM MEMORIAL HOSPITAL, Kingswood, Bristol.

A vacancy will occur at the beginning of the year for a RESIDENT MEDICAL OFFICER. Salary £120 per annum, with board and laundry; to remain for six months in the first instance.

Applicants (male) should be of British nationality, fully qualified, and registered.

Applications, with copies of recent testimonials, to be sent to the Secretary.

COSSHAM MEMORIAL HOSPITAL, Kingswood, Bristol.

The Managing Body invite applications for the post of HONORARY ANAESTHETIST. Small honorarium paid.

Applications to the Secretary.

PRINCE OF WALES HOSPITAL, PLYMOUTH.

Incorporating South Devon and East Cornwall Hospital, Greenbank Road; Royal Albert Hospital, Devonport; Central Hospital, Livery Street.

Applications are invited for the post of HONORARY ASSISTANT SURGEON to the Hospital (the Honorary Surgical Registrar is a candidate for the post).

Candidates must be Masters of Surgery of a University of the United Kingdom or Fellows of the Royal College of Surgeons of England or of Edinburgh.

Applications and testimonials must reach the undersigned, from whom the rules and regulations governing the appointment may be obtained, on or before December 24th, 1938.

Personal canvassing disqualifies, but candidates may send copies of their application and testimonials to the members of the Board.

ARTHUR R. CASH,
General Superintendent.

November 30th, 1938.

HARLOW GENERAL ORTHOPAEDIC HOSPITAL, near Mansfield, Notts (155 Beds. Two Residents.)

Applications are invited for the posts of TWO HOUSE SURGEONS (male), one to commence on January 1st, 1939, and the other to commence on February 1st, 1939, the appointments being for six months in the first instance. Salary is at the rate of £200 per annum, with board, residence and laundry.

Applications, stating age, qualifications and experience, with copies of testimonials, should be received by the Secretary not later than December 12th, 1938.

ROMFORD ISOLATION HOSPITAL (235 Beds.)

APPOINTMENT OF JUNIOR ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified and registered Practitioners for the above post. Candidates must be male and unmarried. The appointment is for twelve months and is not renewable. Salary at the rate of £250 per annum, plus the usual emoluments. Applicants should have held a resident hospital post not necessarily in a fever hospital.

The Hospital is modern, offers good opportunities for the study of infectious diseases, and has a well-equipped Laboratory.

Applications, stating age, nationality, experience, etc., together with copies of two recent testimonials, to be sent to the undersigned, not later than Friday, December 16th, 1938.

Isolation Hospital, T. W. A. GREENHALGH,
Rush Green, Clerk to the Board.
Romford, Essex.

NORFOLK AND NORWICH HOSPITAL, Norwich. (440 Beds.)

Applications are invited for the post of HOUSE SURGEON to the ORTHOPAEDIC DEPARTMENT. Salary £120 per annum, with board, residence, and laundry. Candidates (male) must be unmarried and must possess registered qualifications.

Applications, stating age, nationality, etc., together with copies of testimonials, should be forwarded to the undersigned not later than Tuesday, December 13th, 1938.

FRANK INCH,
House Governor and Secretary.
Friday, December 2nd, 1938.

CHARGES for ADVERTISEMENTS

CIRCULATION OF THIS ISSUE—41,750 COPIES

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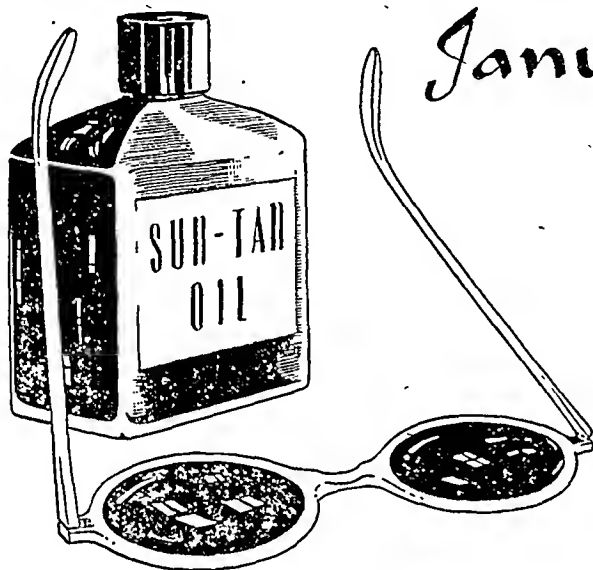
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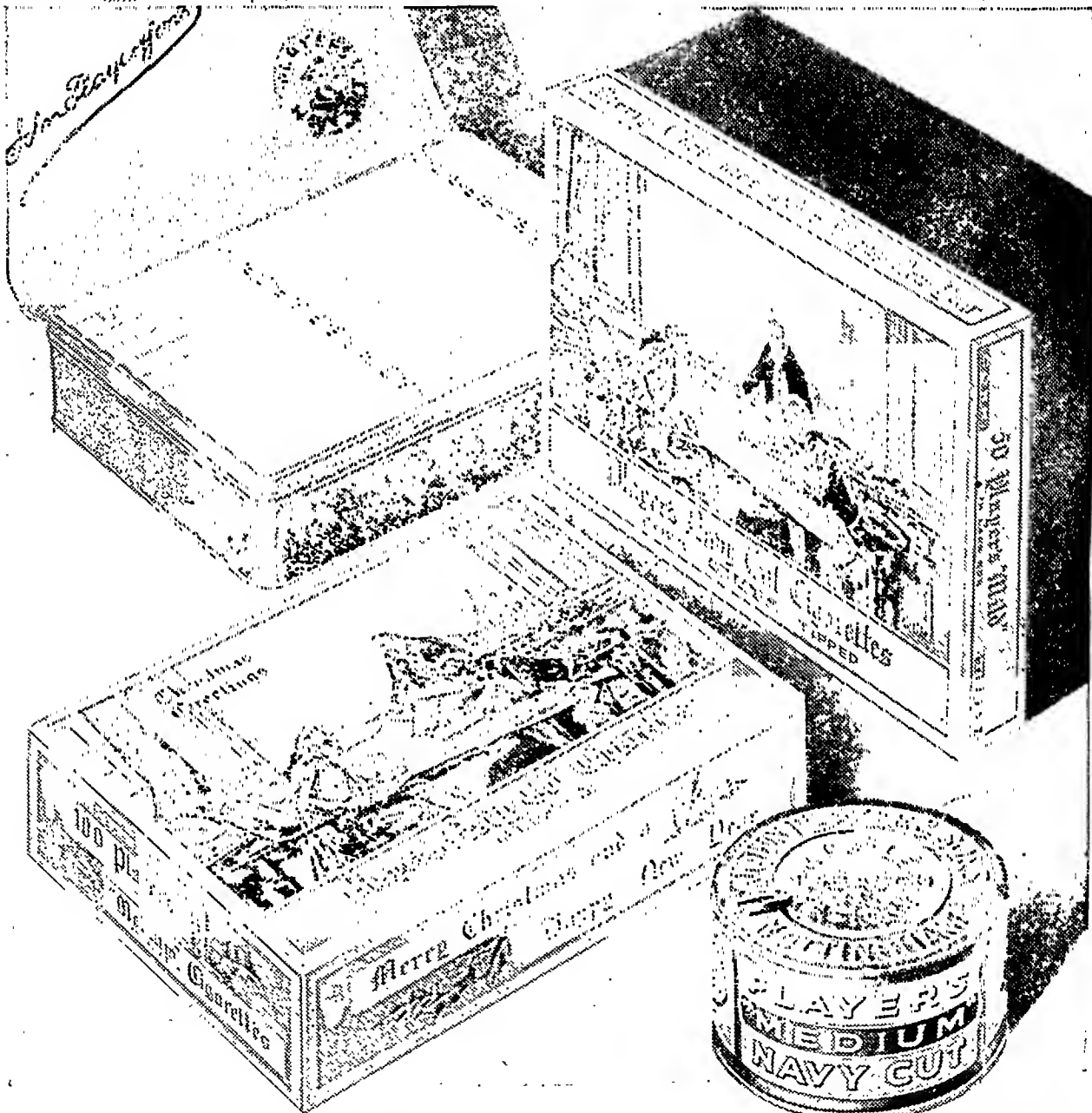
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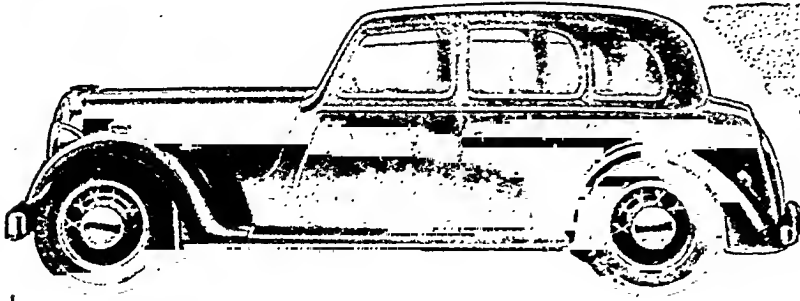
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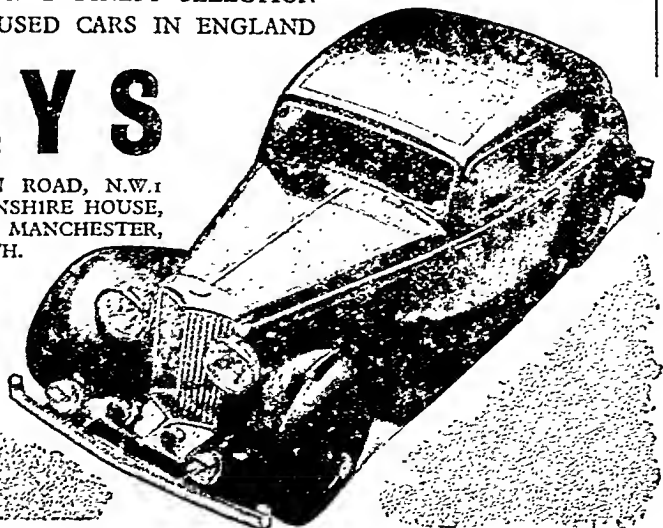
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THE LARGEST AND FINEST SELECTION
OF NEW AND USED CARS IN ENGLAND

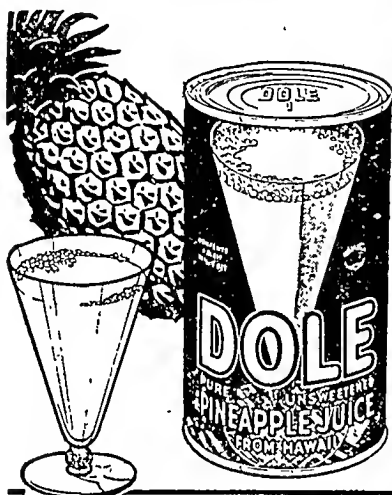
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HENLY HOUSE, 385 EUSTON ROAD, N.W.1
PHONE: EUSTON 4444. DEVONSHIRE HOUSE,
PICCADILLY, W.1, AND AT MANCHESTER,
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NEW ZEALAND BUTTER

*A Product of fresh green pastures
and
warm sunshine*



**Your patients will thank you
for recommending such a
delicious
fruit drink**

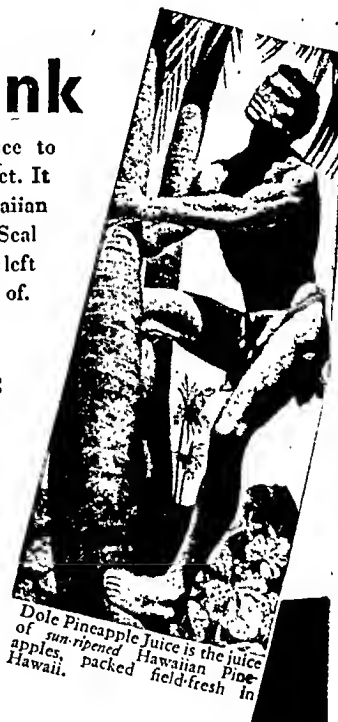
You can safely recommend Dole Pineapple Juice to patients who would like a new fruit juice in their diet. It is the pure, unsweetened juice of sun-ripened Hawaiian Pineapples, packed by the exclusive Dole Fast-Seal Vacuum-Packing Process. The typical analysis on the left shows you what Dole Pineapple Juice is composed of.

TYPICAL ANALYSIS

| | |
|---|--------|
| Moisture | 85.3 % |
| Ash | 0.4 % |
| Fat (ether extract) | 0.3 % |
| Protein (N×6.25) | 0.3 % |
| Crude fibre | 0.02% |
| Titratable acidity as citric acid | 0.9 % |
| Reducing sugars as invert sugar | 12.4 % |
| Carbohydrates other than sugars (by difference) | 0.38% |

+ + +

It is a good source of Vitamins A, B and C and natural fruit sugars. Dole Pineapple Juice has received the Seal of Acceptance of the American Medical Association Committee on Foods. Taste and test this tangy drink yourself—write us on your letter-head and we will send you a sample tin.



DOLE HAWAIIAN PINEAPPLE JUICE
J.K. HUSBAND & CO. LTD., 10 EASTCHEAP, LONDON, E.C.3

OBSTINATE PSORIASIS RELIEVED ★

Often, in spite of correcting faults of diet and clothing, psoriasis proves obstinate. In such cases local treatment is indicated. Sphagnol Ointment (which contains soothing, healing distillates of peat) will be found to be of assistance. It deals with the scaly eruptions and helps the growth of new and normal skin. Sphagnol Ointment, too, will be found

to be useful in the treatment of haemorrhoids and eczema.

In case you have had no personal experience of Sphagnol we shall be pleased to send you a clinical size sample for testing if you will write to Peat Products (Sphagnol) Ltd., Dept. B.M.J.20, 21, Bush Lane, London, E.C.4.

CONTAINS
DISTILLATES
OF PEAT.



Sphagnol

MEDICAL SOAPS
OINTMENT
SUPPOSITORIES, ETC

Prescribing with Confidence

The advantages of Rhinitol in the treatment of

COLDS

NASAL CONGESTION and CATARRH

and all other affections of the upper respiratory tract are—

1. Its very low ephedrine content.
2. Its property of emulsifying with body fluids owing to the vasogen vehicle.
3. Its complete freedom from irritant or toxic effects.
4. Its rapid yet prolonged action.

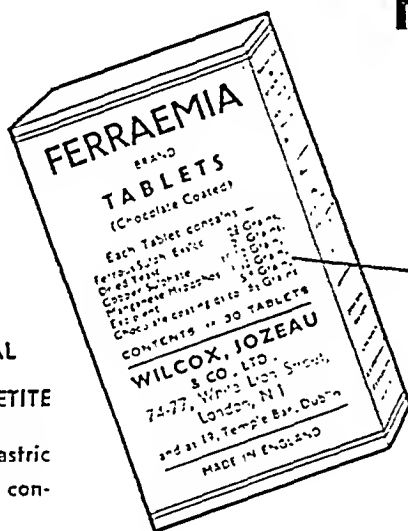
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RHINITOL
NASAL COMPOUND

| | |
|---------------|------|
| MENTHOL | 0.2 |
| EUCALYPTOL | 0.5 |
| CAMPHOR | 0.1 |
| CHLOROTHYMOL | 0.01 |
| ATLASIN | 0.2 |
| EPHEDRINE | 0.25 |
| VASOGEN AD100 | 0 |

The secret of confidence
is a personal trial
Please write for a free sample for personal or clinic trial.

FERRAEMIA FOR ANAEMIA

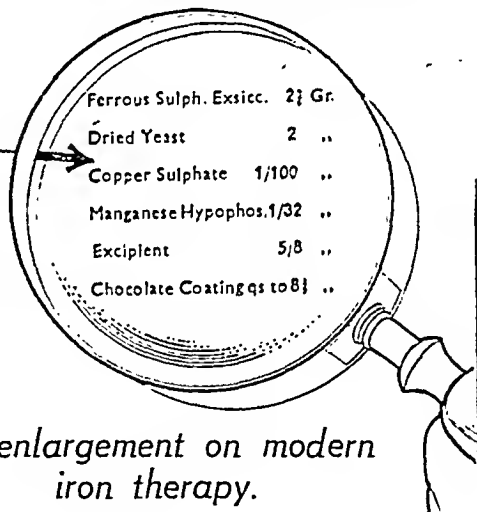


STABLE

ECONOMICAL

PROMOTES APPETITE

Does not cause gastric disturbance or constipation.



An enlargement on modern iron therapy.

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AZOCHLORAMID N-N-DICHLOROAZODICARBONAMIDINE

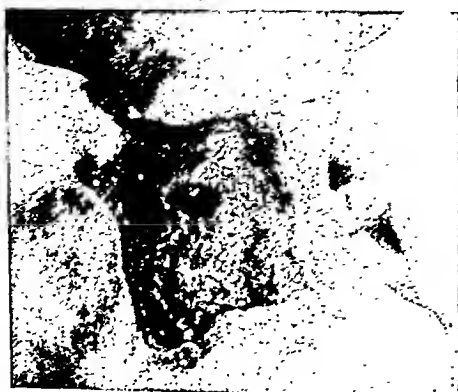
... is a new germicide, extremely stable and effective in the presence of serum, pus, exudates, and other organic matter. Recommended for the treatment of infected wounds and abscesses of various kinds and degrees.

THE NECK: Carbuncle on back of neck at junction with Thorax.

Using gauze moistened with Azochloramid Solution in Triacetin 1 : 500 the wound was packed post-operatively and the dressing changed every 48 hours. Photograph, after four weeks of treatment following excision—shows the area clean with healthy granulation.

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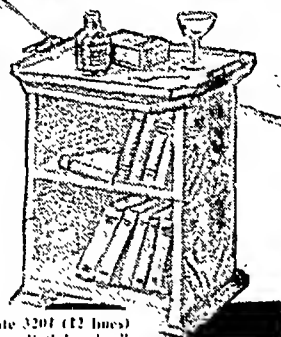
In Gastro-Intestinal Disorders

Allenburys
BEEF JUICE

In such conditions it is a primary consideration that the food should be light and unirritating. In gastric and duodenal ulceration and in the dyspepsias, Allenburys Beef Juice may safely and advantageously be given, where beef tea would often increase the pain and have a harmful effect. Because of its high protein and vitamin content, it provides a valuable means of keeping up a patient's strength.

In bottles at 1/9 and 3/- each.

Descriptive literature and clinical trial sample will be sent on application.



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Telegrams: "Allenburys Both London"

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**USEFUL
ANTI-ANÆMIC**
Preparation

- Eight years of clinical use attest to the potency of Solution Liver Extract Valentine. This concentrated aqueous extract contains both the Whipple fraction for secondary anaemia and the Colin-Minet principle for pernicious anaemia. It is rich in Vitamin B₁₂.

One tablespoonful is derived from 1 lb. of whole liver.

8-oz. Bottles 11/6

THE AQUEOUS EXTRACT
MOST SIMILAR TO WHOLE LIVER

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80/84, Clerkenwell Road, London, E.C.1.

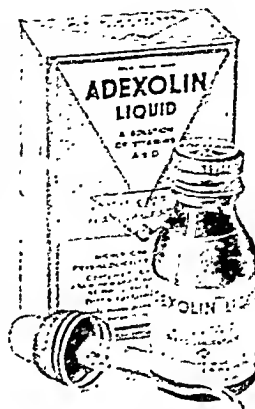
Specify Solution **LIVER EXTRACT-VALENTINE**

PRESCRIPTION for an INFANT'S PROTECTION

VITAMINS A and D—WINTER ROUTINE

10 DROPS DAILY IN THE FRUIT JUICE

Adexolin Liquid is an effective, simple and economical means of supplementing the infant's diet with vitamins A and D, an essential measure at this time of year, when sunshine is meagre and maternal reserves of the protective vitamins are low. In Adexolin Liquid, concentrates of the two vitamins are rationally balanced, building up and maintaining a strong barrier to infection by fortifying the epithelial structures and by promoting the assimilation of calcium and phosphorus (which in turn play an important part in maintaining the internal 'defence mechanism'). The daily dose of 10 drops is equivalent to twenty times as much cod-liver oil, without the fishy oiliness, excess fat, or nauseous taste. The routine of two drops in the usual fruit juice, or placed on the tongue after each feed, constitutes a powerful protection against the ills of winter. Two drops of Adexolin are also a wise addition to each feed of the bottle-fed infant.



ADEXOLIN LIQUID

Glass Laboratories Ltd., Greenford Middle. BY Reg 3434

For full particulars of the
Adexolin Liquid, see the
advertisements in the
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and in the Lancet, and in the
other medical journals.

RIGOURS ARE NOT A NORMAL ACCOMPANIMENT TO INTRAVENOUS SOLUTIONS



Unless your Intravenous Solutions are kept in a state of *absolute* sterility, stability and of constant pH value, they cannot be considered *safe*. Thousands of hospitals are now leaving the responsibility of providing them with unquestionably safe Intravenous Solutions to the Baxter Laboratories, who furnish a complete and instantly available Intravenous Service of varied Solutions in their "Vacoliter" containers and ready-to-use accessories.

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BAXTER LABORATORIES LIMITED,
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"Vitamin B₁ deficiency an outstanding fault in the diet of many millions of people"

(B.M.J., 16 Oct., 1937, p. 753)

The reduction in Vitamin B₁ intake, due to changes in dietary habits during the last hundred years, normally amounts to at least 50 per cent., and may be as much as 70 per cent. It has been demonstrated, both experimentally and clinically, that a shortage of Vitamin B acts as a limiting factor in the maintenance of health and nutrition, and often results in gastro-intestinal disorders, loss of appetite, indigestion, constipation and, if long continued, contributes to neuritis and arthritis.

The logical way to rectify such shortage is to restore to the diet the Vitamin B-containing substance whose removal is responsible for the deficiency.

This substance is available in the form of Bemax.

For years it has been the policy of the proprietors of Bemax to ensure its Vitamin B₁ activity by biological assay of every day's output. So far as is known, Bemax is the only food product for which such a claim is or can be made.

The quantity of Vitamin B₁ supplied by the normal daily dose of Bemax—one tablespoonful—is 200 International Units, an amount sufficient to raise a deficient diet to an optimal level.

The normal daily dose of Bemax supplies, in addition to Vitamin B₁, significant quantities of Vitamins B₂ and B₆, Copper, Iron and Phosphorus as well as rich quantities of Vitamin E and other essential dietary elements.

Bemax is an entirely natural product consisting only of stabilised wheat germs selected for their Vitamin B₁ activity with no addition whatsoever. Clinical sample and literature on request. Vitamins Ltd., The Bemax Laboratories, (Dept. B.74), 23, Upper Mall, Hammersmith, W.6.

Habitual Abortion and Dietary Sterility

The increasing use of Vitamin E for habitual abortion and sterility of dietary origin demands a wheat germ oil of proven high activity and of stable Vitamin value. Such an oil is available for the medical profession in Fertiol.

FERTIOL

Wheat Germ Oil Capsules

A highly active source of Vitamin E.

A complimentary box of Fertiol Capsules and brochure sent on request.

Vitamins Ltd.,

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Anti-Cold — Anti-Influenza

INOCULATION BY THE ORIGINAL VACCINE
IN TABLET FORM

BUCCALINE

Made in Switzerland by the Serum and Vaccine Institute under the supervision of Dr. G. Sobernheim, Professor of the University of Berne.

Under normal conditions Buccaline Tablets will give protection against Colds and Influenza for a period of four to six months.

The Director of the Barmelweid Sanatorium in Switzerland, Dr. Werner Jost, writes in an article appearing in the *Swiss Medical Journal* :—

"I have, in the last three years, tested Buccaline on nearly 900 people, sick and healthy. The effects appear to me so clear that the vaccine should be as generally used as possible."

Set of Three Immunising Doses:

Adults, 5/- per tube (post free). Children (over 4 years), 3/6 per tube (post free).

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Obtainable from any Chemist, or from the Sole Agents for Great Britain, Ireland and the Colonies:

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ACRIFLAVINE 'B.D.'

The powerful antiseptic properties of acriflavine are universally recognised and are utilised in many branches of medical and surgical practice. In addition to its issue as a pure substance, the following presentations of Acriflavine 'B.D.' are available :—

CREAM— for wounds, scalds and burns.

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EMULSION— particularly valuable as a perineal dressing.

SOLUTION (concentrated)— for the rapid preparation of solutions for general surgical use.

PESSARIES— for vaginal application, three sizes, for adults, children and infants.

SOLUTION TABLETS— for the rapid preparation of isotonic solutions.

A special non-toxic acriflavine is available—Acriflavine 'B.D.' (Intravenous)— for use in the treatment of gonorrhœa and various bacteræmic states.

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THE FOOD FOR THE SICK

Supplies directly available energising food; especially designed to make no draught upon the strength of the enfeebled organism.

'PANOPEPTON' contains, in stable agreeable solution, 24% of solids; derived by physiological hydrolysis from prime lean beef and whole wheat, in a scientifically balanced ratio.

'PANOPEPTON' has nourished and restored in many cases where the patient has steadily lost strength on other foods.

A FREE SAMPLE WILL BE SENT TO MEMBERS OF THE MEDICAL PROFESSION ON REQUEST.

Supplied in 12-oz. bottles.

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A SURGICAL SOLVENT AND ANTISEPTIC

AN EXTRACT OF THE GASTRIC GLAND OBTAINED BY DIRECT SOLUTION, ESPECIALLY PREPARED FOR EXTERNAL APPLICATION.

'ENZYMOL' exerts remarkable solvent, healing, antiseptic, and deodorizing action in the treatment of pus cases in general, gangrene, abscesses, sinuses, leg ulcers, etc., etc.

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COSOME 'MERCK'

(BRAND 'EPHETONIN' COUGH SYRUP)

for the treatment of

COUGHS OF ALL KINDS

in children and adults,
Whooping-cough in particular.

CATARRHAL CONDITIONS

INFLUENZA AND INFLUENZAL PNEUMONIA

Particularly if associated with circulatory disturbances.
BRONCHITIS—Acute and Chronic

Particularly suitable in paediatrics

"COSOME" contains "Ephetonin," "Dionin" and syrup of thyme, all three of which components exercise a distinctly beneficial action in respiratory diseases. "Ephetonin," as a stimulant of the sympathetic nervous system, dilates the bronchials and promotes expectoration. Further, it maintains blood pressure and stimulates the respiratory centre and the action of the heart. "Dionin" is effective in alleviating irritant cough and relieving pain, while the use of syrup of thyme in the treatment of coughs and other respiratory affections is well known.

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Publicity Department:

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IN NUTRITIONAL CRISES

WHILE the average adult is able to maintain a healthy existence on the ordinary everyday diet, there are certain periods in the life of each individual when an increased demand for the vital food elements arises. Outstanding examples are the period of adolescence, the pregnant and nursing states and the stage of convalescence after severe and lowering illnesses.

"Ovaltine" is an eminently satisfactory adjunct to the ordinary dietary at all such times. Composed of fresh, full-cream milk, eggs and malt extract in proportions adjusted to meet physiological requirements, it provides, in an agreeable form, calcium, phosphorus, vitamins and other important food elements.

"Ovaltine" is a metabolic stimulant and digestive which assists the assimilation of other foods and promotes general good health. It can, therefore, be taken regularly with advantage in place of tea, coffee, or other beverages. A noteworthy feature is its delightful taste which is appreciated by people of all ages.

A liberal supply for clinical trial sent free on request.

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The Reconstructive Tonic



In addition to liquid extract of liver Livogen contains all the essential members of the Vitamin B complex, including Vitamin B₁, lactoflavine and nicotinic acid which are concerned in the physiological activity of the brain and nervous system. Deficiencies of these substances, although usually not marked, are common.

Livogen, therefore, is a valuable tonic in debilitated conditions particularly when symptoms of neuritis, neuralgia and other nervous dysfunctions are present.

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In the conduct of labour 'Dettol' possesses marked superiority over carbolic and cresylic antiseptics. 'Dettol' has a Rideal Walker co-efficient of 3.0, yet 'Dettol' can be used at really effective strengths — without discomfort, danger or staining. 'Dettol' maintains high bactericidal efficiency in the presence of blood and other organic matter. 'Dettol' is a clean, clear, non-poisonous fluid — with a distinctly pleasant smell.

Sold by Chemists and Medical Suppliers in bottles, 1, 1½, 3, 5, and 7 ½, and in larger sizes for Medical and Hospital use. These prices do not apply in Eire or Overseas. Sample, and full information on request.



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Ovoferrin Brand Colloidal Iron Tonic presents iron in its most agreeable, most assimilable form. It does not stain the teeth; it is odourless, practically tasteless, non-astringent. It does not constipate... it stimulates the jaded appetite... it is tolerated by the most sensitive stomach and is readily taken by children. Adult dose is one tablespoonful in milk or water after meals and at bedtime. Prescribed in 11-ounce bottles. Write for free professional sample.



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 — but
pleasant!



In spite of very high germicidal efficiency 'Dettolin' has a distinctly pleasant taste — an advantage which tends to ensure that the patient will gargle thoroughly and often. 'Dettolin' is specially made to deal with the micro-organisms concerned in affections of the mouth and throat — made so that it is soothing and gentle on delicate mucous membrane. 'Dettolin' contains among other ingredients the active germicidal principle of 'Dettol' — the modern antiseptic.

*'Dettolin' is obtainable from Chemists and Medical Suppliers.
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The most potent Liver
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The full therapeutic equivalent
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A 4-oz. bottle of Hepatex con-
tains sufficient for a week's
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Oestroform possesses a specific action in the production of the sexual characteristics in the female.

It is thus indicated in the treatment of:

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Sterility and Dysmenorrhœa due to Uterine Hypoplasia

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Defective development of the mammary glands

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SORE THROAT

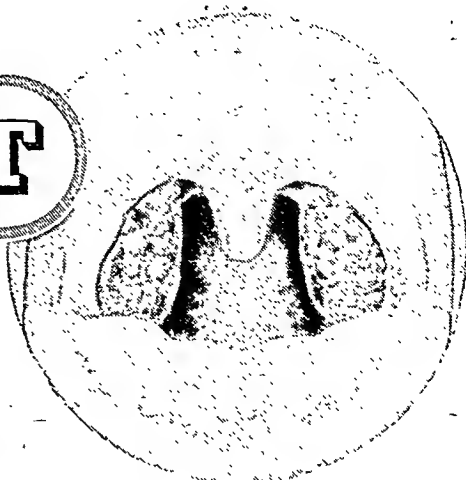
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destroy bacteria

T.C.P. has an R.W. coefficient of 10 (dry salt). Its efficient bactericidal properties are due to its unique organic combination of chlorine and iodine. Its antiseptic action is not impaired by contact with body fluids.

relieve dysphagia

The salicyl radicle in the T.C.P. molecule exerts a marked analgesic effect and this, coupled with its excellent penetrative power, ensures quick relief of inflammatory oedema and the resulting dysphagia.

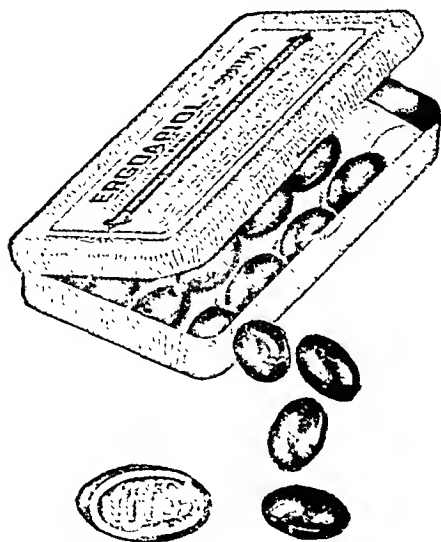


T.C.P. is a safe antiseptic for use as a routine gargle or spray, in inflammatory and infective throat conditions. It does not irritate or injure the most sensitive tissues.

A clinical sample of T.C.P. may be obtained by any physician from:— British Alkaloids Ltd., Dashwood House, London, E.C.2

T.C.P. THE *plus* ANTISEPTIC

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MENORRHAGIA - MENOPAUSE

Today, as for years, Ergoapiol (Smith) is the accepted medicament in combating those menstrual anomalies which may be traced to constitutional disturbances: atonicity of the reproductive organs; inflammatory conditions of the uterus or its appendages; mental emotion or exposure to the elements.

The physician readily can ascertain whether his prescription for Ergoapiol (Smith) has been correctly filled by dividing the capsule at the seam, thus revealing the initials M.H.S. embossed on the inner surface, as shown in photographic enlargement.

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BRONCHOVYDRIN**

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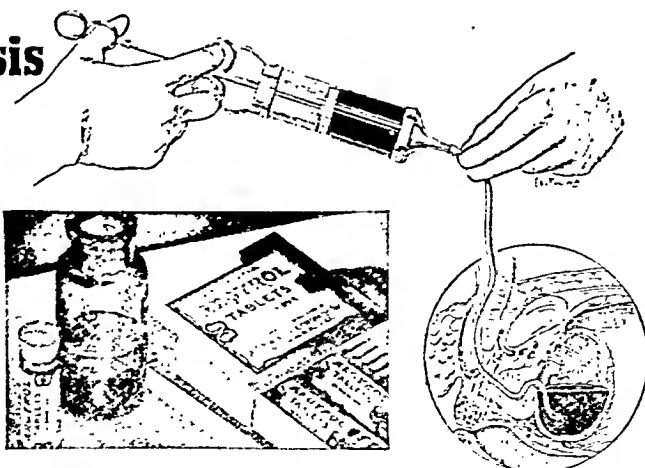
★ Vesical Neck Fibrosis

ARGYROL

BRAND SILVER PROTIN

Urologists are generally agreed that vesical neck fibrosis or median bar is a late sequel of prostatic or periprostatic inflammation, which frequently responds to conservative, non-operative measures. Prostatic massage, dilatation instillations of 10-20 per cent. Argyrol solution in the bladder and special attention to possible remote foci of infection, often suffice to afford relief and thus prevent the otherwise inevitable resection or prostatectomy.

Argyrol is especially useful in the infected bladder, which generally accompanies the fibrosis, because of its unique sedative and bacteriostatic properties. The irritable bladder, with its distressing symptoms, usually makes a strikingly quick response to the soothing influence of Argyrol and soon functions normally, without pain or distress. Chemically different from all other silver products, Argyrol, although it is a mild silver protein, in fact the prototype of all



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Insistence on having the name ARGYROL on all solutions ordered or prescribed, will ensure the clinical results you expect.

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FASSETT & JOHNSON, LTD.,
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THERE IS ONE AND ONLY ONE "ARGYROL," MADE ONLY BY: A. C. BARNES COMPANY. SOLE MAKERS OF ARGYROL AND OVOFERRIN

Announcing

PERTUSSIS ANTIGEN (DETOXIFIED)

Lederle

THIS new form of therapy is recommended for the treatment of active cases of Whooping Cough as well as in general prophylaxis.

Free from bacterial cells, "PERTUSSIS ANTIGEN (DETOXIFIED) *Lederle*" is a departure from the usual form of vaccine therapy. Based upon a toxic principle derived from *H. pertussis*, treatment with formalin converts the toxic factor into a non-toxic substance having antigenic properties.

If used early in *treatment* or soon after exposure, the immunological response is sufficiently rapid to modify or prevent, respectively, the disease in the majority of cases, as evidenced by the following—49 of 53 cases treated during the first or second week did not develop whooping or vomiting.

Of 70 cases treated during the third or fourth week, 30 became symptom-free after the completion of injections, while the remainder showed marked improvement but continued to run a mild, modified course of whooping cough. Cases treated during the fifth week showed no benefit.

When used for *prevention*, only 3 out of 140 developed the disease and those 3 were mild atypical cases.

Packages

3 vials—2 cc. each, 6/3

1 vial—20 cc., 12/6

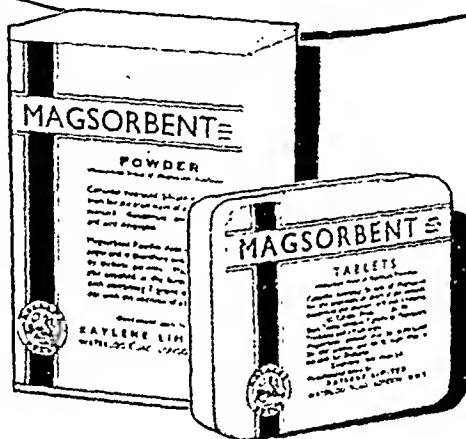


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Magsorbent is the original and standard brand of synthetic hydrated magnesium trisilicate—the safe and effective ANTACID for the treatment of Chronic Peptic Ulcer, Hyperchlorhydric Dyspepsia and Acid Fermentation.

Sole Distributors: ADSORBENTS, LTD..

Manufactured solely by:—

KAYLENE, LIMITED

WATERLOO ROAD, LONDON, N.W.2

A thorough investigation

(reported in "The Analyst," 1936, Lxi, 310.)

could find no tea on the market which was free from tannin

The following facts about tea and tea tannin have been established by recent clinical and laboratory experiment:—

- [A] Tea as normally drunk is harmless and has no ill effects whatever on the human body. The amount of caffeine and tea tannin in tea is pharmacologically small.
- [B] Tea tannin is a different substance from the tannic acid of the Pharmacopœia, which is a Pyrogallie tannin, and the two should not be confused.
- [C] Clinical experiments have shown that the action of tea tannin is very much milder than that of tannic acid, and the different composition of the two tannins is proved by the fact that the tannic acid of the Pharmacopœia is about 25 times stronger as an acid than tea tannin.
- [D] Many common beverages besides tea contain similar tannins and in comparable amounts.
- [E] If there were any teas completely free from tannin, they would be almost entirely tasteless.

ELI LILLY AND COMPANY LIMITED

Pharmaceutical and Biological Products



TRADE MARK 'MERTHIOLATE' BRAND
Sodium Ethyl Mercuri Thiosalicylate

In the Operating Room

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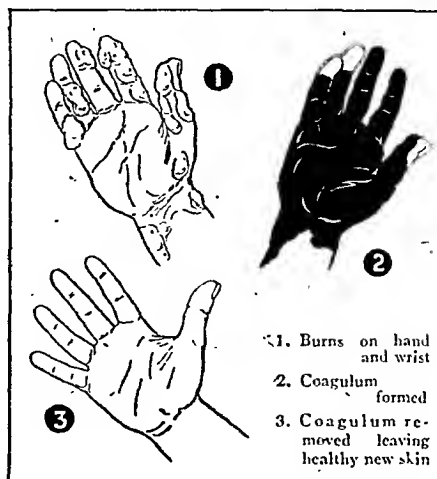
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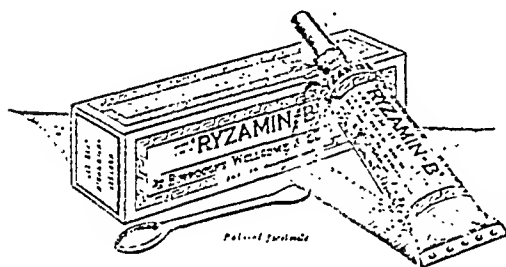
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SCIATICA AND ITS TREATMENT*

BY

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Sciatica, or pain which is referred along the course of the sciatic nerve, may arise from a great number of causes. One of the commonest is a perineuritis of the sciatic sheath in the region of the sciatic notch where the nerve escapes from the pelvis into the buttock, which may be due to the spread of rheumatic or gouty fibrositis of the lumbo-sacral fascia or lumbar muscles, known as lumbago.

The nerve trunk may be the subject of a neuritis from toxic causes, such as diabetes, lead, arsenic, etc., or an infective neuritis from dental sepsis. I have known it produced by a direct chill to the buttock from sitting on a cold wet seat; and trauma to the buttock from a fall in the hunting field or prolonged pressure from lying on a hard surface, as in coma due to mine explosions, will produce it.

Types of Sciatica

One may speak of two types of sciatica, high sciatica and low sciatica, the latter form being due to lesions in the neighbourhood of the sciatic notch, as already referred to. In this type the Achilles jerk is often lost, and there may be a tendency to lean over towards the affected side. High sciatica would be due to lesions in the neighbourhood of the intervertebral foramina around the fourth and fifth lumbar nerves, due to rheumatic or septic inflammation, or even to osteo-arthritis. In this form the Achilles jerk is usually unaffected, as this reflex is concerned in the first sacral root, and there is often well-marked contralateral scoliosis in which the hip on the affected side is thrown outwards and the patient leans away from that side. In these cases forcing the body into an erect position causes pain down the affected leg. In this type of case, unless contractures have developed after many months of suffering, the scoliosis disappears on lying flat, especially if the legs are pulled down, with the body held to resist the pull. This disappearance of the scoliosis without producing pain is probably due to the nerve roots no longer being pressed on at the intervertebral foramina, and is a demonstration that the contralateral scoliosis apparent on standing is an involuntary posture assumed by the patient to relieve the pressure at these points and is not caused by arthritis of the intervertebral articulations, as asserted by Putti.

* Read in opening a discussion at a joint meeting of the Sections of Neurology and Psychological Medicine, and Orthopaedics and Fractures at the Annual Meeting of the British Medical Association, Plymouth, 1938.

Aetiology

Pain in the sciatic distribution may be caused by many forms of bony abnormality, such as sacralization of the fifth lumbar vertebra, or a separate first sacral piece which may be called a sixth lumbar vertebra. Sacro-iliac subluxation from trauma or due to the flat back acquired on an operating table under a prolonged anaesthetic is another cause of pain in the region of the lower part of the buttock which may be associated with pain down the back of the thigh. This pain, which is sometimes agonizing, may be due to the lumbo-sacral cord being pressed on by the sharp edge of the sacrum at the sacro-iliac joint. These cases are sometimes dramatically cured by manipulation under an anaesthetic.

Bony disease in the pelvic bones, such as Paget's disease affecting the ischium, or other tumours of the pelvic bones or in the pelvis, secondary malignant growths in the lumbo-sacral spine, or tumours in the lumbo-sacral cord or cauda equina, have all to be considered in the diagnosis of obscure cases of pain in this region. What may be called malignant sciatica is by no means an uncommon sequel of carcinoma of the breast.

In the diagnosis of these cases care must be taken to examine for muscular wasting in the leg or thigh, for patches of anaesthesia, or for alterations of the deep reflexes. If the knee-jerk is diminished or lost we know at once that the case is not a true sciatica, but that the anterior crural system is involved. Lumbar puncture and examination of the cerebrospinal fluid may give a clue in tumours low down in the spinal canal involving the sacral cord or cauda equina. Besides the more usual forms of tumour such as fibroma or sarcoma, cysticercus, lipoma, and chronic arachnoiditis, with cystic formation, may be mentioned, and herniation of the body of an intervertebral disk. These will scarcely show in radiographs, except with careful lipiodol pictures. The pressure may be found to be below normal, and there may be other evidences of spinal block, with high protein content in the fluid.

Tuberculous caries of the ilium or sacrum, with or without psoas abscess, or intrapelvic pressure from a high forceps delivery in childbirth may press upon the nerve and cause severe dropped foot, with anaesthesia of the sciatic distribution. I saw one such case, with left sciatic paralysis, in which delivery was accomplished under an anaesthetic. There was also paralysis of the musculo-

spiral nerve on the right side from arm pressure against the edge of the table. The diagnosis which had been sent up with the case to hospital was "crossed paralysis."

Osteo-arthritis of the hip-joint may cause pain not only in the region of the hip and knee but even down to the ankle, and true sciatic neuritis may result from spread of the inflammatory reaction around the hip-joint to the sciatic nerve, which passes only half an inch behind it. In all cases it is advisable to examine the movements of the hip-joint to make sure that they are free. In many cases of sciatica, whether of the low or the high type, the pain will be increased by stretching the nerve, as by flexing the hip with the knee straight. This sign is usually known as Lasègue's sign, which is precisely the same as Kernig's sign in meningitis. Patients suffering from sciatica usually prefer to lie on the opposite side, with the affected knee slightly drawn up, and a pillow should be given to separate the knees, with a curved support under the bedclothes to prevent the weight pressing on the foot.

Points in Diagnosis

There are many points, therefore, to attend to in the diagnosis of a case of apparent sciatica when first presented: knee-jerks and Achilles jerks should be compared with those on the other side, muscular wasting should be looked for, and the sensation also tested. The hip-joint should be moved and the nerve stretched gently to look for increase of pain, and a rectal examination is generally advisable. If the knee-jerk is diminished, tabes dorsalis may be thought of and the pupils examined, or alcoholic or diabetic neuritis looked for.

Tenderness over the notch in the buttock and along the upper part of the nerve is common in the low type of sciatica, but usually this is not present in high sciatica with contralateral scoliosis. There is no wasting of muscles in the common rheumatic types of sciatica, either of low or high type, except in the very chronic cases of many months' or years' duration, when the nerve may be actually shrunken and cord-like. In such extreme cases it will be necessary to cut down upon the nerve and scarify it longitudinally in order to free the adhesions.

Treatment

The treatment of sciatica will vary according to the type. In the low type of sciatica, especially when there is tenderness at the notch and the patient leans towards the affected side, rest in bed should be insisted on, and local heat by radiant-heat lamp or infra-red rays may give considerable relief. Some practitioners favour short-wave radiotherapy, and I have seen this successful when most other treatments have failed, but as a rule I have not found diathermy to be of much service. Galvanism often aggravates the pain in the acute stage of sciatica, though in the chronic stage it sometimes may prove valuable. Moist hot packs, such as cataplasma kaolini or mud packs, or mud baths at Harrogate or at the Continental spas such as Pistany or Acqui, may be given in chronic cases where the patient is able to walk. The very acute cases must be treated in bed. Local applications of liniments, such as A.B.C. or methyl salicylate, may be applied in addition to hot packs, and for the acute pain analgesics should be used freely. Compound aspirin tablets with or without codeine, and in more severe cases pyramidon, heroin, and medinal cachets, or actual injections of omnopon or morphine, may be necessary to tide the patient over the severe attacks of pain and to produce sleep.

Two methods of massive injection of novocain and saline may be used with great benefit in a large proportion of cases, and sometimes rapid cure may follow their use. In the low type of sciatica such as that following lumbosacral fibrositis, in which there is tenderness on pressure over the nerve in the buttock and at the notch, the injection may be made into the nerve trunk itself at the notch and a second injection at the level of the small trochanter. This is not the place to give the details of the method of injection, but 2 c.cm. of 2 per cent. novocain are first injected into the nerve and then 80 to 100 c.cm. of normal warm saline. A second injection may be of service a few days later. This method of injection of the nerve was first used in 1902 by Lange (1904).

Another method of epidural injection was advocated in 1901 by Sicard (Sicard, 1921)—by injection of novocain and saline up to 100 c.cm. into the sacral canal through the sacro-coecygeal foramen. Owing to the sacral canal not communicating with the intrathecal space, which ends at the level of the lower end of the first piece of the sacrum, the saline forces its way upwards outside the theca, stretching the sacral and even the lumbar roots as they emerge. This method is probably of greater service in the high form of sciatica. Other solutions are sometimes used, such as 10 to 20 c.cm. of a 40 per cent. solution of antipyrine, as Feiling (1928) recommends.

For obstinate chronic cases Dogliotti's method of intraspinal injection of absolute alcohol has been recommended; but it is a dangerous treatment, and should not be undertaken by a novice. I have used it with success in a case of eight years' severe constant pain and misery due to sacralization of the fifth lumbar vertebra, procuring several months' complete relief of pain, though for the first fortnight sphincter paresis was present.

Fixation of the limb with a Liston splint along the side has been advised, but I do not recommend it, as patients usually cannot bear to be kept in a fixed position for many hours. Another form of fixation is sometimes of benefit—namely, a plaster jacket, applied with the patient slung up by the armpits and head so as to stretch the spine, the plaster bandages being applied from under the armpits to just below the level of the great trochanters. The advantage of a plaster jacket is that the patient can get about and even attend to his business, in reason, though it has certain obvious disadvantages. An alternative is keeping the patient confined to bed, with the feet raised on six-inch blocks, and extension to the spine applied by means of leather anklets attached by cords running over pulleys fixed on the foot of the bed to separate shot-bags weighing 6 to 8 lb. A certain amount of counter-extension by padded axilla rings tied to the head of the bed will probably be necessary in addition to the raising of the foot of the bed on blocks. This method of extension does not preclude a certain amount of lateral movement or rotation by the patient, and the weights are easily detached at night or for toilet purposes.

If a plaster jacket is applied it is very important that proper extension to the spine, including the neck, should be arranged for during the whole period of the fixing of the plaster and its setting. This is best done by the use of Sayre's extension apparatus, with tripod and pulleys fixed to leather bands for the chin and occiput, and axilla pads. The patient is slowly and carefully raised by the pulleys on to his toes, most of the weight being taken by the arms. If raised in this way the patient can remain quite comfortably semi-suspended while plaster bandages are applied from axillae to trochanters over a

stockinet vest, the bony prominences, such as the iliac crest, being well padded with adhesive felt, known as elephant plaster.

Conclusion

Briefly, therefore, the treatment of an acute severe sciatica should be complete rest in bed, with local anodyne liniments and cataplasma kaolini, and sometimes local heat by infra-red rays. Analgesic drugs must be given, such as aspirin, phenacetin, and caffeine tablets, with or without codeine or opium, and even morphine or heroin injections may be required for a few days. Sleep may be obtained by the use of 7½ grains of medinal with two veganin tablets. Massage must never be used in the acute stage. Later in the more chronic stage massage may help, and galvanism, diathermy, or local heat should be tried. If these fail, massive injection of the nerve or epidural injection by novocain and saline, and extension by weights attached to anklets, with counter-extension at the axilla, should be tried. If these give only temporary relief, it may be advisable to fix a plaster from the axillae to the trochanters so that the patient may be able to get about and attend to a certain amount of business.

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INTERVERTEBRAL DISK LESIONS AS CAUSE OF SCIATICA*

BY

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(WITH SPECIAL PLATE)

A symposium such as this, which brings before us the experience of various men gained from the laboratory, the operating theatre, and the office or dispensary, is a valuable method of integrating our expanding knowledge concerning sciatica. It gives me particular pleasure to open the discussion, and I am deeply sensible of the honour conferred upon me.

For our purposes we may define sciatica as a symptom characterized by the complaint of pain in the posterior thigh and postero-lateral calf. You will note that I do not call it neuralgia, neuritis, or radiculitis, nor do I state that it is pain in the course of the sciatic nerve. It is presumably peripheral pain in the regions supplied by the sciatic nerve, due to irritation of the nerve or of any of the roots of the lumbo-sacral plexus which form the nerve. It must be obvious to all but charlatans and quacks that there are many causes of sciatic pain, the mere enumeration of which is tedious. The actual pathological change present in many, perhaps most, of the clinical cases of sciatica is unknown. It is quite probable that further advancement in our knowledge of this condition will come chiefly from increased experience of the actual pathology present and not from theoretic considerations or didactic therapeutic tests. A search of the literature reveals a plethora of cures and a sad dearth of know-

ledge as to what is being cured. There is one group of patients whose sciatica we have come to recognize as being due to the pressure of intervertebral disk tissue displaced posteriorly against one or more roots of the cauda equina. It is of this pathological entity that I wish to speak.

Anatomy

A normal intervertebral disk is composed of a semi-fluid gelatinous central nucleus pulposus which is encircled by a ring of dense coarse fibrous tissue, the annulus fibrosus. The annulus is intimately attached to the cartilaginous end-plates of the vertebrae immediately above and below each disk and also blends with the strong anterior and posterior longitudinal vertebral ligaments. Each intervertebral disk has a certain internal pressure which prevents its collapse when the superincumbent weight is placed upon it. The total amount of spinal mobility is the summation of the mobility of each of the intervertebral disks.

The function of the disk is to permit mobility of the spine, to cushion the central nervous system from trauma, and to transmit the body weight from one vertebra to another. Schmorl has made exhaustive studies of the pathological changes which occur in intervertebral disks. Extrusion of the nucleus pulposus may occur in any direction, following weakening of its surrounding tissues by developmental defect, disease, or trauma. If the cartilaginous end-plate is weakened, protrusion may occur into the vertebral body. Such lesions can often be detected by radiographs. (See Fig. 5, Special Plate.) So far as is known, these protrusions never cause radiating pain. If the annulus fibrosus is weakened by disease or trauma, peripheral protrusion of intervertebral disk tissue will occur, sometimes slowly, as a developing hernia, sometimes very rapidly, as a traumatic rupture. Schmorl found that small posterior protrusions into the spinal canal occurred in about 15 per cent. of spines examined at necropsy. He felt that they were of no particular clinical significance. Kocher in 1898 and Middleton and Teacher in 1911 reported cases of traumatic posterior intervertebral disk ruptures of sufficient size to cause paraplegia.

Neurological surgeons have recognized and removed tissue arising from intervertebral disks and pressing on the spinal cord or nerve roots, and have called these tumours chondromas or ecechondromas. It is quite probable that most of these tumours were not true new growths, but were actually displaced intervertebral disk tissue. With the advent of localizing diagnostic procedures, particularly the use in the subarachnoid spaces of iodized oil opaque to the roentgen ray, we have begun to appreciate that these posterior protrusions are not uncommon lesions and that many patients whose sciatica was previously unexplained, or who had been treated for sciatic scoliosis or lumbo-sacral or sacro-iliac strain, were in fact suffering from pressure on one or more roots of the cauda equina caused by displaced intervertebral disk tissue. We have had over eighty cases verified by operation at the Massachusetts General Hospital. Posterior ruptures of intervertebral disk tissue may occur at any level, but seem to occur most frequently in the cervical and lumbar regions. The disk between the fourth and fifth lumbar vertebrae is by far the most common site. This is probably due to the fact that this represents the apex of the anterior lumbar curve and the point of maximum stress from the superincumbent body weight. About 50 per cent. of the lumbar lesions occur at this disk; 35 per cent. at the lumbo-sacral disk. It is obvious, I think, that the symptoms and signs of a ruptured lumbar

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intervertebral disk will vary greatly, depending on its location and size. The largest protrusions cause complete occlusion of the dural sac with the usual signs and symptoms of paraplegia, partial or complete, with sensory motor and reflex changes, and partial or complete sphincter paralysis. There should be no difficulty in diagnosis or localization of such lesions. The smaller disk protrusions that press on only one or two roots are the ones which present difficulties in diagnosis and which may cause sciatic pain without demonstrable neurological changes.

TABLE

| Location of lesion: | Per cent. |
|---|-----------|
| Disk between L4-5 | 50 |
| " " L5-St | 35 |
| " " L3-4 } | 10 |
| " " L1-2 } | 5 |
| " " L2-3 | |
| History of injury: | |
| (a) Immediately preceding disability | 50 |
| (b) Latent period preceding disability | 30 |
| Total | 80 |
| Type of injury: | |
| Lifting a heavy weight | 50 |
| Falls from a height | |
| Twisting strain | 30 |
| Miscellaneous | |
| No known injury | 20 |
| Pain: | |
| Constant from onset until operated upon | 60 |
| Remissions and relapses | 40 |
| Areas to which pain was referred (unilateral 80 per cent.; bilateral 20 per cent.): | |
| Posterior and lateral thigh | 95-100 |
| Postero-lateral calf | 90 |
| Lumbo-sacral region | 70 |
| Gluteal and sacro-iliac regions | 65 |
| Lateral border of foot | 5 |
| Signs: | |
| Positive Lasègue (limitation of straight leg raising) | 100 |
| "Sciatic scoliosis" | 60 |
| Reversal of lumbar curve (kyphos or flat back) | 90 |
| Local tenderness over the lumbar spinous processes | 50 |
| Radiating pain on coughing, sneezing, or jugular compression | 40 |
| Neurological signs: | |
| Absent or diminished ankle-jerk | 50 |
| Sensory change in the extremity (anaesthesia or hypoesthesia) | 35 |
| Motor changes (weakness or paralysis) | 15 |
| Sphincter disturbance | 5 |
| Lumbar puncture: | |
| Total protein content above 40 mg. per 100 c.cm. | 85 |
| Total protein content below 40 mg. per 100 c.cm. | 15 |
| Dynamic evidence of block, whether partial or complete | 10 |
| Cytological changes in spinal fluid | rare |

This table is a statistical summary of data obtained from a study of the records of over 100 verified cases of lumbar intervertebral disk ruptures into the spinal canal.

The symptoms and signs of a ruptured lumbar intervertebral disk are so constant and characteristic that the presumptive diagnosis can often be made before radiological studies are made by the use of lipiodol. The typical case is a vigorous man in his thirties who was perfectly well until, while lifting a heavy weight, he felt something "snap" in his low back and had immediate pain in the lumbo-sacral region. Some time thereafter he developed "sciatica" in one leg, which he describes as a deep-seated pain beginning in the buttock, radiating down the posterior thigh, the postero-lateral aspect of the calf, and occasionally going into the lateral border of the foot. Coughing and sneezing, bending forward to tie the shoes, and lying face down in bed cause marked increase in the radiating pain. If an uncomfortable position is maintained for a time the leg tingles and the

foot may "go to sleep." There have been two or three separate periods of disability, the first ones relieved by rest in bed; the last one, however, has yielded to no conservative measures, including back-strapping, heat, bed rest, plaster casts, corset, and osteopathic manipulation. On examination the patient is found to stand with his trunk thrust forward and to one side, with most of his weight borne on the non-painful leg—"sciatic scoliosis." The normal lumbar lordosis has been lost, and in its place is a fixed reversal of the lumbar curve, with prominence of the spinous process of the third, fourth, and fifth lumbar vertebrae. All motions of the lumbar spine are considerably restricted by fixed involuntary muscle spasm. The patient's finger-tips cannot possibly be made to touch the floor if the knees are kept straight. The fixed list of the spine and pelvic tilt are uninfluenced by a lift under either foot. In the sitting position, the trunk can be flexed at the hips with ease, so that the chest approaches the knees, but observation reveals that the lumbar spine remains in its fixed position and goes forward *en bloc*. The list of the lumbar spine may not be as noticeable, but side bending remains restricted. (Fig 1, Special Plate.)

The patient gets into bed or on to the examining-table with extreme care. Turning over on the table is an ordeal, and he is unable to lie face down until a fat pillow is placed beneath the abdomen. In that position on palpation there is found slight but definite local tenderness in the mid-line between the fourth and fifth lumbar spinous processes or at the lumbo-sacral junction. There may be a little tenderness at the sacro-sciatic notch on the affected side. Inspection reveals some atrophy of the buttock, thigh, and calf of the painful side. The ankle-jerk is usually absent on the painful side, normal on the other. The other reflexes are all normal. No definite sensory or motor changes are made out. Straight leg raising can be carried through an arc of 70 degrees on the non-painful side and 20 to 30 degrees on the painful side. An attempt to force the leg upward beyond this point causes sharp increase in the sciatic pain. A history and physical examination similar to this suggest strongly that the diagnosis is posterior rupture of one of the lower lumbar intervertebral disks. The usual antero-posterior and lateral radiographs are of little diagnostic aid. They may be entirely normal, as the displaced disk tissue casts no x-ray shadow and the intervertebral spaces may be normal in width, the volume of the displaced tissue being too small to cause apparent narrowing. A definitely narrowed space between the fourth and fifth lumbar vertebrae is of some diagnostic importance when present. A narrow lumbo-sacral interspace occurs about as frequently as other congenital abnormalities, such as sacralized transverse processes and spina bifida, and should be considered as an incidental finding. The scoliosis and kyphosis noted clinically are also seen on the radiograph.

The next step in diagnosis is the lumbar puncture, which should be done as low as possible, preferably at the lumbo-sacral interspace. The first 2 c.cm. of fluid removed should be sent as a separate specimen for determination of the total protein. After careful manometric tests to rule out dynamic block further fluid is withdrawn for cytological study and for Wassermann and colloidal gold tests. A total protein higher than 35 or 40 mg. per 100 c.cm. is confirmatory evidence that the pathological process is intraspinal. We have a few proven cases in our series which have had a normal total protein, but the average figure has been above 60 mg. per 100 c.cm.

As the lesion is usually at one of the two lowest intervertebral disks, the lumbar puncture needle is seldom

placed caudal to it, and it is rare to find any dynamic block. The "reverse Queckenstedt" test described by Love may be of some diagnostic significance.

Examination with Iodized Oil

The radiological examination after the injection of iodized oil is the most important step in the diagnosis. The lesion can be accurately localized and readily demonstrated on the radiograph. It is necessary that the examination be done with the proper technique. In a series of over 150 cases we observed no permanent ill effects which could be attributed to the use of iodized oil in the spinal subarachnoid spaces. It is important to use oil that shows no deterioration—that is, no liberation of free iodine. It should be of a very light colour. (Fig. 3, Special Plate.)

One ampoule (5 c.cm.) of iodized poppy-seed oil is injected into the subarachnoid lumbar canal. A satisfactory examination cannot be made with smaller quantities. A delay of a few hours to two or three days between the injection and the radiological examination allows time for the oil to fill the root sheaths and permits better visualization of any defect in filling. It may be necessary to give the patient appropriate drugs for the relief of pain so that he can co-operate in the examination. The equipment for the examination consists of a tilting table for screening and a quick change-over switch so that instantaneous films can be taken. The usual equipment may, however, be used with fairly good results in the examination of the lumbar area. The advantages of films taken in this way cannot be overestimated. Before the examination is begun the patient is allowed to sit up for a few moments in order to collect the iodized oil as one mass in the sacral cul-de-sac. He is then placed facing the table in the upright position, and by manipulation of the table under radiological control the oil is forced to flow slowly up and down the anterior aspect of the subarachnoid spaces when the patient is tilted to the horizontal or the Trendelenburg position. Particular attention is directed towards maintaining the iodized oil in a single mass, and it is possible by this method to place the small quantity of iodized oil in practically any portion of the lumbar canal. Since the lesion to be demonstrated is a small anteriorly placed extradural nodule at the disk levels, the iodized oil must be brought into contact with the anterior dural surfaces, and in order to do this the patient must lie face down on the table. If a questionable filling defect is observed, repeated efforts are made to obliterate it either by turning the patient from side to

side or by repeating the tilting process. A constant filling defect in any region is recorded by serial radiographs taken at various angles of rotation of the patient. The upper dorsal area is not examined when the patient has no symptoms referable to that portion of the spinal canal. It is possible that this fact may account for the infrequency of some of the untoward reactions attributed by others to the use of iodized oil. The examination of the upper dorsal area is, however, carried out, when indicated, in the same manner as the examination of the upper lumbar and lower dorsal areas. Care should be taken to prevent the iodized oil from entering the skull, and this can be done by examining the cervical area with the patient in the face-down and lateral positions only.

Interpretation of Radiographs

A correct understanding of the results of radiological examination is dependent on an accurate knowledge of the anatomy of the cauda equina and the nature of the lesion to be demonstrated. The anatomical considerations are beyond the scope of this paper, and only typical examples of the filling defects produced by the shadow of the contrast medium can be discussed. The posterior rupture of the intervertebral disk which produces unilateral symptoms consists of a rounded nodule 1 cm. or more in diameter. This nodule lies just lateral to the strong central portion of the posterior longitudinal

ligament and is directed towards the lamina of the vertebra, usually just opposite the articular facet. It produces an indentation or filling defect in the column of iodized oil, best seen in the antero-posterior view. Unless the defect is very large its presence is obscured in the lateral view by the dense iodized oil lying in the normal side of the canal. The defect is often crescentic or dog-nose in appearance. (Fig. 5, Special Plate.) Minor pressure defects only seen in the lateral view probably represent the normal physiological bulge of the intervertebral disk and have no clinical significance.

Large ruptures may produce a complete or nearly complete block to the flow of the iodized oil, and the appearance may simulate that of an intradural tumour. (Fig. 4, Special Plate.)

Ruptures at the level of the lumbo-sacral disk are more difficult to demonstrate than those higher up, as the dural sac is narrower and smaller here than elsewhere, and so only a small filling defect may be produced by a relatively large protrusion which lies laterally and exerts pressure chiefly on the extradural portion of the nerve root.

LEGENDS FOR ILLUSTRATIONS IN SPECIAL PLATE

FIG. 1.—Photographs of a patient with lateral list (sacro scoliost) and abnormally flat lumbar spine seen in majority of cases of sciatica due to intervertebral disk rupture.

FIG. 2.—Actual appearance of a ruptured disk at operation. The laminae of two vertebrae have been removed, the dura has been opened, and the roots of the cauda equina retracted, exposing the nodule of disk tissue over which a nerve root is riding.

FIG. 3.—Drawing of x-ray appearance of a normal spine after complete filling of the subarachnoid space with iodized oil. The extradural course of the nerve roots is indicated by the dotted lines. The point of exit of each root can be identified by the axillary pouches marked A. Note that a ruptured disk at L4-5 will press on the fifth lumbar root but cannot involve the fourth root.

FIG. 4.—A ruptured disk may cause a complete block as illustrated by this case. The patient's original complaint was unilateral sciatica. There were only minor motor and sensory changes. She was completely relieved by removal of a large posteriorly displaced disk fragment.

FIG. 5.—A well-defined characteristic filling defect in the lipiodol column at the level of the L4-5 intervertebral disk. Note the obliteration of the axillary pouch. A ruptured disk fragment 1 cm. in diameter pressing upon the left fifth lumbar root was found at operation.

FIG. 6.—Antero-posterior film showing an hour-glass constriction of the lipiodol column which was found at operation to be due to a markedly thickened or hypertrophied ligamentum flavum. The patient's symptoms and clinical examination were very similar to the ruptured disk group.

FIG. 7.—Antero-posterior and lateral films showing irregular filling and partial block which was found at operation to be due to chronic adhesive arachnoiditis. The defect is not directly opposite the intervertebral disk, and appears to be intradural.

Clinical Course and Operative Treatment

The pathological studies of Schmorl have shown that the normal intervertebral disk mechanism is often disrupted and that extrusion of disk material may and does occur in many patients without causing symptoms. It is only when sufficient disk material is displaced posteriorly into the spinal canal to cause one or more roots of the cauda equina to be pinched that symptoms arise. It is doubtless true that many patients with this lesion are relieved by conservative measures. I have under observation one patient with a disk lesion, proved by lipiodol examination, who is perfectly comfortable if the spine is immobilized in a back brace or plaster jacket, but is incapacitated by severe pain if the support is discarded. If the pressure on one or more nerve roots is marked there will eventually be degeneration of the pain fibres and this symptom will disappear. As Forster has shown, this may entail no peripheral anaesthesia, as section of at least two adjacent roots is necessary if anaesthesia in the dermatome is to be demonstrated. Manipulation of the back or forced straight leg raising under anaesthesia might relieve the pain of a ruptured disk by stretching and paralyzing the pain fibres of the involved nerve root. There is danger, however, of precipitating a paraplegia by injudicious manipulation. This has occurred in two of our cases, one manipulated by an osteopath, the other by a qualified practitioner who thought he was dealing with a sacro-iliac subluxation.

Laminectomy without removal of the protruding mass of disk tissue might relieve symptoms by taking away one limb of the "nut-cracker" which is pinching the nerve root. Spine fusion, if done in a pain-free interval, might prevent recurrence of symptoms and, indeed, has probably been done many times on unrecognized cases of intervertebral disk lesions. Laminectomy and removal of the ruptured protruding portion of the disk is certainly the logical treatment for this condition if conservative non-operative methods fail. (Fig. 2, Special Plate.)

The operative removal of a ruptured disk requires laminectomy followed by a transdural or extradural removal of the disk fragment. If the lesion has been accurately localized by radiological examination the laminectomy need sacrifice no more than one or two laminae on one side of the spinous processes. The articular facets are saved if possible. The dura is usually opened in order to inspect the nerve roots and to remove the iodized oil. The ruptured fragment of disk tissue is generally found lying free beneath the posterior longitudinal ligament and compressed into a rounded mass, which can be seen to displace one or more nerve roots. Usually the most lateral root, anchored at its point of exit from the dura, rides directly over the mass. The root pressed upon may be flattened, and above the point of pressure there may be engorgement of the blood vessels and swelling of the root due to oedema. The larger ruptures may show complete occlusion of the dural sac and lack of pulsation of the dura below the point of pressure. When the posterior longitudinal ligament is incised the mass can be grasped by an Allis forceps and withdrawn. It tends to unroll, and looks like a piece of fascia or tendon when removed. A sinus which leads into the depths of the intervertebral space can always be demonstrated at the site of removal. When the extruded mass is taken away the displaced roots are seen to fall back into normal position.

There is a definite problem as to whether the spine should be fused over the laminectomized area. If an

articular facet has been sacrificed, and if the patient is one who will on recovery lead an active life, we feel that the spine will be stronger if bone chips, supplemented with an osteoperiosteal graft removed from the tibia, are used to bridge the defect. This procedure need not prolong the operation more than a few minutes, as the tibial graft can be removed by a second team at the same time as the laminectomy is being done. The wound is closed in the usual fashion, after careful haemostasis, without drainage. If there has been no fusion the patient is kept recumbent in a firm bed for two or three weeks. If fusion has been done the patient is kept recumbent for four to eight weeks and a brace or jacket is continued for three to six months. Proper physiotherapy aids restoration of correct posture and muscular tone.

When examined microscopically the removed disk fragments may be found to consist wholly of normal nucleus pulposus or a fragment of annulus fibrosus, or of the elements of both. They in no way resemble chondromas or other neoplastic tissue.

Differential Diagnosis

As noted earlier in this paper, the typical case of ruptured intervertebral disk has a rather characteristic history and shows definite physical signs. The difficulty is that the mechanical low back strains often have this identical clinical picture. I have seen cases diagnosed as lumbosacral or sacro-iliac strain after careful examination by various clinicians of the highest repute—cases which were later found to arise from pressure of displaced intervertebral disk tissue on one or more roots of the cauda equina.

Almost every author, in his discussion of the differential diagnosis of low back pain and sciatica, stresses the necessity for ruling out cauda equina tumour, and details the cardinal reflex, motor, and sensory changes which accompany pressure on the cauda equina. A ruptured intervertebral disk may cause enough pressure on the cauda equina to produce obvious paralysis, anaesthesia, etc., but the majority of these cases have protrusions so located and of such size that only one nerve root is pressed upon and the only symptom is referred pain, all objective neurological signs being absent. We cannot accept a negative neurological examination as proof of the absence of this lesion. Neither can we accept the statement that a given case is a "classical picture" of sacro-iliac or lumbosacral strain. In either instance the actual pathology may be intervertebral disk pressure on a nerve root. As Love has said, "There are no physical, neurological, or orthopaedic signs which are found alone in cases of protrusion of intervertebral disks. All of the known signs may also be found in other conditions."

There are certain organic lesions of the low back other than tumours, probably rarer than rupture of an intervertebral disk, that need to be considered in the differential diagnosis. Arachnoiditis, characterized by matting together of the roots of the cauda equina, may cause intractable low back and sciatic pain, which is usually bilateral. Subarachnoid haemorrhage following trauma may be the cause of this condition. Lumbar puncture, if done in the area of fibrosis, will show the dynamic alterations of a complete or incomplete block, or it may be impossible to obtain fluid unless the needle is inserted at a higher level. The lipiodol examination is not characteristic, but an incomplete, very irregular slow filling or a block with an irregular margin is usually noted. (Fig. 7, Special Plate.)

A thickened ligamentum flavum may so constrict the dura as to produce pressure on one or more roots of the cauda equina. Spurling has recently drawn attention to this condition. Can it be due to localized extradural haemorrhage producing fibrosis and thickening of the ligament? Lipiodol examination usually reveals a constricted hour-glass type of filling defect on the posterior and lateral aspects of the spinal canal. (Fig. 6, Special Plate.)

Results

A total of eighty-three cases of lumbar intervertebral disk ruptures producing sciatic pain have been operated on at the Massachusetts General Hospital up to June, 1938. The immediate complete post-operative relief of the sciatic pain is commented upon by practically every patient.

The operation is of considerable magnitude, and should be undertaken only by competent surgeons after a thorough trial of conservative methods or after demonstration of the presence of a dangerous amount of pressure on two or more nerve roots. There have been two deaths in our series; both of these patients had severe irreparable nerve damage from large ruptured disks. There are three known failures. The rest of the patients are either entirely well or are very markedly improved.

Summary

Rupture or herniation of lumbar intervertebral disk tissue into the spinal canal causing pressure on one or more roots of the cauda equina is a well-established clinico-pathological entity, and is the cause of intractable sciatica in many cases. The lesion can be accurately localized by radiological examination after injection of iodized oil into the subarachnoid space. Laminectomy and operative removal of the extruded disk fragment give prompt and complete relief of symptoms in most of the cases.

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ORTHOPAEDIC ASPECTS OF SCIATICA *

BY

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In cases of sciatica a careful climinative diagnosis leaves a group which is essentially orthopaedic. The physical examination is very important, and represents skilled interpretation of an aggregation of indirect signs which, taken together and supported by an understanding of the local anatomy and bodily statics of the part, can often point to a definite orthopaedic conclusion in the individual case and determine the proper treatment. This is the more likely to be the case if the examiner is able to interpret properly the evidence of stereoscopic films of the low back and pelvic joints.

Vulnerability of Fifth Lumbar Nerve

Orthopaedists try to explain sciatica largely on the basis of referred pain from the sacro-iliac and lumbo-sacral joints and their supporting ligaments. There is also the consideration which Putti has given to the funicular portion of the fifth lumbar nerve as it lies in the foramen. Situated as it is in this fibro-osseous canal, the fifth root, surrounded by a thick venous plexus, practically fills it. The walls of the canal are bounded posteriorly by the posterior spinal articulation, antero-internally by the intervertebral disk, and postero-externally by the lumbo-sacral and ilio-lumbar ligaments. The dorsal primary division of the nerve turns backwards to supply the sacrospinalis muscle, and in its course runs close to the lateral aspect of the posterior articulation, supplying the joint capsule itself. These relations make it possible to assert that the fifth lumbar nerve is in a position of peculiar vulnerability, as it may be affected by the action of trauma of the low back on the lumbo-sacral articulations and by inflammation of them also. It may also be affected by prolapse of the disk or by change in shape and size of the canal secondary to displacement of the fifth lumbar vertebra on the sacrum or to degenerative changes of the intervertebral disk. The slight margin of safety present in the asymptomatic individual by reason, I consider, of the competency of the normal muscular support is further jeopardized by anatomical variations of the lumbo-sacral region, which either cause increased motion at the expense of stability or, by reason of their asymmetry, produce abnormal stresses. In this connexion it is of interest to note that Steindler found anatomic variations in the lumbo-sacral region in 37 per cent. of a large group of cases of sciatica referred to the orthopaedic service.

Circumstances Leading to Sciatica

It may be submitted, then, that many cases of sciatica have their explanation in the operation of a chain of circumstances consisting of: (1) the special anatomic form of the patient, who is either of the unduly heavy or unduly slender build; (2) functional decompensation of the supporting structures of the low back, mainly muscular, often added to by advancing age, unsuitable occupation, increasing weight, debility, and a toxic factor, and leading to faulty posture with exaggeration of the normal lumbo-sacral angle. Such faulty and imperfect use, combined with degenerative changes in the disks and the presence of

G. Bertoni and B. Melli (*Rif. med.*, 1938, 54, 1526), who record twelve illustrative cases in patients aged from 12 to 35, state that Donaggio's reaction is performed as follows. If a certain quantity of ammonium molybdate is mixed with an equal quantity of normal filtered urine or cerebrospinal fluid, boiled, filtered again, and a watery solution of a basic aniline dye, such as thionin, is added, the colouring solution is completely precipitated by the molybdate and the fluid above the precipitate soon becomes quite clear. In some conditions, however, especially typhoid fever, the urine and spinal fluid acquire the property of checking or entirely preventing the precipitation of the thionin. This phenomenon has been shown by Donaggio to occur when the fluids in question contain a larger amount of organic colloid substances than normally. In typhoid fever the reaction becomes positive at an early stage and remains so throughout the course of the infection.

* Read in a discussion at a joint meeting of the Sections of Neurology and Psychological Medicine, and Orthopaedics and Fractures at the Annual Meeting of the British Medical Association, Plymouth, 1938.

anatomical variations in the lumbo-sacral level, lays the subject open to repeated minor traumata affecting the articulations and their supporting ligaments. The trauma is often the precipitating factor, operating upon an area ill prepared to receive it. It is often a trauma which, if the individual had been a physically well-educated person posturally, would never, by reason of the functional and positional reserve of the parts concerned, have produced evil effects. No part of the body can be used wrongly without the rest of the body suffering, and, conversely, if one regards the problem only as a local one without reference to the re-establishment of correct use of the body as a whole, it is not easy to effect a permanent and satisfactory cure.

Restoration of Good Posture

In cases of sciatica, therefore, that are adjudged to be lumbo-sacral in type, regard has usually to be paid to the element of muscular fatigue associated with prolonged misuse, leading to an abnormal alignment of pelvis and lumbar spine. The low back becomes almost spastically fixed in this position, usually of increased lordosis in the subacute and chronic cases. While manipulation may assist such a case, it is often necessary and better to eliminate gravity, weight-bearing, and motion for a time by a period of several weeks of thorough rest in bed on a firm mattress. The patient lies on his back with a pillow beneath the head and knees. Thrice daily, for half an hour, the dorsal spine is thrown forward by placing a firm pillow beneath it, thus leaving the lumbar spine unsupported. Thrice daily he is rolled over, to lie face downwards on a pillow placed lengthwise beneath the trunk, and three hot fomentations, at ten-minute intervals, are placed on the low back. Weight and pulley traction of 10 lb. may materially assist in relieving the more acute symptoms. In about two weeks the muscles of the back lose their spasticity, and one may then make a posterior plaster-of-Paris shell for the trunk to lie in as a cradle. The time is then ripe for giving spinal massage, and instruction to the patient, in the lying-down position, in how to gain active conscious voluntary control of the muscles of the trunk. He is taught how actively to flatten the lumbar spine, to contract the side-abdominal muscles, and to breathe correctly, using the diaphragm with the chest elevated. He is fitted to a light back-brace which spans the lumbar curve when he gets up, and is taught how to maintain an improved posture, with a lengthened-out waist, when he stands, sits, and walks.

It needs an intelligent co-operative patient to do all this, but if the surgeon knows his business and applies the instruction himself there is usually no difficulty. The brace is discarded in due course, and the final test of recovery is the restoration of habitually good posture. One would emphasize the lack of understanding that exists in the country to-day as to what a trained orthopaedist should be able to do in the proper correlation of the structure and function of the body so far as the locomotory system is concerned. He is there to establish right use wherever there is wrong use; he must be trained, and able to apply in his practice his knowledge of the proper order in which re-establishment of correct use must be made. He must carry it out himself in the re-education of his cases, and not leave it to the physiotherapist. All phases of the treatment must be applied in their correct order. Rest without proper instruction in muscle balance later is of little value, as is the application of support while painful protective spasm of muscles is still present. Indiscriminate massage and exercises, often done

at the wrong time, are all to be avoided as entities in themselves.

In no aspect of his work may the art of the orthopaedist be exercised to greater advantage than in the case of sciatica, occurring either apparently alone or in conjunction with low back pain. It is a specialty within a specialty, a field in itself.

In sprains of the sacro-iliac joint producing sciatica manipulation followed by firm protective strapping may have to be employed, but in these cases also it is not unusual for the muscles to be poor and the posture bad. Consequently they may need thorough rest, postural re-education, and support for a time after the manipulation has done its work.

Semi-sacralization of Fifth Lumbar Vertebra

In these cases of painful semi-sacralization the treatment detailed above will often succeed. In aggravated cases the effect of really prolonged rest in a well-fitted plaster-of-Paris spica has not infrequently been successful in my experience. It may be combined with traction of about 10 lb. to the affected leg. I have had patients who remain well after ten years and more following this method. There are cases of the sort which do require operation. Frequently they have had severe sciatica associated with painful affections of both the accessory lumbo-sacral articulation and the pelvic joint on the same side. The operation of spinal fusion is usually best in these cases, but one should not be in a hurry to operate on them. Far from it: if spinal fusion is to be performed, above all it must be certain that the fusion is done with the lumbo-sacral angle in the normal position and not in extension. I have had successful results by fusing the accessory articulation by a lateral Smith-Petersen approach, as for sacro-iliac joint arthrodesis, taking out the block of bone at a higher level, opposite the accessory joint. I consider this to be the least formidable type of operation for the patient. If required, the sacro-iliac joint could be fused at the same time.

Cases of Rheumatic Type

In regard to the cases which are of true rheumatic type accompanied by rheumatic fibrositis and myositis it is possible in certain cases to effect a cure by making an incision along the line of the posterior portion of the iliac crest, to detach the origin of the muscle and fascia there, and slide them down to a lower level. Heyman has rightly pointed out that such cases may closely simulate those of sacro-iliac pain, with referred neuralgic pain in the leg. Ober's operation of division of the contracted ilio-tibial band high up at its origin is also in this category.

Conclusion

Dr. Harris has rightly pointed out the importance of not neglecting to perform a rectal examination in all cases of difficulty in the diagnosis of sciatica. I well recall a case of very severe sciatica that had eluded diagnosis in which the cause was revealed forthwith by a rectal examination; it was due to an enormous abscess in the pelvis consequent upon the recrudescence of an old healed osteomyelitis of the iliac bone, the result of a bullet wound sustained fifteen years previously.

The fact that sciatica is rare in childhood and adolescence is of decided significance in explaining its aetiology on a basis of a strong muscular reserve of support to what is, after all, potentially rather a weak

part of the body—that is, the lumbo-sacral region of the spine. The penalties of the upright position are many, and this is one of them.

I must not close these remarks without paying a tribute to the Boston school of orthopaedic surgeons for the work they have done on this subject. It is due to them, and chiefly to Goldthwait, that a proper system of examination has been established and that these cases, so far as the orthopaedic aspect of them is concerned, are now capable of scientific analysis, classification, and treatment.

THE XENOPUS PREGNANCY TEST

BY

EDWARD R. ELKAN, M.D.

(WITH SPECIAL PLATE)

The discovery of what is now known as the xenopus pregnancy test is based on experiments conducted by Hogben (1930, 1931), who observed that hypophysectomy produced ovarian retrogression, and the injection of anterior pituitary extracts ovulation, in the female South African clawed toad. Further experiments on these lines were carried out by Charles, Slome, and Zwarenstein in Capetown, and later by Bellerby, Zwarenstein, and Shapiro in London, and it is due to the collaboration of these authors that the initial difficulties which stood in the way of a standardization of the xenopus test were overcome. This is particularly true with regard to Bellerby's work on the laboratory conditions necessary for sustained reproductive activity, which work made it possible to improve greatly the reliability of xenopus as a test animal. While there has so far been no difficulty in obtaining regular supplies of these toads from South Africa our next aim must nevertheless be the breeding of xenopus in this country. Bles attempted this as early as 1905, and sporadic successes have been recorded by other authors (Bles, 1906; Bellerby, 1933; Vanderplanck, 1935; Elkan, 1938). It is to be expected that in the near future we shall have not only a standardized xenopus pregnancy test but also a standardized method of breeding this animal.

Weisman (1938) recently reviewed the tests for the detection of early pregnancy which have been devised since Aschheim and Zondek's discovery eleven years ago. Apart from the Aschheim-Zondek reaction only Friedman's technique has become widely popular; the xenopus test, though in some points superior to both the Aschheim-Zondek and the Friedman techniques, has remained more or less unnoticed despite the enthusiastic reports which have appeared in various journals in recent years. These three pregnancy tests are the only ones to deserve, in Weisman's opinion, the term "excellent." In the course of the last twelve months I have done 295 xenopus tests on 2,112 toads, and I fully endorse Weisman's judgment. Some of the objections to this test raised by earlier observers seem to have become invalid, and as the early detection of pregnancy remains important from the psychological and the gynaecological points of view a method which allows the diagnosis to be made within a few hours should be welcome.

Biological Considerations

Xenopus laevis Daud., a toad of the genus *Aglossa*, is fairly common in all the tropical parts of Africa (Fig. 1,

Special Plate). The toad is exported from Capetown, where the animal dealers seem to have no difficulty in catching as many as are required. My own experience with these exporters does not confirm fears expressed by Crew (1937) and Weisman (1938) as to the availability of the animal. So far supplies seem to be unlimited and export unrestricted, and since the animals survive the passage from Capetown to London I see no reason why they should not be shipped to any part of the country. I have at present tadpoles in my laboratory bred in an open-air tank this summer. It remains to be seen whether these tadpoles can be brought up in sufficient numbers and whether their growth is rapid enough to make the breeding of xenopus an economic proposition. My present tadpoles look very much like young fish. They stand on their heads most of the time, and feed on a mixed diet of infusoria, particularly flagellates, and raw liver emulsion, of which a little is poured into the aquarium every day.

The adult clawed toads received from Capetown vary greatly in size, the smallest ones measuring 2 inches, the largest 4½ inches, from mouth to anus. I find those of medium size most suitable for tests. The small toads are mature, but do not stand the injections so well; the larger specimens tolerate the injections well, but they require very big jars for observation. It is easy to distinguish the males from the females. They are identical in colour, but the external opening of the cloaca in the female has three labia—two dorsal and one ventral—which do not, however, form a receptaculum for semen; these labia are absent in the male (Fig. 2, Special Plate). Fully grown males do not reach the same size as fully grown females. The females also acquire a characteristic shape through the bulging lungs being pushed aside by the ovaries, which protrude on both sides of the abdomen like cushions.

The animals are easy to feed. They will accept daphnia, earthworms, newts, tadpoles (*Rana esculenta*), minced meat, or minced liver, but flatly refuse to touch bread or potatoes. It is a little difficult to say authoritatively how often they should be fed. They will certainly accept food every day, but they never show any signs of being particularly hungry, and if not fed for a week they do not seem to be the worse for it. If they grow at all in the laboratory they do so extremely slowly, even if they are well fed. It is wiser not to feed those specimens which are to be used for tests in a day or two. The animals have a short alimentary canal. They eat whenever they happen to come across anything edible, but do not seem to make much use of what they have eaten. The water becomes dirty from their excreta soon after they have been fed, and must then be changed. It does not seem to matter—at least so far as the tests are concerned—whether feeding takes place once, twice, or three times a week if only the animals are given as much food as they will accept at each feeding time.

During the cold season all the animals are kept at the laboratory in a specially constructed tank, and at a temperature of 23° to 26° C. In the summer only the animals actually needed for tests are kept in the laboratory. The others, particularly those who are having their "resting time," are kept in outdoor tanks, where they become comparatively tame; when it rains they can be seen leaving the water and climbing on to stones provided for them. Hundreds of xenopus can be kept in a comparatively small space, and since the females of this species do not make any noise their presence is not a nuisance to the neighbourhood.

I cannot yet answer a question often asked by visitors: How long do these animals live, and how often can they be used for tests? I have lost a few during the winter from a disease which I cannot diagnose; it causes paralysis of the hind legs so that the toad cannot come up to the surface to breathe, and is consequently drowned if not rescued in time. This condition affected both males, which are not used for tests, and females, but almost disappeared with the approach of the warm season. The toads frequently suffer from an infection with taenia, but I have been unable so far to ascertain if these tapeworms are the cause of these sporadic losses. Toads very rarely die in the course of a test; some of my earliest arrivals must have been used three or four times without showing any signs of weakness. I keep the toads mixed, so that arrivals of all ages are used in each test.

A statement made by Zwarenstein and Shapiro (1934) that toads which have been kept under laboratory conditions undergo a process of "desensitization" and can

desensitization takes place in these animals if properly kept, and I see no reason why toads should not be used again and again so long as they are allowed proper resting periods between tests. (See Fig. A.)

The Pregnancy Test

The xenopus test, like all other biological pregnancy tests, depends on the response of the animal's gonads to anterior-pituitary-like hormone present in the urine of pregnant women. I am not quite sure as to the correctness of the term "anterior-pituitary-like," because I have tried commercial pituitary extracts in considerable doses without obtaining a response in these toads. Further experimental work will be necessary to show if the toads react in the same way to anterior pituitary extracts, extracts from serum, and extracts made from urine. The mature female ovaries contain hundreds of eggs in various stages of development. Under the hormonal stimulus numerous eggs enter the oviducts (ovulation) and are discharged from the cloaca (oviposition). Under normal conditions these eggs, which are covered with a sticky gelatinous mass, are one by one fertilized by the male as they leave the cloaca and are then stuck on to water plants by the female. In the test the eggs fall through a platform to the bottom of the test jar, where they can easily be seen with the naked eye (Special Plate, Fig. 3).

The test proper starts with the collection of the urine. It seems wise to limit the patient's intake of fluids so far as possible on the day before collecting the specimen. She thus concentrates her own urine and thus increases the reliability of the test; no drugs should be administered during this period. Some 6 oz. of morning urine are collected in a clean—not necessarily sterile—bottle and sent to the laboratory. Here the investigator can easily determine whether his directions have been followed or not. Not infrequently the patients drink quantities of Vichy water or tea to be sure that they produce the necessary amount of urine in the morning. An estimation of the specific gravity allows these valueless specimens to be discarded. Personally, I do not expect reliable results from urines with a specific gravity below 1015; figures from 1020 to 1030 are desirable. Slight turbidity is not important, but if the urine is very turbid it should be filtered.

For the test itself untreated urine or an extract made by Zondek's alcohol and acetone precipitation method may be used. Bellerby (1933) thinks that the process of ovulation follows quantitative rules and does not depend on a "trigger action." I am not convinced that this can be accepted as a general rule, since I see every day that different toads injected with exactly the same dose of extract lay very different numbers of eggs. Crew (1936) uses extracts only and does not regard as reliable tests with untreated urine. I, too, have seen negative results from untreated urine and positive results on using extracts of the same urines, but in other cases both methods have given positive results, and I could find no constant relation between these latter results and the stages of the respective pregnancies. More experimental work is needed to clarify this point. The use of untreated urine would seem more economical, and in addition we do not know how much hormone becomes denatured in the course of the precipitation and concentration. However, since Zondek's method affords a certain means of concentration, and since we want to make the test as reliable as possible, this method seems at present the better one. This does not mean that tests with untreated urine cannot be perfectly reliable, and some laboratory workers might find it best



FIG. A.—Dissection of a female *Xenopus laevis* which was kept in captivity for over six months and then killed after having given a positive pregnancy test reaction. Note the well-developed ovaries and oviducts and the absence of any signs of degeneration of the reproductive system.

no longer be relied on after three to four weeks has since been repeated by Crew (1937) and Weisman (1938), and is one of the reasons why workers in this field have been slow in taking up this otherwise useful and reliable test. I cannot endorse this statement from my own experience. I have received consignments of toads from South Africa with the animals' ovaries in a state of quiescence. This may be identical with the state of "desensitization," but after these animals had been well kept and fed for three to four weeks they gave reliable results. Others gave reliable results from the day of arrival. A study of Bellerby's papers (1929, 1933, 1938) on the biology of these toads may explain this puzzling behaviour. In my experience no

to test untreated urine first in all cases, and to test a second time with the extract only in those cases in which untreated urine gave a negative finding.

Technique of Testing

For the test 2 c.cm. of untreated urine or 1 c.cm. of extract is injected into the lymph sac under the dorsal skin of as many female toads as one cares to use. Some observers inject into the leg or into the peritoneal cavity. The toads are slippery and difficult to hold; I find that the easiest way of dealing with them is to hold them in a coarse meshed net and to inject through the meshes. There is no immediate reaction to ordinary urine. If extract is used which still contains a trace of alcohol or acetone the toads react by secreting mucus from the skin glands in the neighbourhood of the injection. The question of the "toxicity" of the urine seems to arise very rarely. Specimens which had been in the post for several days have been tested, and while I am not sure that the hormone content remains constant in such specimens they seem to do no harm to the animals.

After the injection has been given the toads are put into test jars (Special Plate, Fig. 3), where they sit on perforated platforms, so that they have no chance of eating their own spawn. This may be an unnecessary precaution. I have left toads in their jars for days and have never seen them eat their spawn; in fact, as a reaction to the close confinement, which they seem to dislike, they vomit up everything they have eaten shortly before the test. It is for this reason that Bellerby (1929) prefers to leave unfed for a full week those toads he is going to use for tests. I have a strong suspicion, however, that the xenopus when at liberty is cannibalistic. A male and a female left in a breeding tank for a few weeks this summer produced only three tadpoles; since it is unlikely that the female should have laid only three eggs my suspicion is, I think, justified.

During the test the jars are kept at a temperature of 26° C. The shortest time I have so far observed between injection and oviposition was four hours and fifty minutes, the longest twelve hours. Figures midway between these two extremes are more usual. I have no definite proof as to whether the concentration of the hormone in the extract or the temperature at which the animals are kept during the test has anything to do with the reaction time, since of a group of toads used for one test no two ever start laying eggs at the same time. While the hormone concentration and the temperature are certainly of some importance in this respect, the animals themselves may provide a third factor which we cannot at present determine.

The eggs—little round balls, half black, half white, and of about 1 mm. in diameter—are covered with a sticky gelatinous substance. Normally these animals do not lay their eggs in bulk but distribute them over a wide area, sticking them on to water weeds one by one. In the test jar the eggs either stick to the underside of the platform or fall to the bottom of the jar. Their number varies enormously. Anything from five to six eggs upwards can be counted as a positive reaction. Tests in which only one or two eggs have been laid by one or two toads should be repeated. They will usually be found to be negative. In the absence of males these eggs are, of course, unfertilized. It should be emphasized that spontaneous ovulation in this species does not take place in captivity or under laboratory conditions. Females, even if kept under the best possible conditions, will never ovulate except in the presence of a male. It is difficult

enough to obtain fertilized eggs even if the males and females are kept in a special aquarium. After many unsuccessful attempts, I have recently succeeded in obtaining a batch of about 200 tadpoles, but I had to inject the female with pregnancy urine extract to induce ovulation.

If nothing is known about the stage of the presumed pregnancy or if the urine comes from a patient who has not yet missed her period an extract is made by Zondek's method. The technique is as follows:

METHOD OF EXTRACTION

Sixty c.cm. of filtered urine are acidulated with acetic acid and mixed in a separating funnel with enough alcohol and/or acetone to bring down a precipitate. The quantity of alcohol or acetone necessary varies from 150 to 300 c.cm. It seems that in some cases an excess of alcohol redissolves the precipitate. The alcohol should therefore be added slowly and only up to the point of maximum turbidity. The mixture is then shaken vigorously for a few minutes and centrifuged. If no centrifuge of sufficient capacity is available the precipitate may be allowed to settle; it can be separated off after thirty minutes, and must then be centrifuged thoroughly to free it from the alcohol-urine mixture. It is important to get rid of as much of the alcohol as possible because it has an unfavourable effect on the toads. It makes no essential difference whether alcohol or acetone is used to bring down the precipitate. Acetone is the more expensive, but it is useful in so far as it brings down precipitates from very dilute urines and, after centrifuging, leaves a residue much "drier" than that which can be obtained by alcohol precipitation. When the precipitate has thus been separated from the alcohol-urine mixture it is stirred up and shaken vigorously with distilled water (1 c.cm. for each animal injected) and glass beads. This mixture is again thoroughly centrifuged and the supernatant fluid is used for injection. The whole procedure takes perhaps 20 minutes. As for the choice of a centrifuge I have found that the small clinic model with a 1.16-h.p. motor is not sufficiently strong. A larger model with a 1.8-h.p. motor is preferable; this should be fitted with 50-c.cm. buckets and attain a rate of at least 3,000 revolutions a minute.

In the ordinary routine work the animals are injected within an hour of the urine being received. They are left in their test jars overnight and the results are read the next morning. During the test the jars should be kept at about 26° C.; in the absence of a suitable incubator this can be done by putting the jars back into the tank. The patient knows the result of the test in less than twenty-four hours. The animals, after the result has been read, are kept in the resting tank for a week if the test was negative, for a month in the case of a positive test.

Reliability of Xenopus Test

Among the 295 tests which I have done so far and in which 2,112 frogs were used I have not seen one clear positive that did not indicate a pregnancy. There were a few negative results which when repeated after a fortnight became positive, but I do not think that these can be regarded as failures. What we test is the hormone concentration in the patient's urine. If the urine is sent in for examination at a time when no hormone or only a trace of hormone is present the test naturally appears to be negative. Nor would it seem advisable to make the test too "sharp" by using methods of extreme concentration. The normal urine of a non-gravida contains a varying amount of anterior pituitary hormone. If the test is too "sharp" it may fall within the limits of the normal hormone concentrations, which vary in different women and are not necessarily constant in any one patient. It would seem better only to test urines from

women who have gone at least two or three weeks over the first "missed" period. By that time the concentration of hormone in the urine has always risen so far above the normal that no false negatives need be feared with the ordinary extraction method.

The tests I have performed myself are still too few to allow any final conclusions being drawn. Disregarding my first ninety tests, the results of which may have been influenced by the fact that I was learning the method, I can report that of the next 150 tests sixty-two had a positive and eighty-eight a negative result. No clear positive was found to be incorrect; of weak positive results, which as experience has shown must be counted as negatives, there were ten. Of negatives that became positive at a later date there were three.

These 150 tests were done on 742 toads. Of these, 734 survived the test without apparently being the worse for it. Eight toads died in the course of tests—four during negative and four during positive tests. A number of toads which were not counted, as their deaths obviously had nothing to do with the tests, some of them being males, died during the winter. I do not think that their number exceeded thirty.

Summary

The xenopus test allows a diagnosis of early pregnancy to be made within less than twenty-four hours.

No animals need be killed to obtain the result.

The reliability of the test does not seem to differ from that of the Aschheim-Zondek or the Friedman reaction.

The technique of this test is comparatively simple and very suitable for experimental work on the anterior-pituitary-like hormone of pregnancy.

My sincere gratitude is due to Mr. D. P. Gould of Loughton and Mr. R. Milton for their interest and helpful collaboration in my experiments with xenopus.

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The Henry Saxon Snell Prize was founded to encourage improvements in the construction or adaptation of sanitary appliances, and is awarded by the council of the Royal Sanitary Institute at intervals of three years. The prize in the year 1939 will consist of fifty guineas and a silver medal, and is offered for an essay describing suggested improvements in the construction or adaptation of sanitary appliances. Particulars may be had from the Secretary, Royal Sanitary Institute, 90, Buckingham Palace Road, London, S.W.1.

USE OF THE SKIN OF THE FEMALE BREAST IN PLASTIC SURGERY

BY

J. F. S. ESSER, M.D.

(WITH SPECIAL PLATE)

As the breasts of many women and girls, particularly in countries abroad, are inclined to be too much developed, and the weight of these large glands stretches the surrounding skin, it is sometimes a great advantage to get rid of the superfluous skin, fat, and gland tissue.

Having thought this over seriously, I have for some twenty years advocated the use of this skin for various purposes to supply missing portions. The importance of this from an aesthetic point of view is generally recognized, but few people are aware of the suffering caused by the weight of these heavy glands. Even when not abnormally developed they may be so mobile as to cause serious inconvenience to their possessors, especially where sport is concerned.

Advantages of the Method

It seemed logical to me, therefore, to combine the necessity for supplying skin for surgical purposes with the advantage of reducing overdeveloped glands. I carried this idea further by using not only superabundant skin but even skin of normal breasts which could be taken away without causing any damage. One of the greatest advantages of the method is that the glands are often very mobile and the pedicled flaps taken from them can be easily brought to and be used in remote parts. In several instances I employed the skin for covering amputated stumps of the legs, even beneath the knee, as the legs and breasts can be brought into apposition, and also for plastic surgery of the hand and the arm. On one occasion I made practical use of it on a girl who was a pianist and who was unable to pursue her career because of the scar tissue occupying the whole surface of the inner part of the lower arm, the result of serious inflammation with suppuration and necrosis. After removing all the scar tissue I succeeded in making the articulations and muscles mobile, and in covering the gap completely with a large pedicled flap taken from the breast. In her case the skin of the breast was not sufficient to enable me to close the secondary gap on the gland with the remaining skin, so I had to fill in the gap with the help of an epithelial inlay. Epithelial inlay is a method I introduced in plastic surgery, and is so widely used that I need not here enter into all the details concerning it. I will only say that it consists in taking a mould, with Stent's composition, of wounds which have to be covered by free skin grafts. This mould is wrapped in a Thiersch graft and replaced on the wound exactly as it was when taken, and is kept pressed on it for a week.

The flap on the arm healed completely, and the layer of fat in the flap helped to keep the muscles and tendons of the arm mobile: these had lost their surrounding protective tissue and would have formed scars with the skin flap if the layer of fat had not separated them. The patient was able afterwards to continue her career successfully, and the breast had not suffered. The following are other cases in which the method was employed.

Case I

This patient was run over, and had lost both her legs. They were amputated above the knee-joints, and the skin could not be joined over the right-hand stump. The result was that after further healing the right stump cicatrized conically, while two inches of bone protruded. Professor Borchardt consulted me for this case.

It is obvious that it was of special importance to the patient to keep the entire length of both stumps, as a second amputation and further shortening would doubtless have seriously impaired the control of the artificial limb and the balance in walking. Though there was no chance of taking the necessary skin from the other leg, as is my usual practice, the principle of never amputating a second time in such cases was maintained.

By a coincidence the mamma afforded the necessary help. The patient gave birth to a healthy child in the hospital some months after the accident. Owing to the plentiful milk secretion the mammae were highly hypertrophic, and from their excessive prominence almost invited their use. Instead of cutting out a flap of skin for covering the amputated stump I inserted the stump deeply into the breast, after removing the outer layer by the osteotome and cutting away the scarred skin. The newly cut skin edge of the stump was sewn up to the edge of the incision in the mamma all the way round. As the length of the cut was calculated exactly, the wound was thus completely closed. Fig. 1 (Special Plate) shows the patient with the stump inserted in the mamma, after the wound had primarily healed and the plaster bandage had been removed. The skin and some of the tissue of the mamma adhered firmly all round the bone.

In a second operation, thirty-seven days after the first, almost the whole of the lower half of the mamma, including a thickish layer of glandular tissue, was cut off along with the amputation stump. This flap when sewn up was sufficient to cover the bone completely (Fig. 2). The wound in the mamma was closed by a plastic operation so that the remaining skin of the mamma and the rest of the glandular tissue were equally distributed over the new and smaller mamma. The asymmetry of the breasts could be remedied at the patient's wish later on by diminution of the larger one. It may be mentioned that the position during the process, although not exactly pleasant, was not so entirely strained and unnatural as one might imagine. The photograph in which the plaster bandage has been removed shows that since pressure was not required to keep the leg in position no tension has resulted. This is explained by the fact that the coxa only affords a portion of the necessary flexion, as the spina dorsalis, which bends easily, plays a great part in it. I should like to mention that the glandular tissue transplanted to the stump could be seen secreting milk out of the open seam for some weeks after the severance.

Case II

This patient, a girl aged 19, was run over in Amsterdam by a tramcar, and her right leg had to be amputated three and a half inches below the knee. The end of the amputation stump did not heal well, and I was called in. A tibial ulcer had appeared between the scars. I am, on principle, opposed to reamputation if it is not vitally essential, so I resected all the scar tissue and placed almost the entire mamma, pedicled at its upper and inner side, on the large wound of the stump. The girl's breast was not quite large enough to cover it, as I had previously taken away the greater part of the stump covering as far as the patella, all this skin tissue being scarred.

The great value of this operation lies in its preservation of the knee-joint for moving the artificial limb. The skin of the breast in the above cases has proved, as in other similar cases on which I operated, strong enough to bear the weight of the body supported by the artificial limb. I wish especially to call attention to the

fact that in general all transplanted skin flaps on stump ends must be very carefully treated until full sensibility of the flap has developed.

Case III

This patient was a young woman in Budapest to whose case I was called in. She had lost the middle three fingers and a part of their metacarpi, especially that of the index finger. This accident had occurred in the large cutting machine of a hospital kitchen. The wound healed, but the thumb was completely immobilized and had grown into the hand-stump. I cut away all scar tissue and made the thumb completely mobile, leaving a large wound on the stump of the hand and on the thumb. This large wound was placed in an incision made in her over-developed right breast. The hand remained there during four weeks. The result is shown in Fig. 3 of the Plate.

On several occasions I have healed large burns on the neck by means of pedicled mamma flaps, as well as various mutilation scars due to suppurated scrofulous glands or to other suppurations, and to necrosis of the tissues. It often happens that not only skin but fat and muscle tissues are destroyed by these suppurations.

It is possible to repair not only the lower portion of the face by means of pedicled mamma flaps, but also the upper part, even the whole forehead. I have successfully performed these operations, and in one case I restored the entire skin of the face, including the whole of the forehead, with a pedicled breast-flap. Even though these operations were entirely successful, I wish to point out that, technically, they are the most difficult forms of plastic surgery. On the other hand, the treatment of the chin is comparatively easy, particularly if the breast is very mobile.

In one case I was called in by Professor Borchardt, in Berlin, to operate on a woman aged 40 who had a large blue angioma which looked like a bunch of grapes covering the whole of her chin. I removed the tumour and made a new chin out of a pedicled breast-flap. The result was exceptionally good: her face became quite normal, and remained so. She was very grateful, but said how much she regretted not having met me before, as she had lost a possible chance of marrying and of having children. She also told me that she previously only went out at night, and was not admitted to a hotel for fear of frightening the guests by her appearance.

I will mention another operation, one of amputation of the arm, in which the pectoral muscle is perforated by a tunnel covered with skin procured from a pedicled breast-flap. The secondary gap is sewn together. The object of this tunnel is to hold the artificial limb in place and to move it with the help of a tunnel in the trapezius muscle. Pins must be placed in the tunnels and attached with strings to the artificial limb. If they are only to hold the artificial limb the strings are fixed to the end of it; if they are to move the artificial limb they must be fixed to the part of it which has to be moved.

Monaco.

A conference between the Minister of Health and representatives of local authorities on the Cancer Bill took place on December 7, when Dr. Walter Elliot received members of the London County Council, the County Councils Association, and the Association of Municipal Corporations. Various aspects of the Bill, both financial and administrative, were discussed, and the position of London and the other authorities which will have responsibilities under the scheme was further clarified. The Minister undertook to consider various representations which were made to him.

BEHAVIOUR OF TUBERCULOUS CAVITIES IN THE LUNG UNDER ARTIFICIAL PNEUMOTHORAX TREATMENT

BY

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(WITH SPECIAL PLATE)

Tuberculous cavities in the lung may react to collapse treatment in several different ways. The case which follows illustrates three such reactions within the same lung.

It has been suggested by Coryllos (1936) that collapse and disappearance of such cavities are often due to obstruction of the draining bronchus, but objective evidence of this is still rare. In the present case such a sequence of events occurred, and the bronchial obstruction and the partially healed cavity were demonstrated at necropsy.

Case Report

The patient was a married woman aged 25, a housewife in a small village. She had no children. She felt quite well until November, 1936, when a slight morning cough with sputum started. Shortly after this a little blood was noticed in the sputum, but was ignored. In January, 1937, she began to feel progressively more tired and languid, and the cough became more marked. In April, 1937, she saw her doctor, who diagnosed pulmonary tuberculosis. This was confirmed by x-ray examination, and the sputum was found to be positive for tubercle bacilli. She rested at home for eight weeks, and was admitted to Papworth in June, 1937.

Her general condition at this time was fairly good. She was strongly built and of good colour, but there had been some recent loss of weight. Her temperature was normal. There was a slight cough, with two drachms of sputum a day. On examination the only abnormalities found were in the respiratory system. There was drooping of the right shoulder and diminished expansion of the right side of the chest. Impairment of the percussion note and moist rales were observed over the upper half of the right lung, with signs of cavitation in the middle zone posteriorly. Over the left lung rales were present at the apex both anteriorly and posteriorly. The sputum was positive for tubercle bacilli, and the blood sedimentation rate was 22 (Westergren; one hour).

X-ray examination (Plate, Fig. 1) showed well-marked fibro-caseous tuberculosis in the right lung with at least two cavities and many calcified foci. In the left lung there was a little infiltration in the subclavicular region. (Nothing noteworthy occurred in the left lung during the evolution of the case: for the sake of clarity, therefore, further description of the left lung is omitted.)

A right artificial pneumothorax was induced on July 9. The patient soon felt very fit and well, gained a stone in weight, and maintained a normal temperature. A little cough and sputum persisted, however, and the latter remained positive for tubercle bacilli. On one occasion there was slight haemoptysis. Fig. 2 shows the state of affairs on September 28, 1937. A new cavity (A) had appeared at the right apex opposite the attachment of an adhesion. The smaller of the two original cavities (B) seemed to have undergone concentric shrinking, but an adhesion was present here also. The large cavity (C) was smaller than before, but was surrounded by a well-marked ring of opacity. It was not clear whether this indicated an inflammatory reaction or a zone of atelectasis. The pneumothorax was continued with some

caution. During the next two months the general condition further improved, the temperature remained normal, and the sedimentation rate dropped to 11. The sputum continued, and was still positive. An x-ray film taken on November 24, 1937 (Fig. 3), showed cavity A to be larger than before; B was little changed, but C was much less obvious and the ring of opacity had entirely gone. This suggested that the opacity had been due to atelectasis, after which collapse of the cavity occurred.

In the same lung, therefore, one cavity was closing, one stationary, and a third enlarging, all under the influence of different factors. The pneumothorax was maintained and thoracoscopy was done by Mr. J. B. Hunter, as many adhesions as possible being divided. An x-ray film taken on February 24, 1938 (Fig. 4), showed the apparently excellent result of this: no cavitation could be seen in the lung at all. As is well known, however, disappearance of a cavity from the skiagram is not synonymous with healing. On March 6 rupture of the right lung occurred, followed by tuberculous pyopneumothorax. Despite treatment the patient steadily became worse, and died on May 29 of an acute bronchopneumonic spread in the left lung.

Necropsy Findings

At necropsy the pyopneumothorax was found to be due to rupture of cavity A, which was slit-like and communicated freely with the pleura by a caseous track (Fig. 5, A). The cavity measured one inch by one-eighth inch, and the draining bronchus was patent. Cavity B no longer remained, but a solid round focus half an inch in diameter was found in this situation (Fig. 5, B). Cavity C resembled a small cylindrical bronchiectatic cavity (Fig. 5, C), and at the commencement of the draining bronchus a plug was found. This was attached to the bronchial wall and filled its lumen, and projected also into the lumen of the cavity. In the left lung a pea-sized cavity was present in the upper lobe, and there was a recent bronchogenic spread in both lobes, which was the immediate cause of death.

Histologically, cavity A was thin-walled and lined by a layer of caseous material containing a few acid-fast rods. This caseous layer extended proximally into the draining bronchus at its beginning and distally along the fistula right out to the pleura. Around the cavity was collapsed lung parenchyma. This cavity therefore showed no signs of healing, but was merely relaxed following collapse of the lung. The solid round focus was devoid of air. It consisted of true caseous material, and, as already stated, was situated in that part of the lung formerly occupied by cavity B. Cavity C (Fig. 6) was small and had very thin walls, being directly surrounded by collapsed alveolar tissue (Fig. 6, A). A few pieces of caseous material were attached to the walls, and one such piece (Fig. 6, P) plugged the draining bronchus at its beginning (Fig. 6, B). Caseous bronchitis was present for a short distance beyond this plug.

Commentary

The chief interest of the case centres round cavity C. Vere Pearson (1930) pointed out the significance of bronchial obstruction in the pathogenesis of pulmonary cavities. Coryllos (1936) carried the matter further, suggesting that the most important factor in cavity healing is the closure of the draining bronchus, which leads to collapse of the cavity, absorption of the air, and inspissation of the contents, if any. Objective proof of this, however, is still rare enough to be worth recording. Gracff (1935) has reported one case of a completely healed cavity with closed bronchus, but it is impossible to say here whether closure of the bronchus or closure of the cavity was the primary event.

The value of the present case lies in the fact that a certain sequence of events was observed clinically: atelectasis—swift collapse of a cavity—disappearance; that before the sequence had reached its end-point—

that is, complete healing of the cavity—death occurred from another cause; and that at necropsy the sequence was found to be caused by bronchial plugging. Fig. 6 shows the plug in position. It consists of compact caseous material, and must have been in place for several months.

Closure of the draining bronchus is not always followed by collapse and shrinking of the cavity. Salkin, Cadden, and McIndoe (1936) concluded that this happens only when the cavity walls are not very rigid, and when the surrounding lung tissue retains enough of its elasticity. Closure of a cavity may be due to mechanisms other than bronchial obstruction—for instance, to concentric shrinking followed by epithelialization while the bronchus remains open (Pagel, 1932; Alexander, 1935).

It has often been noted, of course, that healed cavities may appear as solid or even calcified foci in the skiagram, but pathological evidence of this is not common. Graeff (1935) has reported a good example, and several others have been described by Pagel and Simmonds (1938).

The various mechanisms of cavity healing have recently been reviewed by Marienfeld (1937) and Pinner (1937).

It is instructive to note that cavity A showed no signs of healing whatever: its walls were merely relaxed following collapse of the lung. This emphasizes the fact that some parts of a diseased lung may steadily improve under collapse treatment, while others may remain actively diseased and lead to the death of the patient.

Summary

The recorded case of treatment by artificial pneumothorax shows: (1) Collapse and shrinking of a cavity due to obstruction of its bronchus. (2) Conversion of a second cavity into a solid round focus. (3) Relaxation of a third cavity without any resultant healing.

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P. Blasucci (*Minerva med.*, 1938, 29, 493) gives the following statistics of seventy cases of urethral stricture. The ages ranged from 7, in a boy in whom the stricture was due to trauma, to 81, in a syphilitic man suffering from an enlarged prostate. The average age was 53. Fifty-five patients gave a history of gonorrhoea, which in the earliest case had been contracted at the age of 13. Trauma was responsible for 10 per cent. In the remaining 10 per cent, the aetiology was doubtful. Fourteen showed clinical or laboratory evidence of syphilis. Nineteen gave a history of the exact age at which the first symptoms of stricture appeared, which ranged from 17 to 80 years and averaged thirty-eight years after the primary lesion. In eighteen patients it was possible to determine the interval between the first attack of gonorrhoea and the onset of disturbances of micturition. In three patients the interval was a few months, but in the majority it was much longer, being as much as sixty years in one case. As regards symptoms, 25 per cent. had complete retention and 25 per cent. had more or less difficulty in micturition. In 40 per cent. the chief symptom was painful micturition. Pyuria was found in fifty-seven (81 per cent.), haematuria in twelve, periurethral abscesses in fourteen, and periurethral fistulae in twelve; 36 per cent. were treated by gradual dilatation, 37 per cent. by internal or external urethrotomy, and the rest by suprapubic cystostomy, resection of the stenosed part of the bulbous urethra, or plastic operations.

Clinical Memoranda

Spontaneous Pneumothorax as a Complication of Artificial Pneumothorax

(WITH SPECIAL PLATE)

Numerous cases of spontaneous pneumothorax as a complication of artificial pneumothorax have been reported in the literature, but I have not found reference to any such case with the interesting features of the one here described. It is relatively common for spontaneous pneumothorax to develop on the same side as that on which the artificial pneumothorax has been induced, but in this case spontaneous pneumothorax occurred on the contralateral side.

CASE REPORT

A man aged 40 was admitted to Stobhill Hospital in April, 1933, suffering from pulmonary tuberculosis. The lesion, although active, was confined entirely to the upper lobe of the right lung. The case being a suitable one for collapse therapy, an artificial pneumothorax was induced in July, 1933 (Plate, Fig. 1). After this the patient's general condition improved greatly and he put on weight. His sputum remained negative throughout. He was discharged in October, 1933, and attended a clinic for air replacement and supervision until 1937.

On September 8, 1937, the patient, while sitting in a tramcar, was suddenly seized with a feeling of tightness of the chest and shortness of breath. He suffered great discomfort, but was able to make his way to the pneumothorax clinic, where he was examined.

He was admitted to Stobhill Hospital immediately, and was radiographed (Fig. 2). This film showed complete fibrosis and collapse of the right lung (the one in which the pneumothorax had been induced in 1933); and on the left side, which in 1933 had shown no disease, a spontaneous pneumothorax was now present. Despite the apparent seriousness of his condition as revealed by the film, the patient appeared perfectly well, showing no evidence of dyspnoea or cyanosis so long as he did not exert himself. He remained thus for his first seven days in hospital, but on September 15 he became breathless, and five minutes later was semicomatose and livid. Oxygen administered by nasal catheter was of little help, and an injection of adrenaline had no effect in relieving his symptoms. It was surmised that the pressure of air in the pleural cavity had risen sufficiently to cause the left lung to collapse almost completely. A needle attached to a manometer was inserted through the chest wall, and the air in the pleural cavity was found to be under considerable pressure. 2,000 c.cm. of air was aspirated in order to bring about a negative pressure and so allow the lung to re-expand. The patient was treated for shock, and in fifteen minutes he was quite well again.

Four hours later the patient had a similar attack of breathlessness and again collapsed. Another 2,000 c.cm. of air was withdrawn, and again the patient recovered within a few minutes. It had now become obvious that the pneumothorax was of the valvular type, allowing air to pass into the pleural cavity but not allowing it to escape, and it was only to be expected that the attacks of breathlessness would come on every few hours, whenever the pressure in the pleural cavity rose high enough. An attempt was therefore made to re-expand the right lung, which had been collapsed since 1933, in order, if possible, to give the patient some reserve lung tissue on which to work until the hole in the pleural cavity had healed. As was to be expected, the discomfort caused after the withdrawing of 300 c.cm. of air was such that the attempt had to be abandoned.

The pressure in the pleural cavity again began to rise, and in order to avoid the possibility of another collapse a hypo-

dermic needle was inserted through the chest wall. This had the effect of keeping the air pressure in the pleural cavity at the same level as that of the atmospheric air.

The patient remained well until September 17, when the needle became blocked and he collapsed again. After this he had no further breathless attacks, and the hypodermic needle was removed. He has remained perfectly well since. A radiograph recently taken shows that the left lung has re-expanded completely, and, incidentally, that an effusion has developed on the right side.

COMMENTARY

In the case described the cause of the spontaneous pneumothorax is not quite clear. It may be one of two things. First, it may be tuberculous in origin, due to a spread of the disease to the presumably healthy lung. Of this there is no evidence on x-ray examination, but the lesion at present may be very small. Secondly, it is possible that compensatory emphysema has developed on the left side, and that as a result of rupture of a bulla spontaneous pneumothorax has occurred.

Whatever the aetiology of the condition the treatment is the same. It is seldom that a case of bilateral collapse of this type is met with, but when it does occur the case is an emergency and requires immediate treatment.

The first point is to relieve the intrathoracic pressure. This is easily done if a pneumothorax refill apparatus is at hand, by using it to withdraw air. At the same time a knowledge of the intrathoracic pressure is obtained from the manometer on the apparatus. If, however, the apparatus is not available an alternative is to insert a needle into the chest and allow the intrathoracic pressure to fall to the level of the atmospheric air. This method can be further improved by attaching a piece of rubber tubing to the needle and leading the other end to a basin of antiseptic solution. The end of the tube is below the fluid level, and therefore allows air to escape but none to flow back into the chest. Sometimes it is necessary to keep up a system of continuous extraction, and for this an excellent method has been suggested by Boland (1934), in which he uses a Sprengel's pump to overcome the difficulty.

The majority of these patients die, but with energetic treatment an occasional life can be saved.

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REFERENCE

Boland, E. R. (1934). *Lancet*, 1, 231.

Reinfection in Diphtheria

The case reported below is instructive for the following reasons: (1) It appears that it is possible for a patient admitted to a ward with diphtheria to become reinfected during convalescence with a different strain of *C. diphtheriae*. (2) The administration of diphtheria antitoxin in this case either retarded the development of the patient's own active immunity or, if active immunity had been developed, it was only selective for the intermediate strain and did not prevent a second infection of the gravis type. (3) It further raises the question whether patients suffering from diphtheria should be segregated according to their particular strains of infection.

CASE REPORT

In February, 1937, a child aged 3 was admitted to the City Infectious Diseases Hospital, Hull, with a history of sore throat, headache, and vomiting for three days. Both tonsils were covered with recent thin membrane, and there was slight adenitis and peri-adenitis of the associated cervical

glands. The condition was classified clinically as severe faucial diphtheria, and 8,000 units of diphtheria antitoxin were given intramuscularly and 8,000 units intravenously. A throat swab taken on admission yielded a good growth of *C. diphtheriae*, which on isolation in pure culture proved to be of intermediate type.

The membrane completely disappeared and the adenitis subsided in three days. Proteinuria was present from the tenth to the seventeenth day of disease. During the first fortnight there was some toxic change in the myocardium as evidenced by the pronounced weakening of the first sound in the mitral area, which persisted with decreasing obviousness into the fifth week. The patient continued to make normal satisfactory progress, and on the thirty-ninth day was allowed to sit up in bed.

On the forty-fifth day, when beginning convalescence, the child's temperature suddenly rose to 101.5° F. and the pulse rate to 136. A patch of membrane was visible on the right tonsil, and 8,000 units of diphtheria antitoxin were given intramuscularly in desensitizing doses. The following day a small patch of membrane appeared on the left tonsil. A throat swab showed the infecting organism to be *C. diphtheriae* again, but this time of the gravis type. There was no further growth of the membrane, and in two days the throat was clean.

There were no subsequent complications and the patient was discharged on the seventy-fifth day.

I am grateful to Dr. H. Mason-Leete, medical superintendent, for his permission to publish this case.

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Sea-sickness as a Possible Aetiological Factor in Volvulus of the Small Intestine

This case is of interest because of the association of severe sea-sickness with the occurrence of the volvulus, and also because of the difficulties of diagnosis in such a condition.

CASE REPORT

The patient was a healthy Swiss girl, aged 18, who had had no previous ill-health. Thirty-six hours after a very rough Channel crossing, during which she was violently sea-sick, she complained several times of intermittent colicky pains across the upper abdomen; there was nausea but no vomiting. Her symptoms were relieved by fasting, but returned when she again took food.

On admission to hospital as a possible case of appendicitis, the patient was in some abdominal discomfort; her temperature was 98° F., the pulse 68, and respirations 20. The abdomen was tender in the right and left hypochondria. No abnormality was detected in the chest, and the urine was clear. An accurate diagnosis could not be made, so she was treated on expectant lines, and her symptoms were relieved by fluid diet and local applications. However, when the diet was increased the acute pain returned.

As the patient was in acute abdominal pain on the fourth day following her admission a laparotomy was decided upon, though the pulse and temperature were still normal. At operation a volvulus of the mesentery involving the first few feet of the jejunum was found and relieved. The affected gut was congested and distended. No exciting cause of any kind was observed. The patient made a good recovery, with no recurrence of symptoms.

I can find no reference in the literature to volvulus following sea-sickness, but I feel sure that in this case the latter was an aetiological factor.

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Reviews

PSYCHOLOGICAL ASPECTS OF DISEASE

The Emotional Factor in Visceral Disease. By H. G. McGregor, M.D., M.R.C.P. Foreword by R. D. Gillespie, M.D., F.R.C.P. (Pp. 198. 8s. 6d. net.) London: H. Milford, Oxford University Press, 1938.

Towards the end of his life William Harvey wrote to a young medical man that though his own days as an explorer were over, it was a pleasure to welcome him as a participator in that enterprise. In like spirit elder members of the profession should welcome Dr. H. G. McGregor's work on *The Emotional Factor in Visceral Disease*, for it is one of the most encouraging signs in post-war medicine that many of the younger generation should have so speedily acquired wisdom concerning the psychological aspects of disease. Doubtless this is in part due to their freedom from the handicap of a rigid materialistic training, but it is also due to their own open-minded questioning of all things.

The author quotes Mohr as saying, "There is no such thing as a purely psychic illness or a purely physical one, but only a living event taking place in a living body"; which might well serve as a text for his own book. At the outset he reminds us, as did Starling, that the physiologists take care to exclude as far as possible any complicating factors from interfering with their mechanistic and chemical experiments. For their own purposes this is of course justifiable, but it obviously prevents their results from being applicable to the explanation of all the phenomena of disease. The newer conception of the influence of emotions in producing symptoms is, as he says, "of particular value in unifying the phenomena of human life. . . . Psychology and introspection study life from within; physiology and pathology from without. Each is complementary to the other . . . each is indispensable to a complete picture." This helpful introduction is followed by a lucid statement of the physiology of the expression of the emotions, in which stress is laid on the fact that man meets the altered requirements of his present state of civilization not with new organs but with organs of the same type as both his savage fellows and the lower animals. The phenomena which accompany emotion are the same as those which accompany physical exertion in self-defence or escape. The patient cannot be expected to realize this, especially as the cause of the emotion has so often been banished from the conscious memory. Hence a fear born of the unknown.

These principles are then applied to a study of functional disorders of the digestive, respiratory, and cardiovascular systems, and we may remark in passing that the only omission we detected was any reference to over-breathing tetany, a condition which seems to be of increasing frequency in nervous women. Throughout great stress is laid on the importance of a full history. A distinguished Viennese physician once said to his students, "Don't believe what the patient tells you; it isn't true." Whereas the fact is that even if what the patient tells you is demonstrably untrue about the disease, it can tell you a great deal about the patient who has that disease.

As Dr. McGregor points out, the emotional episodes that precipitate illness fall into two groups: (1) present emotional conflicts in conscious life, and (2) deeply hidden unconscious conflicts and complexes. Whereas the second group may call for the services of a psychologist, the first and larger group can be handled adequately by any

medical man who has the requisite sympathy and insight. For even in this group the sufferer has never associated his symptoms with his conflicts. Simply to explain how the former result from the latter is more than half the battle. Cases are quoted copiously in support of this thesis. The interactions between endocrines and emotional states are then discussed, leading to an admirable exposition of the autonomic nervous system in relation to the foregoing. A practical discussion on diagnosis and treatment brings to a close a book which all can study with profit, and which is invaluable to the beginner who is faced on entering practice with problems to which his ordinary textbooks of medicine provide no clue.

ANAESTHESIA AND ANALGESIA

Modern Anaesthetic Practice. Edited by Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D., F.R.C.P., and Alan Moncrieff, M.D., F.R.C.P. (Pp. 231; 6 figures. 10s. 6d. net.) London: Eyre and Spottiswoode, 1938.

Gas and Air Analgesia. By R. J. Minnitt, M.D., D.A. (Pp. 84; 12 figures. 3s.) London: Baillière, Tindall and Cox, 1938.

The object of *Modern Anaesthetic Practice* is to provide a practical manual suitable for the general practitioner in his everyday work. It consists of a series of articles by different authors, some of which have already appeared in the *Practitioner* and have been revised, while the remainder have been specially contributed for this volume. The editors have, with the aid of a masterly introduction from the pen of Dr. Blomfield, successfully overcome the lack of cohesion frequently observed in works of this nature, but evidence of multi-authorship can be detected, and it is disconcerting to find di-ethyl ether indexed apart from ether, and divinyl ether apart from vinesthene. Such great progress has been made in anaesthesia during the past decade, both in the introduction of new agents and in the development of advanced methods, that it is difficult for those not intimately concerned with the subject to keep abreast of modern technique. A book, therefore, which is written by experts, which surveys the whole field of modern anaesthesia, and which is essentially practical in its outlook is to be welcomed. Many modern anaesthetic procedures can only be learned by actual experience and are beyond the range of the general practitioner, but from this book the reader will obtain the maximum amount of information that it is possible to convey by print. In particular, the chapters on basal anaesthesia, spinal anaesthesia, and nitrous oxide contain a wealth of detail and much practical advice, while the chapter on endotracheal anaesthesia makes the insertion of an endotracheal tube seem ridiculously easy. There is a detailed account of the methods employed to secure anaesthesia and analgesia in midwifery, including also a description of the various types of apparatus employed for this purpose, and the chapters on anaesthesia in dentistry, local anaesthesia, and volatile anaesthetics contain much of value for those in general practice. The theoretical aspects of the subject are ably discussed and space is found for a consideration of the, unfortunately, little-appreciated risks of explosion in anaesthesia. Perhaps the most generally useful sections of the book, however, are those concerned with post-operative care and with anaesthesia in the child, both of which fall frequently within the domain of the family doctor, and may be a source of not inconsiderable anxiety. Many will turn for guidance to this book, which is well printed, produced, and arranged.

The profession is indebted to Dr. R. J. Minnitt for introducing and developing the nitrous-oxide-air technique

for securing obstetrical analgesia. In *Gas and Air Analgesia*, which is addressed primarily to midwives, he details the history of the method, describes the construction and use of the various forms of apparatus employed, and gives clear and concise directions for administration in both normal and abnormal cases. There are also chapters on the use of gas and air in minor surgery, and upon recent legislative developments. The appendices, which occupy nearly one-third of the book, contain research notes and the original communications on the subject. Not even the excellent illustrations can reverse the opinion that the historical details could advantageously have been condensed and the space thereby gained devoted to a fuller consideration of the practical aspects of the method.

A TEXTBOOK OF MEDICINE

The Fundamentals of Internal Medicine. By W. M. Yater, A.B., M.D., M.S. (Pp. 1,021; 255 illustrations. 35s.) New York and London: D. Appleton-Century Company. 1938.

This new work by the professor of medicine in the University of Georgetown aims at presenting "the minimal amount of knowledge of clinical medicine a medical student or general practitioner should have at his fingertips." But it should be at once added, to allay any anxiety that might possibly be aroused by the word "minimal," that the standard is not low. The student is advised to supplement, when he enters the wards, his knowledge by larger textbooks, systems, encyclopaedias, and monographs such as are recommended at the end of the twenty-one sections of this volume. Like other authors of textbooks Professor Yater has found it advisable to call in the help of colleagues for special departmental contributions, such as diseases of the nervous system, mental disorders, dermatology, ophthalmology, otology, and endocrinology. He has written ten of the most important sections, such as those on the cardiovascular, renal, haematological, respiratory, and digestive systems, metabolism, allergy, and diet. Further, he has collaborated with one of his eleven contributors in three other articles.

The text is clear, practical, and well arranged, and there are useful tables of classification; differential diagnosis receives special attention, and illustrations are supplied from wide sources and generously.

SURGICAL ANATOMY OF HEAD AND NECK

Surgical Anatomy of the Head and Neck. By John Finch Barnhill, M.D., F.A.C.S., LL.D. Introduction by Paul S. McKibben. (Pp. 921; 431 figures, with many in colour. 90s.) London: Baillière, Tindall and Cox.

This large, heavy, and rather unwieldy volume on the surgical anatomy of the head and neck justifies its dimensions by the size and clarity of the print, which make reading inviting. Most of the illustrations, however, are not artistic and many are crude. This is in part explained by the fact that the author is himself responsible for them, and they are of the blackboard kind made during a lecture. The author has practised as an oto-laryngologist for a long period of time while teaching the surgical anatomy of the subject, and this aspect of surgical anatomy is naturally uppermost. In commenting on haemorrhage from the superior longitudinal sinus he states that this is always troublesome, dangerous, and sometimes fatal, since it is impossible to ligate the sinus and it is difficult to pack it effectively; but surely the most effective way of dealing with a sinus haemorrhage is to apply a large muscle graft. American spelling frequently gives

a strange appearance to well-known words; thus we read on page 423 that the optic nerves dicussate, but duramater spelt as one word is new to us. A literary flavour is given to the work by odd verses scattered throughout, particularly in relation to plates; some of this is the author's own composition, other is borrowed, such as the lines of Oliver Wendell Holmes which appear under a plate of the base of the brain (p. 420).

While there is much in this book that is valuable (it is interesting to read the author's account of the sacculus endolymphaticus), there is much that might with advantage be omitted, such as the plates that depict resection operations for epithelioma of the lip. It is doubtful whether any surgeon to-day is performing the resection shown, which belongs to the mutilating type of surgery practised before radiotherapy was available. In connexion with the mastoid the spine of Henle is mentioned and a triangle, but we looked in vain for the name of Macewen or any reference to Charles Ballance: it almost seems like referring to Bill Adams alone in an account of the Battle of Waterloo. This is a work that pleases and annoys the reviewer: pleases because it contains much of a rather striking character, clearly enunciated and authoritative, and annoys because mixed with this there is much that appears shoddy, ill considered, and hurriedly assembled or merely redundant.

INTESTINAL DYSPEPSIA

Intoxications et Carences Alimentaires. By Maurice Loeper. (Pp. 259; 4 figures. 60 fr.) Paris: Masson et Cie. 1938.

The organic diseases of the stomach and intestine—that is, those with a defined pathological lesion as a basis—are less common in practice than the so-called functional diseases, in which there is an indefinite or variable cause or foundation. Professor Loeper and his colleagues, who have produced an interesting and suggestive book on these functional disturbances of digestion, have been led by their researches to discard the notion of alimentary dyspepsia. Cytodiagnosis of stomach contents and the use of the gastroscope have demonstrated that in most of these cases there is an attenuated gastritis, shown in the desquamation of epithelium, erosion, congestion, and oedema of the mucous membrane. Similar conditions in the intestine may produce disturbances of secretion and absorption of food during digestion. It has long been recognized that these troubles may be provoked by foods such as irritating condiments, rich and sharp sauces. In addition there may be in certain persons a congenital idiosyncrasy towards fats. But it is especially towards proteins that a susceptibility occurs, some foods carrying toxic bases already formed, some in which during the process of digestion histamine and tyramine may be formed. In about 80 per cent. of the cases the cause of toxicity is histamine, and as well as the local effects there are those which are commonly regarded as anaphylaxis, intolerance, allergy, or hypersensitivity. The bacteria of the digestive tract also contribute; some may be of proved pathogenicity, such as the salmonella group; others, though saprophytes, may produce toxins by acting on the food residues. At other times the bacteria may break through the intestinal barrier to become generalized or to infect the urinary tract during excretion. Thus general symptoms may arise, those of intestinal hypersensitivity, from affection of the blood, the vascular and nervous systems, and the skin. The digestive symptoms may not be severe; flatulence appears to be the most usual, and this is often increased by the simultaneous changes in the liver, which

diminish its detoxicating effect as well as slow the portal circulation.

Though most diets in ordinary life are adequate in food constituents and vitamin content, two factors may contribute to a state of chronic vitamin lack: the poor appetite of sufferers from intestinal dyspepsia and the insufficient absorption and storage, particularly of vitamin C, through accompanying disease of the liver. In these states, too, there appears to be an alteration of the metabolism of calcium and sodium. These various problems are dealt with in an illuminating way, and the diagnosis is attempted not only between these dyspeptic states and organic digestive disease, but also between them and neurosis—a state of hyperaesthesia which may be grafted upon the dyspepsia. Professor Loeper trusts an intradermal reaction with well-diluted (twenty times) milk rather than very dilute (1:100,000) solutions of histamine in the specific diagnosis. In treatment simplicity of diet is essential, correction of deficiency or excess of digestive juices, absorbents, and the use of injections of diluted milk intradermally for desensitization.

Notes on Books

Education for Marriage, by Mrs. ESTELLE COLE (Duckworth and Co., 3s. 6d.) comprises six chapters founded on talks given to classes of girls of varied type with the hope of dispelling that ignorance which is at the bottom of much marital disharmony. The first, on the parents' part in the training of children in sex matters, is perhaps the best. Rather an alarming amount of pathology creeps into the later chapters, though they contain much good sense and advice, especially in that on the honeymoon. That on the climacteric, male and female, looks very far ahead. Dr. Cole is more of a psychologist than a clinician. The section on birth control is erroneous and not up to date. Not everyone would agree that an engaged couple, if "ignorant of the vital facts of life, should seek information, not from the family doctor, but from a medical psychologist"; that coitus interruptus should be avoided "at all costs"; that impotence is "very common"; nor that "floodings" at the menopause "necessitate prolonged rest in bed." The book would be useful as specimen talks to teachers who wish to share in the good work of dispelling dangerous ignorance rather than for perusal by young people themselves.

A new edition has now appeared from the Oxford University Press (12s. 6d.) of *Oxygen and Carbon Dioxide Therapy*, by Drs. ARGYLL CAMPBELL and E. P. POULTON, which was very favourably reviewed in these columns on its first appearance four years ago. An addendum dealing with the oxygen tent and nasal catheter is now incorporated in the volume; most of this appeared as an article by Drs. Poulton and T. W. Adams in the *British Medical Journal* of March 21, 1936. We agree with Sir Leonard Hill when he says in the foreword that "the authors of this book have rendered valuable service in putting together in concise form a mass of information scattered in scientific literature, and combining this abstract with the results of their own extensive research and clinical observation, thus making the whole subject of oxygen therapy available to the medical practitioner."

On the Danger List, by Dr. SÁNDOR PUDER (Constable and Co., 7s. 6d.) is an account by a doctor of his experiences in undergoing three operations. He was singularly unfortunate in suffering twice from a perforated appendix and in having to submit to a third operation for removal of the appendix and repair of a scar hernia. He was given ether for his first operation and developed post-anæsthetic pneumonia which very nearly killed him. His second operation was done under local infiltration anaesthesia,

and he is by no means enthusiastic about this from the patient's point of view. His third operation was done under spinal anaesthesia, and he seems to have been unfortunate here, too, in the degree and persistence of headache and the other discomforts from which he suffered afterwards, though he preferred this to either of his previous anaesthetics. Being by nature introspective, he has written an account of his illness and operations as seen from the patient's point of view, which should be read by every doctor. A foreword has been written by "Anthony Weymouth." We do not share his confidence in the effect this book would produce on the layman. We fear that it would frighten the average patient, man or woman, so badly that he would probably refuse to submit to any operation, even of the most urgent description. But by way of reassurance, we may say that the author was unfortunate in his premedication; more attention is paid to it in this country.

Under the title *Dental Disease: Its Chemical Causation and Cure* R. G. TORRENS puts forward his views on the aetiology and treatment of dental disease, and not only of dental disease but of most of the diseases to which the body is heir—including the common cold. "All disease results from a deficiency or condensation of electrical energy," and "health depends on a freely available interchange of atomic energy in the body"; the "electronic" state of the blood is to be determined (the author considers the pH of the saliva mirrors the state of the blood and estimates this by a colour test) and the patient treated accordingly. Much is promised if the author's methods be followed—for example, "by estimating the electronic upsets, and correcting these as a pre-operative measure, dentistry and medicine would banish difficulties in anaesthetic cases and render after-pain and surgical shock a thing of the past." For our part we are unable to follow the author either in his electrochemical introduction—which we think might with advantage be greatly shortened—or in his clinical descriptions. If, as the author seems to hope, a new era in medicine is opening, it needs a clearer exposition. The book is published by Henry Kimpton at 10s. 6d.

Mis-mated: The Principles of Incompatibility of Temperaments in Marriage and Family Life, by JOHN F. PETERS, is published by John Bale Sons and Curnow at 7s. 6d. The author has convinced himself that a person's attitude to life is determined by his relationship with other children, usually brothers and sisters, but sometimes close neighbours during his infancy—that is to say, that extroversion and introversion are conditioned responses. He further maintains that these varied conditionings determine compatibilities and incompatibilities in adult life, and that the study of the data presented in this book, which are the result of many years' study and investigations of a large number of both living persons and historical personages, would be of value in guiding those about to marry. How far the theories here set out will convince the reader may perhaps be determined by his own infantile conditioning. Whether the process of marrying and giving in marriage will be much influenced by this book we take leave to doubt.

Dr. G. E. BEAUMONT has produced a booklet, *Diets for Diabetes Arranged in Menu Form* (J. and A. Churchill, 2s.), containing sample diabetic diets used at the Middlesex Hospital. The examples are mostly of very low carbohydrate, high fat diets, and the diet tables old-fashioned in their arrangement. Surely to state that a certain meal contains exactly carbohydrate 6.6 grammes, protein 22.5 grammes, and 22.05 grammes of fat is too elaborate and hard to believe.

A copy of the Collected Papers from the Middlesex Hospital Medical School published during 1937-8 has been received from the Cancer and General Research Committee of the hospital, and can be consulted in the Library of the British Medical Association.

BRITISH MEDICAL JOURNAL

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THE NEXT "BRITISH PHARMACOPOEIA"

Preparations are going forward actively for the publication of the next edition of the *British Pharmacopoeia*, which is due in 1941. It will be the seventh of the series. The first was published in 1864, the second in 1867; then came a long interval before the third was published in 1885. The fourth issue appeared in 1898, the fifth in 1914, and the current one dates from 1932. The *British Pharmacopoeia* can never be entirely abreast of current practice. Probably many users of the volume, seeing it for the first time, are surprised at its comparative slowness, and at the absence of many commonly prescribed preparations. As it is properly regarded as the official authority on drugs, the question always arises whether the absence of a monograph on a particular preparation is to be interpreted as a criticism of the trustworthiness of that preparation. Those responsible for the *British Pharmacopoeia* could never, of course, include preparations solely on the ground that they are widely used; that would be a dereliction of scientific duty. But they have been impressed by the representations made to them that it is desirable to include as many commonly prescribed preparations as possible. With the more frequent revisions now obtaining there is a better chance of avoiding the obsolete on the one hand and the unverified on the other, and of making the volume more nearly reflect current practice.

The reappointed Pharmacopoeia Commission, which took office in October, with Dr. A. P. Beddard again as its chairman, has given consideration to a list of new drugs of proved therapeutic activity. Among the drugs for which it is hoped to provide standards are a number of synthetic chemicals which have received general approval in medical practice and the manufacture of which is free from control by patents. Among these are mandelic acid, sulphanilamide, theophylline with ethylene diamine, benzedrine, and urethane. In the group of serological and bacteriological products additional antitoxins and vaccines will be included. Certain members of the group of hormones, including protamine insulin with zinc and some of the sex hormones, have been chosen for description. When the last edition was pub-

lished in 1932 certain international standards were available, but research work on hormones was then in progress which promised compounds of greater therapeutic activity, and so the Pharmacopoeia Commission at that time decided to await developments. These promises have now been fulfilled, and it is thought that the science of endocrinology has advanced enough to justify the grant of authoritative recognition to a number of products in the hormone series. Since the last *Pharmacopoeia* a great deal of research has also taken place in vitamin therapy, and this will be reflected in monographs relating to that subject. Vitamin B₁ has recently been isolated as a crystalline substance for which an international standard of potency has been adopted, and this will appear in the new volume. In pursuit of its policy of including preparations frequently prescribed if these are of established value the Commission proposes to bring in a larger number of such preparations as emulsions, liniments, nebulae, ointments, suppositories, pills, and compressed tablets. The opinion has grown amongst manufacturers and retailers that commonly used tablets, simple or combined, should be of standard weight, form, and composition, and a number of assay processes for tablets are under consideration by a committee. The Swiss and other European *Pharmacopoeias* already give such preparations official recognition, and the French *Pharmacopoeia* contains a general monograph which describes how the tablets are to be made and prescribes certain tests. It is expected also that steps will be taken to provide methods for the determination of many simple galenicals.

Several committees, each with a member of the Commission as its chairman, have been appointed to deal with specific subjects; over 550 monographs have been completed, and views have been exchanged on a lengthy list of suggested additions, deletions, and other amendments. The Commission works in close collaboration with the United States Pharmacopoeia Committee of Revision and with the similar bodies in Continental countries; and all the proposed alterations are submitted to the appropriate authorities in India and in the Dominions and Colonies. In the work of selection valuable help has been rendered by the Medical Research Council, the Science Committee of the British Medical Association, the Pharmaceutical Society of Great Britain, and other medical and pharmaceutical societies at home and overseas. In addition to the researches undertaken in the Pharmacopoeia Laboratory, a large amount of voluntary experimental work by experts in the various branches of pharmacy and pharmacology has been carried out to ensure that the descriptions

and standards shall be accurate and in accord with advances in practice. The Commission makes grateful acknowledgment of all this co-operation as it proceeds towards the conclusion of its task.

IMMUNIZATION AGAINST TETANUS AND DIPHTHERIA

The method of prophylactic immunization with formol toxoid which has given such invaluable aid in the control of diphtheria is now being used for the prevention of tetanus in man. No one would, of course, question the great service which tetanus antitoxin has given and will continue to give in the prophylaxis of tetanus, but this method is not without certain drawbacks. The immunity conferred is transitory, particularly so in those who have received serum before, and in the case of wounds which are slow in healing tetanus may eventually supervene unless the injection of serum is repeated. Again, tetanus spores may lie dormant in the tissues long after the wound has healed and may subsequently germinate with the production of tetanus. Active immunization with formolized tetanus toxoid should, in theory, overcome these particular shortcomings; whether it will do so in practice we should not be long in finding out, since this method of tetanus prophylaxis is now in use in the French Army and has recently been made available for our own soldiers. Even should this procedure do all that is expected of it—and the work of Ramon and his associates in France and of Major Boyd in this country would seem to show that it will—it is obvious that the application will be limited to those individuals, such as soldiers, whose risk of contracting tetanus is of a high order. One gathers, however, from investigations during the last few years by Ramon and his colleagues in France that those who have not previously been actively immunized can still enjoy the advantages of this method in the event of their being exposed to the risk of tetanus. The procedure proposed for them is a combined passive and active immunization: what Ramon terms sero-vaccination. The method consists in the simultaneous injection of a single large dose of antitoxin and 1 c.cm. of formol toxoid, the injections being made at different sites, followed by a second injection of 2 c.cm. of toxoid on the fifteenth day and a further injection of 2 c.cm. three weeks later. One might have expected that the antibody injected would interfere with the production of active immunity, but experiments on animals¹ and on man² would seem to show that this is not so. And in a recent

paper by Ramon, Kourilsky, Richou, and Mme. Kourilsky³ the results of titration of antitoxin in the blood of a number of individuals submitted to a somewhat similar but more intensive course of immunization leave no doubt that active immunization can be carried out under cover of a passive immunity. The procedure is said to be unaccompanied by any serious reactions, and Saquépée and Jude⁴ report having used it in the French Army with eminently satisfactory results. It also appears that a similar method is available for immunization against diphtheria, and that such a procedure is being used in France to immunize children living in a heavily contaminated environment.

The latest application of this knowledge is to employ sero-vaccination as a therapeutic measure in tetanus and diphtheria. It is difficult to understand what possible advantage combined passive and active immunization could have over serum therapy in tetanus, unless it were that, should the patient recover, he would be the possessor of an active immunity against this disease, and so not require a prophylactic injection of serum when exposed to the risk of tetanus on a subsequent occasion. In the case of diphtheria it is argued that a fair percentage of individuals are left with no immunity as the result of an attack of this disease and that the employment of serum-toxoid therapy would obviate this. It is further suggested that the occurrence of paralysis is possibly due to the fact that the immunity conferred by the injection of antitoxin at the beginning of the disease passes off rapidly, and that injections of toxoid would ensure the appearance of actively produced antitoxin just when that introduced passively was falling below an effective concentration. The course of injections advocated by Ramon⁵ consists of 0.1 c.cm. toxoid followed twenty minutes later by 1,000 to 2,000 units of antitoxin per kilo of body weight; subsequently 1 c.cm., 2 c.cm., and 3 c.cm. of toxoid are injected at five-day intervals. It is stated that the reactions produced are not severe and do not increase in severity as immunization proceeds; in fact, if anything, the later doses of toxoid gave rise to less reaction than the earlier ones. Debré and Mallet⁶ treated fifteen children by this method; they were all mild cases and ran an uncomplicated course. Sohier and Jaulmes⁷ report observations on seven cases, only three of which, however, need be considered, since the other four were acute carriers, were Schick-negative, and also had an associated slight sore throat. These three patients recovered; one

¹ C. r. Soc. Biol., Paris, 1925, 98, 582.
² Ann. Inst. Pasteur, 1927, 41, 803.

³ Bull. Mém. Soc. méd. Hôp. Paris, 1938, 54, 1287.

⁴ C. r. Soc. Biol., Paris, 1937, 125, 711.

⁵ Bull. Mém. Soc. méd. Hôp. Paris, 1938, 54, 1301.

⁶ Ibid., 1303.

⁷ Ibid., 1378.

developed slight paralysis of the palate. Darré and Lafaille⁸ treated thirty-three cases, four of which were classified as malignant, seven severe, and twenty of moderate severity; there was one case of laryngeal diphtheria and one with diphtheritic paralysis occurring one month after the onset of an attack of diphtheria. All these patients recovered. The twenty-three cases with moderate or severe attacks were uncomplicated by paralysis, while the four malignant cases, though developing paralysis of the palate, had no general paralysis or cardiac irregularity. All these authors were impressed by the absence of severe reactions to the toxoid injections, and in each group of patients investigated antitoxin titrations made on the patients' sera showed that an active immunity of varying degree had resulted from the injections of toxoid. Since so few cases have as yet been treated by this method it is impossible to pronounce on its merits or demerits.

THE ANGLO-EGYPTIAN SUDAN

The Anglo-Egyptian Sudan, being a condominium, is subject to the supervision and control of the Foreign Office, but in practice has been allowed great freedom in the development of its various services. The report of the Medical Department for 1937 is, as usual, the first of the overseas reports to reach this country. It is of especial interest as it gives an account of the growth, since the early years of this century, of the Sudan Medical Service. The Sudan lies between latitude 4° N. and 22° N. and covers an area of approximately one million square miles—arid desert in the north and tropical forest in the south. The population, which numbered under two millions in 1899, is now estimated at rather more than five and three-quarter millions. Administration is complicated by the fact that about one hundred languages and dialects are spoken in the country. The Nile and its tributaries are still the main thoroughfares, though some two thousand miles of railroad track have been built in the north and dry-season roads serve most parts of the south. The foundations of the medical service were laid by the R.A.M.C. in the days of military occupation, but since 1904 a civil medical service has been available. An excellent system of hospitals now serves all the populous areas, and dispensaries with native attendants in charge have brought European medicine within reasonable reach of practically all the people. The Medical Department early realized that the greatest contribution it could make to the welfare of the country was to train local medical and sanitary personnel, and the efforts that have been made in this direction are beyond praise. There are only forty-five British medical officers in the Sudan Medical Service, but so well have they done their work that malaria, relapsing fever, sleeping sickness, cerebrospinal fever, and small-

pox have been kept under control: in 1937 no fewer than 561,196 persons were vaccinated against smallpox. Probably the greatest achievement of the Service has been the prevention of bilharziasis and of serious outbreaks of acute malaria in the irrigated area of the Gezira, an area which is of vital economic importance to the Sudan and in which conditions are most favourable for the spread of epidemic disease. In Khartoum a small group of specialist officers have set themselves a high standard of professional attainment, to which the Kitchener School of Medicine and the graphic Museum of Hygiene bear ample testimony. The staff of the Staff Medical Research Laboratories, besides carrying out a large number of routine examinations and undertaking a great deal of teaching, have found time to make a number of special investigations into typhus fever, Weil's disease, and relapsing fever. One of the reasons for the rapid development of medical and sanitary work in the Sudan during the last twenty years is that the thirty-three British medical inspectors in the Service are really inspectors. They leave as much as possible of the hospital work to the Sudanese medical officers and spend a large part of their time in inspection and educational work in their districts. Another reason is undoubtedly the short tour of service. The general rule is nine months' duty, three months' leave. Anyone who is still unconvinced of the folly of expecting first-class service from Europeans doing tours of two and a half to three years in the Tropics should visit the Sudan. There is no other part of our tropical Empire where the staff are so much "on their toes."

ACUTE NEPHRITIS AND THE STREPTOCOCCUS

The very close relation between acute nephritis and infection by the haemolytic streptococcus is well known, and most cases of acute nephritis occur from one to three weeks after tonsillitis, otitis media, mastoiditis, or some other infection of the upper respiratory tract. Recently an attempt has been made to show more clearly the role of the streptococcus in these cases.¹ J. D. Lytle and his co-workers have used two standards: bacteriological examination, and estimation of the antistreptolysin titre. Antistreptolysin is the factor that inhibits the haemolytic activity of the streptococcus in culture. It is found that patients who have not had a recent infection by the haemolytic streptococcus normally show less than 100 units of antistreptolysin in their blood. After an infection the titre rises to over 125, and in many cases to figures of 1,000 or more. Most of the 116 consecutive unselected patients with glomerulo-nephritis examined gave a recent history of infection of the upper respiratory tract. In 71.5 per cent. there was bacteriological evidence of infection with the haemolytic streptococcus, but as many were not examined until a week or more after the initial infection this figure is probably on the low side: in 94 per cent. there was an antistreptolysin titre of over 125. This seems to prove beyond doubt the importance of the haemolytic streptococcus in the causation of acute nephritis. An attempt was also made to correlate the amount of antistreptolysin present with

⁸ *Bull. Mém. Soc. méd. Hôp. Paris*, 1938, 54, 1405.

¹ *J. clin. Invest.*, 1938, 17, 631.

the severity or duration of the nephritis. The result, however, was indefinite, as the antistreptolysin appears to vary with the severity of the initial infection and not with the severity of the nephritis, and it is a known clinical fact that cases with a severe initial infection are not necessarily the worst from the renal point of view. It may be of some significance, however, that five out of the eight cases which developed chronic nephritis had low maximum antistreptolysin values. The same authors² have also investigated by clinical and immunological studies the question whether nephritis that has once healed is liable to recur. Among a large number of cases followed up ten patients were found who, after recovery from acute nephritis due to streptococcal infection, subsequently had a further infection with the haemolytic streptococcus. Eight of the ten had no further attack of nephritis, but two developed acute haematuria during the second infection. In none of these cases did the condition become chronic. Only one of the ten patients had oedema at any time; none had hypertension. Most of them would therefore seem to have been of the focal type, though these authors do not appear to distinguish between focal and diffuse varieties of acute nephritis. It is encouraging to learn that patients with healed nephritis may undergo subsequent infections with little risk to the kidney. Nevertheless recurrent attacks of haematuria, each associated with an attack of tonsillitis, are not uncommon.

TESTING CANCER "CURES" IN THE LABORATORY

The evaluation of alleged "cures" for cancer by laboratory methods is a difficult and depressing task. Dr. Anna Goldfeder¹ has tested three supposed anti-cancer preparations—namely, Schmidt's vaccine, "ensol," and Jacob's hormone extract. Schmidt's vaccine is prepared from killed cultures of a protozoan-like organism which, according to the originator, can be isolated from all malignant tumours and cultivated in artificial media; Connell's preparation "ensol" has been commented on widely; the method of preparing Jacob's extract is a secret. These preparations were applied to tissue cultures of human tumours; they had no destructive action. They were injected into mice bearing transplanted tumours and did not prevent growth. Finally they were tested on human patients with cancer, but no inhibitory effect on the tumours was observed: a detailed report of these tests is deferred. Dr. Goldfeder concludes that the three products "cannot be considered as anti-cancer preparations," and few will disagree with her. Still, it is opportune to examine more closely the methods of test, for cancer "cures" are bound to crop up from time to time and a heavy responsibility rests on those who condemn or condone their use on human patients. The tissue-culture method registers a direct action of the agent under test upon tumour cells but has limitations. Tumour cells growing under artificial conditions are not necessarily as vulnerable as those growing in the body, and, although there are many ways

of killing tumour cells *in vitro*, it is of no avail to destroy them by something which destroys the normal cells of the body at the same time. In the tissue-culture method it is difficult to arrange the essential control tests with normal tissues to demonstrate that an action upon tumour cells is specific and selective. Destruction of tumour cells *in vitro* is not, therefore, proof of therapeutic usefulness. The failure to kill tumour cells under the same conditions is no more proof of therapeutic inactivity. It may well be that malignant tumours are more vulnerable to indirect than to direct attack, and tissue cultures cannot register an action which depends on the stimulation of tissue or humoral processes within the body. Transplanted tumours of animals are essentially cultures of tumour cells growing in foreign hosts. An agent with a direct and specific action on tumour cells should destroy transplanted tumours without harming the hosts, but the process of transplantation results in new relationships between tumour and host, so that transplanted tumours regress under the action of agents which do not affect spontaneous tumours directly or otherwise. Tests on tissue cultures and transplanted tumours may yield strong presumptive evidence, but they are not conclusive. Tests on spontaneous tumours of animals are hampered by the difficulty of accumulating enough tumours to yield results which withstand statistical analysis. The difficulty is overcome in part by using inbred strains of mice in which cancer develops with high and regular frequency or by using, instead of spontaneous tumours, tumours produced experimentally by carcinogenic agents. The final test of a "cure" is its effect on human cancer. The laboratory investigator, combining the methods which are available to him, can form an opinion whether this test is likely to be safe and profitable.

CARDIAZOL FOR SCHIZOPHRENIA

Although cardiazol was used later in the shock treatment of schizophrenia than insulin, it is so much easier to administer that it is rapidly becoming the more popular of the two. Facilities for the latter method require special administrative organization and a specially trained staff; for the former all that is necessary is a supply of the drug and an enthusiastic physician. According to Dr. Isabel Wilson,¹ whose monograph is noticed at p. 1272, Dussik and Sakel claim full remission with insulin treatment in 70 to 75 per cent. of early cases; and Meduna with cardiazol in 75 per cent. Küppers,² giving the results from forty-five German hospitals and clinics, states that insulin treatment produced 39 per cent. of recoveries in cases of less than a year's duration, and cardiazol 53 per cent. In both series about one-fifth of the patients failed to improve at all. The methods of selecting the cases are still insufficiently standardized for a reliable comparison of the two treatments to be made. There are difficulties and dangers with both. Those of insulin are usually

¹ *J. clin. Invest.*, 1938, 17, 623.

² *Amer. J. Cancer*, 1938, 33, 560.

¹ *Report on Cardiazol Treatment and on the Present Application of Hypoglycaemic Shock Treatment to Schizophrenia*. By W. Rees Thomas and Isabel G. H. Wilson. H.M. Stationery Office, London, 1938.

² Quoted W. Enke. *Fortschr. Neurol.*, 1938, 10, 404.

of acute onset and appear as an emergency during the actual treatment. Once countered they leave no permanent effect behind, though while they last there is a serious risk of death. Such emergencies may arise also in the course of cardiazol treatment. Dick and McAdam³ have reported four cases of auricular fibrillation or acute heart-block occurring shortly after the injection and persisting for a period ranging from hours to days. With cardiazol, however, more lasting damage may be done. The frequency of fractures produced in the cardiazol fit is well known to those engaged in this method of therapy. Dislocation of the shoulder and jaw is so common that it hardly causes comment. Dr. Pameijer,⁴ from the statistics of Dutch university clinics, stated that in 1,200 cases treated with cardiazol there were fifteen cases of fracture, most usually of the femur, and not infrequently bilateral. He also records seven cases of pulmonary abscess and "many cases of cardiac complications with two deaths." In all, there were four deaths in the 1,200 cardiazol cases as compared with six deaths in 700 insulin cases. So far as the mortality rate in treatment is concerned, cardiazol compares favourably with insulin. With cardiazol therapy there is, however, another risk to be faced which does not appear to be a matter of moment when insulin is used, and that is the risk of secondary dementia. Plattner⁵ has reported seven cases in which there was failure of memory after combined treatment with insulin and cardiazol, and attributes the dementia to the fits set up by the latter. Insulin alone did not produce this syndrome, except in one case in which there had been a series of epileptic fits. Cardiazol is now being given not only for schizophrenia but for other psychiatric syndromes. It has been employed with success, for instance, in depressive states, and particularly in the somewhat chronic melancholic psychoses of the involutional period has given the impression of rapidly cutting short the illness. Recovery from these states, however, takes place to a large extent without any specific therapy, and it is possible that the advantages of cutting short the illness may be outweighed by the production of some permanent mental impairment. Further investigation of this serious risk is urgently required.

WHAT ARE EXAMINATIONS FOR?

Reprinted, with a small amount of additional matter, from the *Year Book of Education*, under the title of "The Purposes of Examinations,"⁶ is a symposium with contributions by twenty-two university professors, readers, lecturers, and inspectors, with an introductory article or survey by Sir Philip Hartog, Director of the International Institute Examinations Enquiry. It is of great interest, and should be of real practical value not only to examiners but to teachers of all grades, to students, and to others concerned with education. The

three chapters of most interest to members of medical faculties, colleges, and schools are the introductory survey, and those dealing with the M.B., Ch.B. degrees of the University of Edinburgh by Professor T. J. Mackie, and the final examination for the M.B., B.S. degrees of the University of London by Professor F. R. Fraser; but many of the other chapters on specific examinations contain observations which have a definite relevance to the general subject or to tests of professional competence. It is obvious that examinations serve several purposes, and that even a single examination may properly serve more than one specific purpose; but it is of the utmost importance that those who conduct any examination should realize clearly the purpose or purposes which it should be made to serve. Sir Philip Hartog emphasizes their use as tests of utilizable skill as distinct from tests of mere knowledge or memory. Particularly is this the case with reference to those final technical examinations which admit to the exercise of a certain specific calling or profession. It is interesting to note the method of applying this test to the medically qualifying examinations both in Edinburgh and London, and, presumably, elsewhere. The minimum prescribed for a pass is 50 per cent., but the assignment of this percentage is not effected by a mere addition of marks; it is determined by the judgment of the examiners as to whether it would be safe to allow a particular candidate to practise his profession or not. The minimum standard for this purpose in the mind of the examiner is assessed at 50 per cent., and deviations above or below this level are marked accordingly. Even so, Professor Fraser points out that such an examination must be more than a test which determines the degree of utilizable skill. It should also show whether the candidate has sufficient knowledge and understanding to avoid actions that may have serious results. Among other purposes of examinations briefly noticed or discussed are the estimation of progress towards attainment, the testing of the efficiency of schools, of intelligence, and of "culture," and the placing of candidates in an order of merit or proficiency. Their imperfections for this last purpose are frankly acknowledged, except when the number of candidates is very small, or in the case of those candidates who are as a group the best or those who as a group are the worst amongst a large number. It is made clear, too, that where the exact purpose of an examination test is ill defined these imperfections will be the more marked and the less will the test be likely to yield consistent or reliable results. The effects—as distinct from the purposes—of examinations on the curriculum of schools and their good or bad influence on individual candidates are referred to; and it is interesting to note that, while Professor Fraser is not entirely satisfied with the London University examination, and even regards its standard as a qualifying examination as unnecessarily high, Professor Mackie says, with regard to the examinations of the University of Edinburgh, that "the general feeling among examiners is that they yield a satisfactory result in testing the candidates' fitness." In this connexion he refers to the article by Dr. W. G. Millar in the *British Medical Journal* of December 12, 1936, and correspondence in subsequent issues.

³ *J. ment. Sci.*, 1938, 84, 677.

⁴ *Ibid.*, 689.

⁵ *Z. ges. Neurol. Psychiat.*, 1938, 162, 728.

⁶ *The Purposes of Examinations: A Symposium*. With an Introductory Survey by Sir Philip Hartog, K.B.E. London: Evans Brothers. 3s. 1938.

although the surgeon at the operation could demonstrate no tear or displacement of the cartilage. The bone-setter thinks he has replaced a cartilage; the surgeon thinks he has removed a normal cartilage. Yet both have cured their patient. What is the explanation? That both bone-setter and surgeon are wrong in their suppositions: the cartilage was not displaced, nor was it normal.

The semilunar cartilage intervenes between the tibia and femur; it allows the femur to roll and to rotate on its upper surface, while its lower surface is gliding backwards and forwards on the tibia. Excessive mobility of the semilunar cartilage on the tibia is checked by the attachment of the outer rim of the cartilage to the capsule of the joint, but the binding material is lax enough to allow the semilunar cartilage to glide freely on the upper surface of the tibia. If the trunk is twisted while the foot is in contact with the ground the femur may be forcibly rotated in on the tibia, and this rotation force will tear the binding material connecting the rim of the cartilage to the capsule—a condition we may term rotation sprain of the knee. When the torn connecting fibres have healed, the mobility of the semilunar cartilage may be impaired, and during normal movements the capsule is pulled upon, giving rise to pain. The condition is curable by stretching the scarred connecting fibres by moving the knee forcibly in every direction under anaesthesia. Surgical removal of the cartilage also cures the pain, but the less drastic treatment by manipulation is preferable. The majority of surgeons do not operate on a semilunar cartilage without evidence that the cartilage has been torn and displaced. Positive evidence is afforded by a history of locking of the joint succeeded by unlocking. If this evidence is not forthcoming it is wise to try first the effect of manipulation, and only to operate if manipulation fails to cure. In the young adult a torn cartilage is more frequent than a rotation sprain, and vice versa in patients over 40.

The Ankle

The injury that is commonly called a sprained ankle is truly a sprain of the subastragaloid joint caused by excessive inversion of the foot. It is unfortunately still the custom to treat sprains by rest, and as a consequence of this treatment many patients develop adhesions. The usual story is that ever since a sprain of the ankle some weeks or months previously the patient has had slight puffiness on the outer side of the ankle below the external malleolus, and gets pain after using the foot. Examination reveals tenderness above the front and tip of the external malleolus, and pain on inversion of the foot in plantar flexion; these two movements are also less in extent than on the uninjured side. Often the foot has been immobilized in plaster by the harassed doctor in his search for something with which to pacify the patient; pain, however, returns when the foot is used actively again after removal of the plaster. The condition can be cured by manipulation. Under anaesthesia (nitrous oxide is often sufficient) the foot is forcibly plantar-flexed and inverted in one movement. As soon as the patient recovers consciousness he is encouraged to exercise the foot in the direction that previously was painful. Skipping and hopping on tiptoe are excellent. A week's supervision by a masseuse completes the cure.

The Foot

Much misunderstanding about painful feet comes from the obsession—shared by patient and doctor—about the arches of the feet. The patient, believing that a fallen arch is the sole reason for pain in the foot, demands either from the doctor or from the instrument-maker a support

to restore his arch; and often the doctor weakly accedes to the request. It would be so much better if we all thought in terms of joint movement instead of arches. When confronted with a patient who complains of painful feet our line of reasoning should be, I think, as follows: Is the cause of the pain purely mechanical, due to the stress of weight-bearing or of walking? If so, can we do anything to diminish the stress? If one movement is painful manipulation will often cure. If the patient, when standing or walking, is using the extreme range of movement of any joint and so putting tension on ligaments we can often increase the range of movement by manipulation.

Foot supports have only three useful functions. They can, by making the bearing surface of the shoe fit the under surface of the foot, increase the weight-bearing area; and they can take pressure off any portion of the foot that is tender. Lastly, they can restrict the movement of a joint to its painless arc; rather than do this, however, it is often better to attempt by manipulation to restore a painless range of movement.

The supreme importance of the toes in walking is not sufficiently appreciated. Many cases of metatarsalgia—thought by the patient to be caused by a dropped anterior arch—arise because the toes are clawed—that is, flexed at the interphalangeal and extended at the metatarsophalangeal joints. These toes can often be straightened either gradually by the repeated manipulation of a masseuse, or rapidly by manipulation under anaesthesia.

The Neck

Pain referred to the suprascapular region and down the arm is frequently cured by a manipulation of the neck. Headache and earache may also be relieved if associated with painful movements of the neck. As with every other joint, an x-ray film should be taken before manipulation is decided upon; but osteo-arthritic tipping, particularly of the bodies of the fourth and fifth cervical vertebrae, is not a contraindication. Faradism and exercises should follow the manipulation.

Upper Part of Back

Many an obscure thoracic or abdominal pain disappears after manipulation of this region of the spine. Interthoracic and interabdominal lesions must first be eliminated.

Lower Part of Back

Sacro-iliac subluxation is a diagnosis often made to account for low backache. Whether the sacro-iliac joint ever does subluxate is doubtful; but there is no doubt that many patients labelled with this diagnosis are cured by manipulation. It seems probable that the clinical term "low backache" comprises several pathological entities. Unless there are definite contraindications manipulation should always be tried. It can do no harm, and even if it does no good it is of value in elucidating the diagnosis and as a guide to further treatment. The contraindications are: (1) X-ray evidence of bone disease; simple anomalies of structure are, however, of no importance. (2) Neuritis, evidenced by muscle wasting, nerve tenderness, and loss of ankle-jerk. (3) Total rigidity of the lumbar spine from spasm of the erector spinae muscles.

Causes of pain other than of skeletal origin should first be excluded before resorting to manipulation. Complete muscle relaxation is needed; intravenous pentothal gives this for certain, but cyanide is often insufficient. The use of an anaesthetic of short duration and with no after-effects has the advantage that active exercises can be started early.

BRITISH RADIOLOGICAL CONGRESS

CONTACT X-RAY THERAPY

The twelfth annual radiological congress under the auspices of the British Institute of Radiology was held at the Central Hall, Westminster, from December 7 to 9. In addition to a number of papers dealing with the applications of x rays to the arts and sciences (including the art or science of crime detection), there were two medical sessions, one devoted to therapy and the other to diagnosis. One of the two memorial lectures in association with the congress also had a medical subject. Associated with the congress was an exhibition of x-ray apparatus, to which over twenty firms contributed. A prominent feature was the apparatus for low-voltage contact therapy, which was the subject of one of the discussions. The congress was under the general presidency of Mr. W. E. Schall, the president of the Institute, but Dr. Maitland Beath and Dr. L. A. Rowden presided over the medical sessions.

Professor J. M. WOODBURN MORISON, in opening the discussion on low-voltage contact therapy, said that this was supposed by some not to be a new method. The tube was very much like the Lenard tube used in 1894, and thirty-five years ago radiologists were working with low voltages and getting results sometimes quite good. But no tube exactly like the tubes now to hand for Chaoul therapy had been available before to give radiation having a geometrical distribution in the tissues, imitating the distribution of the radium applicator and to some extent that of the radium "bomb." With this low-voltage contact or Chaoul therapy irradiation was so circumscribed that the healthy tissues around the lesion sustained no damage, for, after all, radiation was damaging, and all living tissue could be destroyed by it if it were applied in sufficient amount. It was, indeed, the special virtue of radium that with the gamma rays there was no selective action, but a purely geometrical distribution. By no means all cases were suitable for these methods. The field was limited at present, though as time went on it might be extended with the help of surgical intervention in the case of lesions less accessible. The real problem for the radiologist in the treatment of cancer was the accessibility or otherwise of the lesion. Surface lesions were accessible, and it was here—in cancer of the oral region, for example, or cancer of the cervix—that radium had been most successful.

Comparison of X-ray and Radium Treatment

The Chaoul apparatus, Professor Morison went on, could deliver anything from 100 to 200 *r* units a minute, whereas with radium the rate of irradiation was very much smaller (a later speaker said that 1 mg. of radium at 1 cm. gave 9 *r* an hour). Consequently with the former method a larger number of cases could be dealt with in a given time. It was not a question of two or three hours' treatment daily, but of two or three minutes' treatment, for many of these cases. So far as the reaction to low-voltage x rays was concerned, this was very similar to that with radium for an equivalent dosage of *r* units. There was no more flexible apparatus than the Chaoul tube; it could be easily handled, and the rate of irradiation and distance from the tissue readily adjusted. So precise an instrument was it that he felt it should be installed in every x-ray department where research work was done. It was quite easy to treat superficial lesions and get excellent results, and with surgery of access it would be possible to tackle such conditions as bronchial and oesophageal carcinoma, for which radium was extensively used. Some cases of cancer of the rectum had been treated by this method at the Royal Cancer Hospital.

Among the superficial conditions the treatment was specially effective in rodent ulcer, and in such a condition as rodent ulcer near the inner canthus an even distribution of the radiation was secured by a wax filling composition. In one case of rodent ulcer the actual dose given by the Chaoul method was 5,700 *r* spread over twelve days, equivalent to treatment for two or three minutes a day. The scar formed was soft, pliable, and painless. As a rule, 400 *r* was the daily dose. Cases of large epithelioma of the lip and elsewhere had been successfully treated. Metastases should be treated by high-voltage x rays of 200 or 400 kV, but the primary lesion was best dealt with by low-voltage contact therapy. He showed a table of statistics of cases treated from 1935 to 1938 with low-voltage short distance or contact therapy, using the Chaoul apparatus. The cases numbered 500 (312 malignant and 188 non-malignant), the malignant cases including 102 cases of epithelioma, also 100 of cancer of the breast. A high percentage of successful results was recorded in the different categories. Of the eighty-two cases of rodent ulcer treated, 97 per cent. were alive and well, with no sign of recurrence.

Radium was very much in the public eye at present, said Professor Morison, and people had got an impression that it was a cure for cancer. But only a very small proportion of cases were suitable for radium treatment, and nothing was done with radium which could not be equally well accomplished by suitable x-ray applications. The economics of the question deserved some study. Even if, for the sake of argument, the radium "bomb" were a cure for every type of cancer—which was not true—a "bomb" could treat, perhaps, 200 cases a year, and about 140,000 cases, apparently, required treatment. So far as his knowledge went there were 90 grammes of radium available in this country.

Technique of Contact Therapy

Dr. J. STRUTHERS FULTON, who showed a colour cinematograph film of the technique of contact therapy, said that while low-voltage x rays had been successful in treatment for the past thirty years, the present technique had become possible only as a result of the development of shock-proof equipment. The chief advantage over radium was in the high dosage rate—a dose of 300 *r* per minute at 3 cm. distance enabled a large number of patients to be treated with the one plant. The treatment might be fractionated to a daily exposure of one to three minutes, though in the case of malignant lesions limited in extent it could be given in one single massive dose lasting not more than fifteen minutes. The elimination of stray radiation presented no problem, and the x-ray beam was accurately confined to the area under treatment. At the kilovoltages employed the characteristic rays of lead were not emitted, and therefore that substance might be used directly on the skin to define with accuracy irregular areas of treatment. In the case of certain lesions in the mouth and throat, where the implantation of radium presented technical difficulties, x rays might be used successfully, and by using focus skin distances up to 20 cm. correspondingly large areas could be treated.

The apparatus the working of which he described was installed at the Western Infirmary, Glasgow. The film he projected was designed partly to show the flexibility of the tissues treated after healing had taken place. The cases demonstrated included epitheliomas of the lip and other parts of the face. It had also been possible to use the method for localized tumours of the bladder.

Dr. G. J. VAN DER PLAATS of Utrecht spoke on the same method for the treatment of superficial cancer. The advantages of the method were soft radiation, short distance, and fractionized dose, though, of course, this last could be applied to other methods also. The object was to get a sufficient dose, say 3,000 *r*, at the base of the tumour, not troubling about what the skin received, but ensuring that as little radiation as possible penetrated the underlying healthy tissues. His usual technique was to employ a 2 cm. focal skin distance and a filter of

0.2 mm. aluminium. The very short treatment time enabled him to dispense with tube or applicator stands; he simply held the tube in his hands, with the cable across his shoulder. He had treated more than 100 tumours by this method with excellent results.

Radiology in the Diagnosis of Urinary Infections

Sir GIRLING BALL, who addressed the congress on this subject, began by lamenting that so often general practitioners, instead of sending cases of chronic urinary infection for examination, treated them for a long time with various drugs. He spoke principally of infections in which *B. coli* and its group were concerned. The persistence or recurrence of an infection with this organism indicated some lesion of the tract which predisposed to the condition. So far as lesions of the lower urinary tract were concerned, cystoscopy was the first method of examination. Usually more information could be given by cystoscopy than by radiography, but there were two exceptions—namely, those cases in which the cystoscope could not be passed into the bladder, and those in which there was diverticulitis of the bladder. In the case of lesions of the upper urinary tract, the surgeon could not get on at all without the help of the radiologist. He had operated on over 300 cases of stone in the kidney, and in only one of them was there no shadow shown in the x-ray picture.

With the help of numerous radiographs Sir Girling Ball indicated various pitfalls. He showed one case which had been diagnosed as calculus. The patient had a very mild type of urinary infection; the organism found was the *Staphylococcus albus*. The supposed stone turned out to be a small localized tuberculous focus in the kidney, giving a calcified area. If an attempt had been made to remove what was thought to be a stone the real disease would have been left behind, and the patient's condition would have become worse. He also stressed the importance of having a pyelogram of both kidneys in congenital hydronephrosis and in other conditions, and, further, the need in all cases of doubt as to the findings with the intravenous pyelogram of combining a retrograde pyelogram with it. Intravenous pyelography was a simple method which could be employed in any patient, but there were errors which came about if retrograde pyelography were not employed.

Dr. L. A. ROWDEN regretted that the practice of screen examination in renal cases was so rarely employed. Careful examination on the screen would reveal features and correct errors which were beyond the capability of the negative. For example, on the screen a differential diagnosis between a stone and a gland could be easily made. Dr. DUNCAN WHITE said that before intravenous pyelography a blood urea test should be made. If there was no active renal tissue to excrete uroselectan it was obviously of little use proceeding. Dr. G. VILVANDRÉ also demonstrated some aspects of renal radiology, showing cases of unusual distribution of calculi and of congenital abnormalities, as, for example, the patient with three or four ureters. He agreed that retrograde pyelography was essential in quite a fair proportion of cases. X-ray examination, after all, was only one of the examinations which were needed in the diagnosis of urinary and vesical disease.

"Stereo-radio-stratigraphy"

Dr. C. CHAUSSÉ of Paris discussed the application of the various methods, of which tomography is the best-known example, of radiographic analysis. He had invented a special stereo-radiographic table with a centring device, in which the central ray from the tube passed through a fixed point, and he showed how this could be used for obtaining stereoscopic images and also, with some adjustment, for obtaining the successive planes used in tomography. He showed a number of planigraphic

sections through the skull and through the auditory apparatus, and specially stressed the value of the method in otology. He also described for the second time in England (the first description having been given at the Section of Otology, Royal Society of Medicine, on November 4) an adaptation of the apparatus to the combined localization and extraction of radio-opaque bodies. This was done by means of what he called the luminous compass. The compass is made by two beams of light, one of them representing the central ray of the x-ray tube and the other so arranged as to be coincident with the first at the localization of the foreign body. The localizer is used on the actual operation table, and the surgeon in his dissection is guided by the beam. As the two luminous spots approach each other he knows that he is nearing the position of the foreign body, and when they meet, that his probe has actually reached it. The instrument, which embodies the principle of the theodolite, evoked much interest.

X-ray Diagnosis of Gastric Cancer

The twenty-first Silvanus Thompson memorial lecture was delivered by Dr. LEDOUX LEBARD of Paris, whose subject was "The X-ray Diagnosis of Gastric Cancer." Medical students were taught, he said, that gastric cancer was a disease of very short duration, and that continuous loss of appetite and weight were two cardinal symptoms; also that in the prolonged absence of pain the patient usually sought advice too late for operative surgery, and therefore early x-ray diagnosis was only now and then possible. These statements were not necessarily true. Gastric cancer showed great differences in duration. He recalled two cases, one of which was three years in evolving and the other nearly five. In regard to appetite and weight, he instanced one patient whose excellent appetite persisted until a week before radiographic examination revealed a hopeless condition. Malignancy of the ulcerous form was much more difficult to recognize than simple ulcer. Most of the characteristic x-ray features were only demonstrable on the film and not fluoroscopically. The development of these tumours was generally very slow. By a series of radiographs he indicated the changes of contour, more especially on the lesser curvature, which were pathologically significant. He stressed the ability of the x-ray picture to reveal quite small manifestations which were hardly detectable by any other method.

The other memorial lecture delivered in connexion with the congress was on the influence of x rays in pure and applied science, by Dr. G. SHEARER of the National Physical Laboratory. It is interesting in view of the collaboration of physics and medicine which the Institute represents that that lecture, in memory of a medical man, Sir James Mackenzie Davidson, should have been delivered by a physicist, and the other lecture, in memory of a physicist, Silvanus Thompson, should have been delivered by a medical man.

SHOCK TREATMENT OF SCHIZOPHRENIA

A report, prepared for the Board of Control by Dr. Isabel Wilson, on the new methods of treatment of schizophrenia has been issued.¹ It is a small and handy booklet that should be of considerable service to those engaged in these methods of treatment, and is of interest to psychiatrists in general. On the instructions of the Board of Control Drs. Rees Thomas and Wilson visited numerous treatment centres both on the Continent and in England, and

¹ Report on Cardiac Treatment and on the Present Application of Hypoglycaemic Shock Treatment in Schizophrenia. By W. Rees Thomas, M.D., F.R.C.P., D.P.M., Medical Senior Commissioner of the Board of Control, and Isabel G. H. Wilson, M.D., M.R.C.P., D.P.M., Medical Commissioner of the Board of Control. London: H.M. Stationery Office. 1s.

Dr. Wilson, in addition, has reviewed the greater part of the now exceedingly extensive literature on the subject. The report provides a useful compendium of the method of treatment with cardiazol, with insulin, and with combinations of the two methods; the staffing and other administrative arrangements required; the dangers and complications and contraindications to treatment; theories of the mechanism of improvement; and the results obtained hitherto. The literature reviewed includes 152 references, and the bibliography is of great value to any student of the subject. It is an eminently practical volume, and might well be used as a working handbook by superintendents and others desiring to start one or other of these new methods.

Although the report suffers from lack of personal experience in treatment of either author, the technical methods and other data are taken from authoritative sources and should be reliable. A greater weakness is the lack of any critical attitude in the evaluation of the work of different authors, which shows itself particularly in the discussion of the theories of the mechanism of improvement, many of which are highly speculative and fanciful. As a result of their investigations Drs. Rees Thomas and Wilson are obviously of the opinion that the application of these methods of treatment should proceed. They cautiously state as their conclusion that "results are encouraging, but the well-known difficulties of statistical evaluation have not been solved."

Reports of Societies

ILLEGAL OPERATIONS

A dinner-discussion took place at the meeting of the West London Medico-Chirurgical Society on December 2 on the subject of "Illegal Operations." Dr. MAURICE SHAW, president of the society, was in the chair.

Mr. CECIL BINNEY, barrister-at-law, said that of all illegal operations that for abortion was the only one which, medically speaking, was specifically forbidden by law. It would be, however, substantially true to say that all operations were illegal unless they were rendered necessary for medical reasons. Sterilization, for example, unless it was carried out for the health of the person concerned—if it ever was—was clearly illegal. To say that there was not likely to be a prosecution was irrelevant. One could easily imagine prosecutions should anyone set out to perform such operations as a commercial venture. But while operations for sterilization were illegal because they came within the words of the Offences against the Person Act, 1861, operations for abortion were more specifically forbidden, probably because the interests of a second person—namely, the unborn child—had to be considered. To bring to an end something that had already begun was in a different category from preventing something from beginning. Thus contraception was different from taking active steps to terminate the life of a child once it had begun. Although the law permitted a doctor to induce miscarriage if it was considered necessary to save the woman's life, it was more rigorous in this sphere than in that of other operations in which the interests only of the individual were concerned, because in abortion it was a commencing life which was destroyed. But it might be, following the recent trial of *Rex v. Bourne*, that the law was altering.

Changes in Thought and Practice

Mr. ALECK BOURNE excused himself from saying anything about the recent trial, a subject of which he was heartily tired. The ideas on this subject at present were governed by three main conditions. There was first the ecclesiastical view; canon law had contributed consider-

ably to civil law. Secondly, there was the effect which the widespread practice of abortion might have in a decline of population. Thirdly, there was the consideration of the physical dangers of the practice. Ancient Greek writers referred to a widespread practice of abortion, but made no mention of laws which prohibited it. In fact, Plato went so far as to advise abortion for all women who became pregnant after 40 and all whose husbands or paramours were over 45. In Roman times there were many references to the practice, but again none to penalties until, he thought, Cicero advocated punishment. But the idea of penalty was vague until the Christian era. The early Christians were a downtrodden people, amongst whom, as a relief from their present sufferings, the idea of the joys of the immortal life hereafter became paramount, and this led to emphasis on that moiety of man, the soul, which was destined to live after death. Thus it was easy to see how foeticide was held in particular abhorrence, because it meant the killing of that part of man which was endowed with the capacity for eternal enjoyment. As Christian ideals spread among Western peoples there went, together with the idea of the imperishability of the soul, the classification of an operation for abortion as a major crime. In the Middle Ages the laws against abortion were savage; the offence was punishable by death for both the woman and the abortionist. In the seventeenth and eighteenth centuries the subject entered upon a less barbarous phase, but he believed that nothing definite was codified until the Act of 1861.

To-day there was an increasing desire among women for this procedure. This was due partly to the decay of religious influence, partly to economic and domestic conditions, partly to the liberation of women from the shackles of reproductive life, and partly also to sheer lack of desire to produce children. Probably there was a greater prevalence of irregular sex relationships, and when these resulted in pregnancy there was a demand for its termination. Central Europe showed a different picture. There the desire was to have larger populations, partly for military purposes, partly to bring about population pressure and so justify aggressive policy.

The whole subject was one on which it was impossible to get hard-and-fast decisions, because it was governed by prejudice, ecclesiasticism, training, preconceived ideas. An imperative thing was to clean up the grossly illegal practice of abortion—practice by sharks who took from the pregnant woman not only her foetus but her purse. The practice of these people was utterly repulsive. But the law could not be left as it was. The law might well be widened so that the girl pregnant as the result of rape could be legally relieved of her pregnancy. Some method ought also to be devised whereby a doctor with one or perhaps two consultants, believing that the procedure would be for the ultimate benefit of the health of the prospective mother, might be allowed to perform it without the stigma which now inevitably attached to it. Actually it was very rarely necessary to induce abortion to save a patient's life. How many women were killed by the continuance of their pregnancy? But there were a very large number who were permanently incapacitated, whose health sank to a lower level, and who became less efficient as mothers to their previous family. He had no patience with canon law as applied to civil life. As the community were not all Christians ecclesiastical ideas should not be made civil law.

The Roman Catholic View

Dr. W. J. O'DONOVAN quoted from the summing-up of Mr. Justice Macnaghten in the *Bourne* case: "There are others [in the medical profession] who, for what are said to be religious reasons, object to the operation being performed at all in any circumstances." He drew attention to the scorn of the statement "are said to be." Surely that devastating comment need not have been made. The judge had gone on to say that in a case where the life of a woman could be saved by performing the operation, if

the doctor refused to perform it on the ground of some religious opinion and the woman died, "he would be in grave peril if he were brought before this court on a charge of manslaughter by negligence." This "menace" could be dismissed at once. If the patient were an informed Catholic woman no question would arise. If a Catholic doctor were in charge of a Protestant patient it was quite certain that he would explain such a matter to her responsible relations long before the crisis was reached, and it would be his duty, in justice to them, to indicate that it was customary among some members of the profession to carry out an operation to empty the womb in the attempt to save the mother's life. Whatever unconsidered enthusiasm this verdict might have evoked in the medical profession, they might be sure that the great body of silent and thoughtful people would feel that it left doctors with even less helpful guidance from the law and with less protection than they have formerly enjoyed. They would know that it conferred freedom on them, but added materially to the already heavy burden of their responsibility.

The rest of Dr. O'Donovan's remarks was a recapitulation of the fame and service of Catholic doctors in all ages. St. Luke was soaked in the tradition of Hippocrates, and the words of the Hippocratic oath were plain and without qualification: "I swear . . . nor will I aid a woman to procure abortion." "I do not envy a trial judge faced with a Christian doctor, Hippocrates, and St. Luke in the dock at the same time!"

The Principles of Eugenics

Dr. C. P. BLACKER reminded the meeting that the legal aspect of sterilization was discussed with great thoroughness by the Interdepartmental Committee between 1932 and 1934. The recommendations of that committee were influenced to a large extent by considerations arising from the problem of mental defect. There was no doubt as to the present illegality of this operation on the mental defective. With regard to those of sound mind he understood that the operation for voluntary sterilization was similar from a legal point of view to other operations of a non-therapeutic character, such as ritual circumcision, blood transfusion (in the case of the donor), and "face lifting." From the eugenic standpoint it was most desirable that any ambiguity in the law should be removed. The Offences against the Person Act, of course, was passed at a time when no one dreamed of such procedures; an operation for sterilization for eugenic purposes was performed for the first time in 1899, nearly forty years after that Act had been passed. Judged from the moral standpoint, there could be no doubt that an operation to terminate a pregnancy was more "shocking" than an operation to prevent pregnancy, for in the former case it was obvious that life which had already begun was being destroyed. On the other hand, judged from a biological point of view, there was little doubt that sterilization was the more drastic procedure, for the simple reason that to sterilize a person, the measure being to a large extent irreversible, was permanently to disqualify him for the function of reproduction. If they divested themselves of moral feelings towards these questions he thought it was clear that the sterilizing operation was from a biological point of view the more drastic. Hence it would be desirable to legalize, or rather to establish facilities for, the voluntary termination of pregnancy in such cases as would also be regarded as proper for sterilization, and it was in these respects that the question of illegal operations impinged upon the subject of eugenics.

Viscount DAWSON OF PENN said that it was true, as the opener of the discussion had remarked, that there must always be a lag between law and medicine, and rightly so, but the recent considerable change in public opinion had made the lag more manifest. He always thought it undesirable to regard change of thought in the community, perhaps involving a certain change of habit, as necessarily indicating some degeneration. He did not believe that the

changed ideas and habits of the people, although in some respects they might be mistaken, indicated any deterioration in the race. There were good reasons why many people desired to limit their families, but alongside that change it was undoubtedly true that children were better looked after to-day than they had ever been in the history of the country. So far as the medical profession was concerned he thought that any change of view might be due in part to that altered emphasis which was constantly being impressed upon the medical man whereby, instead of having as his one preoccupation the immediate problem of the sick person in front of him, he had now been instructed in the teaching of preventive medicine, and was always being told to look ahead, to anticipate, and to prevent. Half unconsciously there had come increasingly into the profession the idea of the good of the community, not the individual only. That in itself brought about an enormous change of thought, with a widening of horizons and an increased number of considerations to determine a given line of treatment.

Mr. V. B. GREEN-ARMYTAGE considered that those three elastic words which it was considered might be incorporated in the Act to give a ground of permission for legal abortion, "risk to health," were very dangerous. Who of them could define "risk to health"? It was an unscientific term. The unmarried mother was a person for whom one often felt a great deal of sympathy, and yet, after all, Leonardo da Vinci and Michelangelo were illegitimate children. What did it all boil down to? If the surgeon had no guilty intent, if he was perfectly honest in what he did, and if he took the precaution of calling another doctor into consultation, he would never in the present state of the law be convicted. There was no such thing as an illegal operation if there was no guilty intent.

Legal Views

One or two barristers present contributed to the remainder of the discussion. Mr. E. D. WETTON mentioned the desirability that any such operation should only be performed after two medical men had consulted. He thought also that words might be inserted in an Act of Parliament to indicate that the operation might be performed when it could be shown that the health of the mother would be permanently injured by having a child. Mr. G. K. ROSE (metropolitan police court magistrate) said that it astonished him to find that as the years passed by nothing was done actively to remove the stigma which attached to the illegitimate child.

Mr. GEOFFREY RAPHAEL said that his quarrel with Mr. Bourne was that his action had served only to emphasize the differences which existed between the law and the practice of medicine. It had done nothing to reconcile those views. So far from it being true that the law had been changed by that judgment, it had not been changed at all. Mr. Bourne was in respect of this case butting against an open door. Nobody would have ever dreamed of suggesting that Mr. Bourne in pursuance of his practice was committing a criminal offence. But of course when Mr. Bourne said, "This is what the Act says, and I propose to defy the Act and invite Scotland Yard to prosecute me," poor Scotland Yard could do nothing else. But that argument which availed Mr. Bourne, quite properly, at the Central Criminal Court might be advanced equally by professional abortionists, who did such incalculable harm.

At an extraordinary meeting of the Council of the Brighton and Sussex Medico-Chirurgical Society Mr. Douglas A. Crow was elected president to fill the vacancy caused by the death of Dr. J. G. Hayes. On November 3 Dr. H. G. McGregor read a paper entitled "Constitution." On December 1 Mr. D. A. Crow delivered his presidential address entitled "A Blind Man with a Lantern." At this meeting a collection for the B.M.A. Charities Fund produced more than £27.

JOSEPH S. BARR: INTERVERTEBRAL DISK LESIONS AS CAUSE OF SCIATICA
(For Legends see Text)

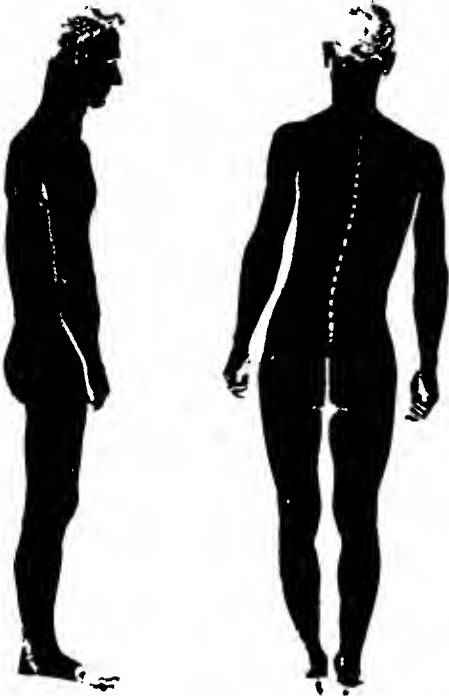


FIG. 1

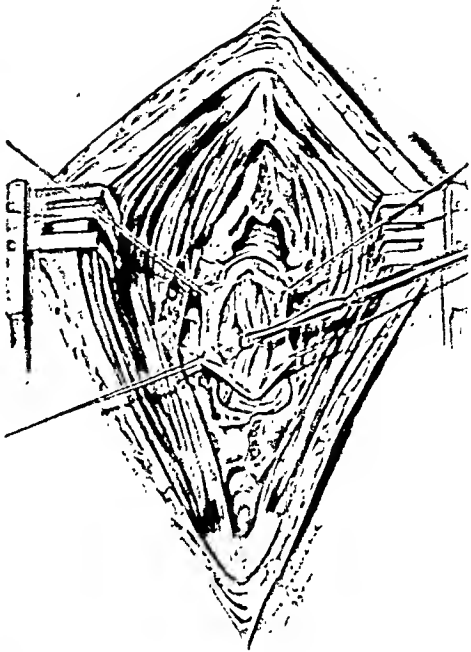


FIG. 2

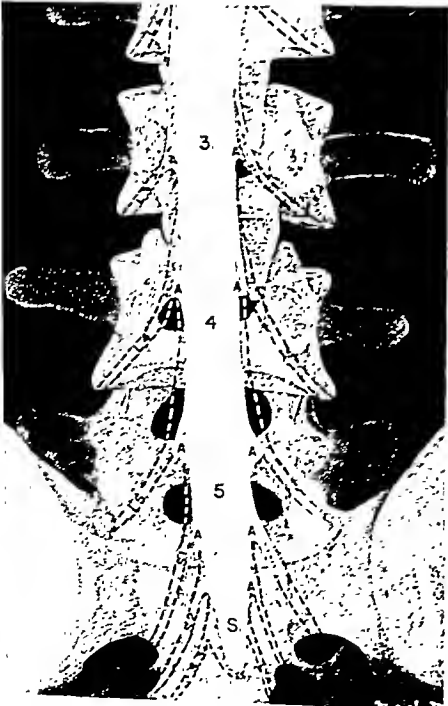


FIG. 3

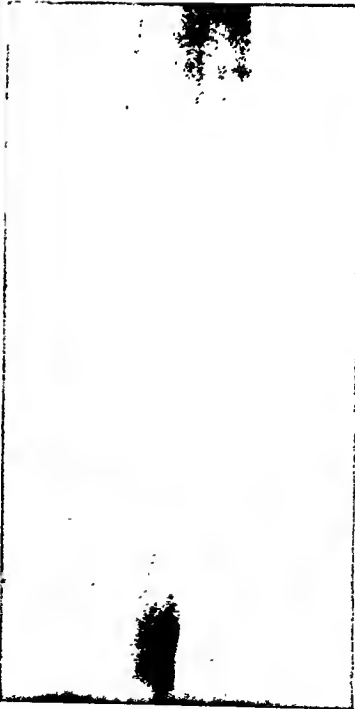


FIG. 4



FIG. 5

JOSEPH S. BARR: INTERVERTEBRAL DISK LESIONS AS CAUSE OF SCIATICA

(For Legends *see* Text)



FIG. 6



FIG. 7

EDWARD R. ELKAN: THE XENOPUS PREGNANCY TEST



FIG. 1.—*Xenopus laevis* Daud. Female ovulating after injection with pregnancy urine.



FIG. 2A.—*Xenopus laevis* Daud, female. Note valves on both sides of external opening of cloaca.

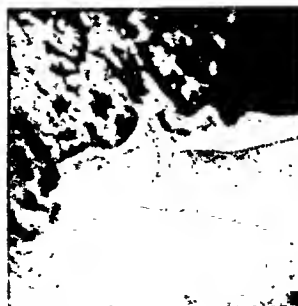


FIG. 2B.—*Xenopus laevis* Daud, male. Note absence of valves at external opening of cloaca.

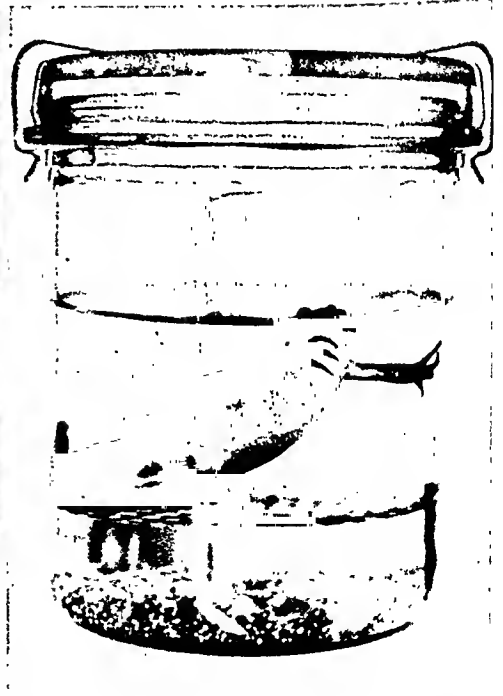


FIG. 3.—Test jar for xenopus pregnancy test. The centre of lid is perforated. The toad sits on a platform; the eggs fall to bottom of jar. Note typical attitude, holding nostrils above surface of water.

W. PAGEL AND LAWRENCE ROBERTS: BEHAVIOUR OF TUBERCULOUS CAVITIES IN THE LUNG UNDER ARTIFICIAL PNEUMOTHORAX TREATMENT



FIG. 1.—Patient aged 25. Skiagram of 25/6/37, showing fibro-calcious tuberculosis, with two cavities in right lung.

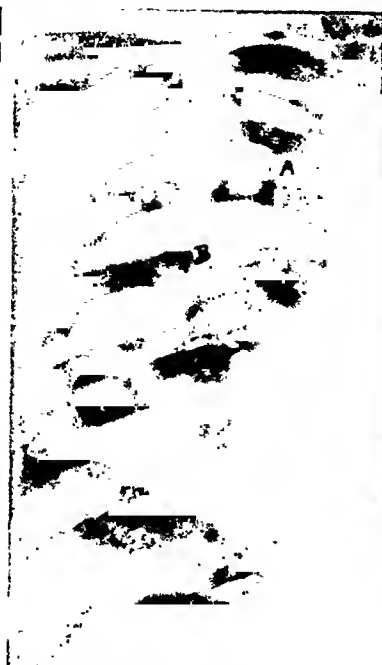


FIG. 2.—Same case, 28/9/37. Artificial pneumothorax. Three cavities are now visible, and there is an adhesion opposite cavity A and another opposite cavity B.



FIG. 3.—Same case, 24/11/37. Note disappearance of atelectatic zone formerly encircling cavity C.



FIG. 4.—Same case, 24/2/38. Adhesions have been divided and no cavities are now visible in the skiagram.



FIG. 5.—Macroscopic view of the diseased right lung after necropsy, showing the three cavities. Cavity B appears as a solid rounded focus.



FIG. 6.—Microscopical view of cavity (C) with its draining bronchus (b) and the plug (P). A indicates atelectatic lung tissue.

J. F. S. ESSER: USE OF THE SKIN OF FEMALE BREAST IN PLASTIC SURGERY



FIG. 1.—Case I, showing stump inserted in the breast.



FIG. 2.—Case I, showing the stump after healing of the mamma skin covering the bony end.



FIG. 3.—Case III, showing patient's hand completely healed, both as regards skin cover and mobility of thumb.

G. LAING BROWN: SPONTANEOUS PNEUMOTHORAX AS A COMPLICATION OF ARTIFICIAL PNEUMOTHORAX

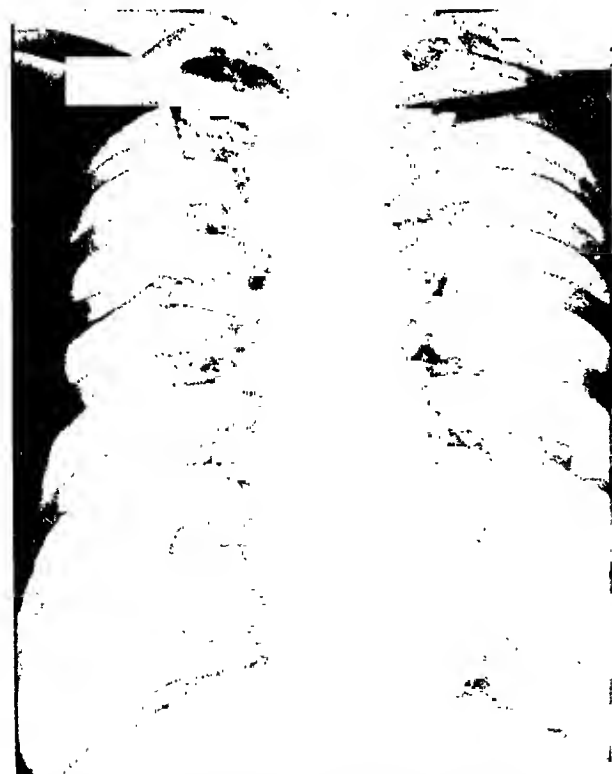


FIG. 1.—Right lung after induction of artificial pneumothorax.



FIG. 2.—Artificial pneumothorax on right side and spontaneous pneumothorax on left.

Local News

ENGLAND AND WALES

Old Epsomians

The sixty-first annual dinner of the Old Epsomian Club was held on December 8, with Mr. S. J. Holford, L.D.S., in the chair. After the loyal toast had been honoured Mr. J. S. Colman proposed the health of the president in a brief speech in which he referred to the president's athletic achievements and to his eminence as a dental surgeon. In reply Mr. Holford expressed his appreciation at being elected president for the coming year, and entertained the company with reminiscences of his early days at the school. In responding to the toast "Epsomia," the head master, the Rev. A. C. Powell, said he would like to express the gratitude of the school to last year's president, Colonel Crawford, who had proved to be one of their greatest benefactors. He then gave some figures which indicated the increasing success of Epsom College in gaining scholarships at the senior universities. In sport the tradition of the school was also well maintained, especially in rugby. The head master concluded his speech by mentioning the admirable spirit shown by the school during the recent crisis. In welcoming the guests Sir Cosmo Parkinson said he would like to congratulate Dr. Robert Hutchison on his high position as President of the Royal College of Physicians, and he mentioned that Mrs. Hutchison was the only woman member of the College Council at Epsom. He coupled the toast with the names of Dr. Robert Hutchison and Mr. D. C. Barclay, chairman of the College Council. In a brief reply Dr. Hutchison said that it was a privilege for those guests who were not Old Epsomians to be admitted to such a "family gathering" as this evidently was. Epsom, he said, he had always associated with three things: salts, the race-course, and the school. Mr. D. C. Barclay, also responding for the guests, considered that old boys' clubs or societies were an important part of the life of a school.

Epsom College: St. Anne's Scholarships

The Council of Epsom College will shortly award several St. Anne's Scholarships for girls. Candidates must be fully 9 years of age and must be orphan daughters of medical men who have been in independent practice in England or Wales for not less than five years. The value of each scholarship is dependent upon the means of the applicant and the locality and fees of the school selected. Forms of application for these vacant scholarships can be obtained from the Secretary of Epsom College, 49, Bedford Square, W.C.1, and must be completed and returned by January 1, 1939.

The London Emergency Bed Service

At a meeting of the Council of King Edward's Hospital Fund for London on December 13 the president, the Duke of Kent, opened the proceedings by reading a brief message of encouragement from the King. His Royal Highness in his address referred to the various activities of the Fund, including the emergency crisis distribution; the provident scheme for the middle classes, in which the British Medical Association had given valuable assistance; the promotion of a Bill to exempt voluntary hospitals from the incidence of rates; and the distribution of grants, amounting in all to £305,000, to hospitals.

The chairman of the Voluntary Hospitals Emergency Bed Service Joint Committee, Sir Harold Wernher, presented a report on the provision made by that committee, which was set up last summer to facilitate the admission of acute and emergency cases to voluntary hospitals in London, the King's Fund undertaking to provide the necessary finance and supervisory staff. The Joint Com-

mittee of the King's Fund and the Voluntary Hospitals Committee responsible for the Service consists of Sir Harold Wernher, Lord Luke, Sir Ernest Pooley, Mr. O. N. Chadwyck-Healey, Dr. A. M. H. Gray, Dr. Geoffrey Evans, and Mr. A. J. Gardham. (Articles on the work of the Voluntary Hospitals Emergency Bed Service appeared in the *Journals* of June 4 and June 18, 1938.)

A staff of twelve operators was appointed and given a preliminary training with the help of the hospitals. The Service was opened on June 21. Initially it was open from 8 a.m. to 10 p.m. only while the staff gained experience and confidence in their duties. A full twenty-four-hour service was brought into operation on October 8. The Service telephones every hospital once or twice a day according to a special schedule and receives a report of the number of beds vacant; this report is subdivided into some forty categories according to the sex and medical category attaching to each bed. The number of cases presented by doctors has grown steadily and is still growing week by week. By the end of November 2,800 cases had been dealt with. On no occasion has the Service been unable to find a bed for a genuine emergency, and only in exceptionally difficult cases has it taken more than ten minutes to arrange admission. During this time the necessary data have to be given by the doctor, and he has to decide to which hospital where there is a bed available he would like to send his patient. The hospital has to be telephoned and the bed booked, often an ambulance called, and finally the doctor is telephoned to confirm that all is in order. It is estimated that some 25,000 telephone calls in all have been made, the majority of which are concerned with keeping the record of beds up to date. Over 1,200 doctors have used the Service already, and this number grows daily. Many doctors have written expressing their appreciation, and in some cases stating that the life of the patient has been saved by the rapidity of the admission to hospital. The Service has been asked to arrange ambulances for about one-third of the cases it has handled. The procedure has worked smoothly, and gratitude is expressed to the London Ambulance Service of the London County Council and the Home Ambulance Service of the Order of St. John of Jerusalem and the British Red Cross Society for their co-operation. During the crisis provisional arrangements were made for moving the Service to safer quarters in the basement of a large house in the suburbs, but the move did not actually take place. Since then negotiations have been in progress to arrange for these premises always to be available for the Service should evacuation ever become necessary.

A Local Inquiry into Malnutrition

During the year 1938 the Ipswich Committee against Malnutrition has conducted an inquiry into the food resources of more than 100 working-class families, and the results have been made into a pamphlet by Dr. A. M. N. Pringle, who has just retired after thirty-one years' service as M.O.H. for Ipswich. The facts as to family income and expenditure are all carefully tabulated, with the amount available for food set against the B.M.A. minimum. At the end averages are worked out in income groups, with interesting results. It is seen, for instance, that fixed charges (rent, fuel, light, insurances) take a much larger proportion of the smaller incomes: they increase with income, but not to the same extent as food. The average amount per head per week ranges from 4s. 6d. to 7s., though in six cases it is below 3s. Alongside these figures Dr. Pringle gives an interesting summary of the main facts about the effect of nutrition on health and the essentials of a balanced diet, and examines how far these families are able to obtain it. Finally, nineteen food budgets are given in detail, with a comment from the doctor on each one, preceded by general conclusions. Milk is everywhere insufficient, usually very much so indeed; so also are butter, eggs, and cheese. Fruit and green vegetables are only purchased in meagre and insignificant quantities. Protein foods are below standard both in quantity and in quality. Bread is the basic food, and, alas! it is white bread, from which most of the protein and mineral elements have been removed. The results

of this independent investigation bear out the conclusions reached in other areas. Ipswich is a comparatively prosperous town, and the low level of nutrition is possibly not so widespread as in less fortunate places, but it exists there to a larger extent than one would have expected, and the figures show that if the family is not quite small it exists even when the father is in work and earning up to 50s. per week. Copies of the report can be obtained, price 4d. post free, from the secretary, Mrs. Lewis, 41, Brunswick Road, Ipswich, or from the secretary of the London Committee against Malnutrition, 19c, Eagle Street, Holborn, W.C.1.

Chelsea Clinical Society Dinner

The annual dinner of the Chelsea Clinical Society was held at the Rembrandt Hotel, S.W., on December 6. In proposing the toast of the Society, with which he coupled the name of the president, Sir Eric Maclagan referred to the many doctors he had dined with at different times, most notable among them being Sir Clifford Allbutt. The president of the Society, Mr. Duncan Fitzwilliams, in replying, delighted his listeners by presenting a condensed history of Chelsea. He sketched the careers of the many owners of King Henry's Manor and what was known as "Old More's Manor" (the estate of Sir Thomas More). These houses finally became the property of Sir Hans Sloane, at that time President of the Royal College of Physicians, who owned almost all Chelsea, and whose remarkable collection of coins, fossils, manuscripts, and curios formed the nucleus from which the British Museum was created. Dr. Kenneth Eckenstein, honorary treasurer of the Society, proposed the toast of the guests in a characteristically witty speech. Among the guests were the presidents of the Medical Society of London, the Hunterian Society, and the West London Medico-Chirurgical Society. A reply on their behalf was made by Mr. C. W. Gordon Bryan, the honorary treasurer of the Royal Society of Medicine.

Human Milk for Delicate Babies

A National Mothers' Milk Bureau will be opened by the National Birthday Trust Fund at the new Queen Charlotte's Hospital on January 1, 1939. The bureau will be under the supervision of the staff of Queen Charlotte's Hospital, but the cost of maintenance will be borne by the National Birthday Trust Fund. The object of the scheme is to make available human milk for delicate babies for whom it has been medically prescribed. The bureau will be provided with the most modern equipment and freezing plant through the generosity of Sir Julien Cahn, chairman of the National Birthday Trust Fund.

Filming Fracture Work

Now that cinematography has proved its value in medicine we may perhaps have to devote a corner of the *Journal* to "film notes." T. J. Smith and Nephew, Limited, have been at some pains to prepare a film on the functional treatment of fractures, and they claim with justification that it is based on the well-known report on fractures issued by the British Medical Association in 1935. The producers have not entirely concealed their belief that "cellona" plaster bandages are eminently suited to the modern treatment of fractures, but it is fair to say that the film is instructional from first to last. There are about 2,000 feet of 16-millimetre film, and it takes about one and a half hours to show. The four fundamentals of successful fracture treatment—namely, (1) segregation, (2) continuity of supervision, (3) after-care, and (4) unity of control—are covered most admirably in the opening section. Then follow other sections dealing with the treatment of various common fractures, such as Colles's, supracondylar fracture of the humerus, tibia, and fibula, Pott's fracture, crush fracture of a vertebral body, and many others. The film was made at a well-known fracture

clinic, and it is a delight to see portrayed the unhurried efficiency, the thoroughness and care, with which the work is done. It is, perhaps, the one danger of this film that it makes fracture work look so easy. Possibly it is to those who have had long and arduous experience, but the daily price that has to be paid for success is constant vigilance and the most patient attention to detail. Only a few shots show mistakes to be avoided, and rather more warning notices might, perhaps, have been included. As a means of teaching this film has only limited usefulness; as an instructive entertainment it is very good, and as a way of showing just how the thing should be done it is superb. Admitted that there may have been some stage managing (and probably no such admission need be made), this film shows what is actually being done in well-organized fracture clinics, and it is to be hoped that there will soon be more centres that could stand the scrutiny of a candid camera.

IRELAND

Irish Medical Reunion in London

The annual autumn meeting of the Irish Medical Schools and Graduates Association was held in the Rembrandt Hotel, London, on December 1, and consisted of a dinner followed by a dance. The president, Mr. Johnston Abraham, and Mrs. Johnston Abraham received the guests, who included Lord and Lady Stopford and the Rev. Canon Hannay and Miss Hannay. Lieutenant-General William P. MacArthur, the Director-General of the Army Medical Services, was present, and received on behalf of Captain J. W. Orr, M.C., R.A.M.C., the Arnott Memorial Medal, which was awarded by the society to Captain Orr for bravery under fire on the Indian Frontier. Sir William de Courcy Wheeler proposed the toast of the guests, to which Lord Stopford replied, and Canon Hannay (George Birmingham) proposed the toast of the association, and referred to the literary gifts of the president, who is the author of *The Surgeon's Log* and *The Night Nurse*. The dance was enjoyed by the members, their wives, families, and guests.

Honorary Degree for Sir W. Langdon-Brown

The National University of Ireland, on December 8, conferred an LL.D. degree, *honoris causa*, on Sir Walter Langdon-Brown. The degree was conferred by the Chancellor of the University (the Prime Minister, Mr. E. de Valera); and Professor Henry Moore, in an introductory speech, said that while Sir Walter Langdon-Brown's name was familiar to every member of the medical profession through his medical writings and lectures, his reputation was high in literary and scientific circles through his philosophical and scientific works. In addition to holding a leading position as a consulting physician in London he was Emeritus Professor of Physics in Cambridge University.

"He has held the Croonian Lectureship of the Royal College of Physicians of London, and he was the Harveian Orator of the same college. He is the author of several standard textbooks and papers relating to medicine, psychology, and philosophy. His latest book, *Thus We Are Men*, is a masterpiece, wherein, with a purity of English style rarely seen to-day, he discusses life in relation to philosophy and psychology, and in which he shows a deep knowledge of human nature. During the time that he has been attached to this University as Extern Examiner in Medicine his colleagues have grown to appreciate deeply his scholarly attainments."

After the conferring of the degree Sir Walter Langdon-Brown gave a lecture at University College, Dublin, entitled "Medicine—Yesterday, To-day, and To-morrow." It was attended by the Prime Minister, and the President of the College, Dr. D. J. Coffey, was in the chair. There were almost 400 people in the audience and the lecture was applauded for several minutes at its conclusion.

Ulster Medical Society

At the meeting on November 17 of the Ulster Medical Society, the president, Dr. J. McCloy, in the chair, Professor J. H. Biggart read a paper on diabetes insipidus. After briefly describing the history from the early knowledge of Willis (1674), the discoveries of Claude Bernard, the experimental work of Schafer and Hering, and the clinical observations of Farini and van der Velden, the speaker dealt with recent experimental work and the anatomical findings in eight human cases. In five of these eight cases, he said, pituitrin controlled the polyuria, and in each of these the lesions found were so localized as to interrupt the supra-optic-hypophyseal nervous tract to the pars nervosa, and had destroyed completely this part of the pituitary gland. In two of the cases the damage to this nerve pathway had resulted in marked atrophy of the pars nervosa, suggesting that the pathway had a definite influence on this structure. In three patients the polyuria was not controlled by pituitrin, the lesion involving not only the anterior hypothalamus but extending sufficiently to destroy the nuclei of the tuber cinereum. The syndrome had been experimentally reproduced in fourteen dogs, and the findings in these animals supported the suggestion arrived at from a study of the human material that interruption of the supra-optic-hypophyseal tracts resulted in a cessation of the manufacture of the anti-diuretic hormone. Studies of human cases and experimental material also showed that the anterior pituitary played an important part in the development of the syndrome.

INDIA

Madras Ophthalmic Hospital

A triennial report and statistics have been issued for the Government Ophthalmic Hospital, Madras, for the years 1935-7. Plans were drawn up for the construction of new quarters for the nursing staff, an extension and ticket hall for the out-patient department, and a dining hall for patients, at a total estimated amount of 43,000 rupees. There was but little change in the numbers of patients treated during the period under review, and the nature of the diseases treated was much the same as in 1936, some details of which were given in the *British Medical Journal*, 1937, 2, 550. Over 100 medical students were trained in each of the three years. This institution has a wealth of varied clinical material, but its accommodation is at times very severely strained.

Enteric Fevers in the Armies

A point of special interest in the second volume of the report for 1936 of the Public Health Commissioner with the Government of India is the low incidence of enteric fevers in the armies, which was particularly striking among Indian troops. Part of the reduction among enteric group cases was possibly due to better diagnosis of the mild typhus group cases, but it is added that this factor is inapplicable to the great reduction in both typhoid and paratyphoid A group (Indian) which occurred during that year, while the ratio for typhus fever (Indian) is the same as that for 1934 when the figure for enteric fever incidence was the lowest on record. The number of deaths in both British and Indians from enteric fever was also greatly reduced. There was no corresponding reduction among the civil population but rather an increased incidence, nor have there been any striking changes in the general hygiene of military areas. Growing interest, however, is being taken in child welfare among their families by all Indian units, and many enteric cases were detected which would otherwise have escaped notice, suitable treatment being given at once. Another focus of infection is thus being eliminated. Special note is made of the improvement in the T.A.B. vaccine supplied by the R.A.M. College and the Central Research Institute, Kasauli, during the last few years. In the 1935 report attention was called

to the increasing number of apparently ambulant infections among the fatal typhoid cases. For the total enteric group of fevers the statistics are similar to those of previous years for the various post-inoculation periods, but in the bacteriologically proven cases there was in 1936 a considerable fall in the percentage of cases occurring in the first six months after inoculation, and a definite rise in the twelve to eighteen months period. The results obtained by agglutination tests were again inconclusive in both "H" and "O" agglutination. Comparative tests of Dreyer's technique and that of Felix with standardized T.O. suspensions had not yet yielded sufficient data for definite opinions except that in the great majority much higher titres of "O" agglutination were shown to be present by the second method.

During 1936 the admission ratio for dysentery fell by 4.6 per 1,000, being the lowest for many years, but this was offset by an increase in the admissions for diarrhoea and colitis, leaving a decrease of 1.4 per 1,000 for the whole group of diseases. Reduction also occurred in the admissions for amoebic hepatitis, and only two cases of liver abscess were admitted. Cases were as usual sporadic, and the greatest incidence corresponded with the fly season. It was observed that units arriving recently in stations after train journeys produced small crops of cases. It is reiterated that this group of diseases is, under peace conditions, largely passed on from the insanitary conditions prevailing among the civil community. The striking range of the fly and the absence of any reliable method of producing active immunity against the numerous varieties of dysentery bacilli prevalent among the population of India account mainly for the fact that the admission rate to hospital among British troops in India in 1936 was as high as 42.1 per 1,000, compared with an admission rate of 1.5 per 1,000 for the enteric group of fevers.

Opium Smoking in India

Brevet Colonel R. N. Chopra and Mr. G. S. Chopra have published in the *Indian Medical Gazette* a series of articles on "The Opium Smoking Habit in India." The history of the custom, which was prevalent in China from the beginning of the seventeenth century, but not in India or Persia until the nineteenth century, is related. Smoking, as opposed to eating, opium has not been largely prevalent in the Dependency except in Assam and Burma. It obtains mostly in the larger towns and among the poorer inhabitants. In 1932-3, 28,448 lb. of opium were consumed in Assam, or 30 lb. per 10,000 of the population. The ratio of smokers to eaters in Assam is 1 to 4. The former are more numerous in the hilly country than in the plains. Addicts are as 1 to 126 in the population, but the number is declining under Government restrictions and registration of smokers. In Burma opium has been in use for 300 years, and in 1933 there were 53,000 opium eaters and smokers in that country. The official view is that opium smoking is a social vice, and Colonel and Mr. Chopra recall the view of the Royal Commission of 1895 that the eating of opium is relatively harmless compared with opium smoking. It is also much cheaper, since it is stated that the effects of smoking 180 grains a day can be obtained by the ingestion of 10 grains. The objective sought after is a state of euphoria, and it is the quest of the poor and miserable as an escape from their surroundings. Smoking is mostly resorted to in company in dens, sometimes with social functions or quasi-religious observances. Opium eating, on the other hand, is practised alone and often furtively; but the habit is more easily cured than is that of smoking. The authors appear to share the official view that a great distinction is to be drawn between the effects of eating opium compared with those of smoking; nevertheless they observe that "no scientific data are available to support the view that smoking of opium is more harmful than eating to the individual addict."

* Vol. Lxxiii, Nos. 2, 3, and 4 (February, March, and April, 1938).

Correspondence

Surgical Approach to Facial Neuralgia

SIR,—I was profoundly impressed by Mr. G. F. Rowbotham's paper on the treatment of pain in the face by intramedullary tractotomy in your issue of November 26 (p. 1073).

What impressed me was not that the pain had been relieved (it should be, if our anatomy and physiology books are reliable) but that he was able by his analysis of the patient's description of certain subjective sensations to make a diagnosis of "primary" pain, apparently without having searched for those pathological conditions in the area subserved by the sensory branches of the trigeminal nerve which are commonly found to be productive of any and every type of pain in the face. I hope that Mr. Rowbotham will assure us that he carried out an exhaustive examination of the nasal sinuses and the teeth before he made his very skilled inroad into the central nervous system.

If he is in the habit of taking the quality of the pain (as described by the patient) for a guide as to its "primary" nature, I would refer him to the very interesting observations upon somatic pain recently recorded by Sir Thomas Lewis (*British Medical Journal*, 1938, 1, 321), which indicate how misleading a patient's description of pain may be.

Sluder (*Trans. Amer. laryng. Ass.*, 1912, 35, 42) painted the interior of the sphenoidal sinus with 20 per cent. cocaine and found that the whole of the face on the same side became anaesthetized, an observation which emphasizes the intimate anatomical relation between this sinus and the Gasserian ganglion. It helps to explain how absorption of toxins under pressure from a blocked sphenoidal sinus can inflame the ganglion of the trigeminal and lead to pain anywhere in its distribution. Since sphenoidal sinus work has become a commonplace of rhinological practice, it is so usual to find that facial pain can be relieved by adequate sinus ventilation that one had forgotten that there were still medical men who believed in essential neuralgia. I submit that the word "primary" in connexion with pain is inapplicable; and I would suggest that an experienced rhinologist might be allowed to examine pre-operatively the next case which Mr. Rowbotham has marked down for a procedure which, as he so rightly remarks, "makes an interesting neuro-anatomical experiment."—I am, etc.,

London, W.1, Dec. 5.

BEDFORD RUSSELL.

Cancer of the Breast

SIR,—Mr. G. Gordon-Taylor's recent address on cancer of the breast (*Journal*, November 26, p. 1071), with his follow-up of cases operated on in the last thirty years, shows results which are indeed remarkable, especially so with an 84 per cent. survival rate in Stage I cases after ten years. The fact that these results were achieved by surgery alone without ancillary treatment by deep therapy will be disturbing to many who, like myself, have been accustomed to send all cases for post-operative irradiation.

There are two points on which perhaps one might venture to criticize Mr. Gordon-Taylor's figures: in the earlier cases, say before 1925, some cases were probably rejected as inoperable and therefore do not appear in

the totals. These cases would affect particularly the Stage III group, to which most of them belong, and for comparison with modern statistical tables compiled by radiation centres these inoperable cases must be added to the totals in computing the percentage of survivors.

There is another point: the difficulty of accurately "staging" cases into groups is a very real one to get comparable figures for comparison between different methods of treatment. The division between Stages I and II, depending on whether axillary glands are present or not, is a reasonably precise one. The division between Stages II and III is less precise, and if (as I presume) staging in Mr. Gordon-Taylor's cases was based on the notes of the cases and not definitely carried out at the time of examination, some confusion might easily arise in differentiation between these two groups. If this were so, then his results in both Groups II and III would be vitiated to some extent by the failure to include the inoperable cases. Thus the figures of 25.2 per cent. survivors at the end of ten years and 35.3 per cent. five-year survivors, which are obtained by combining Mr. Gordon-Taylor's Group II and Group III cases, should in reality be considerably lower.

A survival rate of 84 per cent. after ten years from such an unexceptionable source and by surgery alone is of the utmost value as a standard of what can be achieved, and helps to clarify one's ideas for future comparison with the combination of surgery with radiation in breast carcinoma.

The Group III case benefits enormously by radiation; Mr. Gordon-Taylor recognizes this inasmuch as he has sent twenty-eight such cases for radiation alone between 1925 and 1935. The Group II case in my experience has benefited considerably by post-operative radiation, though it is too early yet to give figures extending over a sufficient period of time to judge the final results.

With regard to the Group I cases, like Mr. Gordon-Taylor I rely on surgery, but in addition give post-operative radiation. I have often wondered whether it was necessary in these cases—the figures which he gives incline me to think that it is not, and that in the ordinary Group I case reliance can be placed on surgery alone, and post-operative radiation is unnecessary.—I am, etc.,

Birmingham, Dec. 9.

SEYMOUR BARLING.

Neck Plaster

SIR,—The very interesting article by Mr. John C. Nicholson in the *Journal* of August 27 (p. 464) describing his experiences as a patient encourages me to write and say how fully I agree with his remarks about the cold wet plaster. In February last I had a motor-car accident which I did not regard very seriously, thinking I had escaped with two broken ribs and some bruises, but eventually I had my neck x-rayed, the film revealing fractures of the transverse processes of the fourth and fifth cervical vertebrae. Although this was nearly a month after the accident it was decided that I should go into plaster as I was still getting so much pain.

I cannot remember how many patients I have told not to fuss about their plaster, but having had one put on—even in the dry heat of Rajputana, with the thermometer at 108° F.—I shall never do so again. I shall never forget the misery of the wet, cold, and irritating plaster round my neck and head. Mr. Nicholson is perfectly right in his references to the little pieces of plaster which cause so much irritation, and which in a neck plaster are inevitable owing to the movements of the lower jaw. I must admit that after a few days I

had my plaster removed and put myself into a splint in the shape of a cross, which I wore for some weeks. It did not interfere with my work, except that cystoscopies were difficult as one could never get one's eye at the right angle. With a stiff neck ordinary surgery, both abdominal and ophthalmic, was perfectly easy, as one learnt to bend from the hips very quickly.

Never again shall I inflict on a patient a neck plaster if it is possible to fix him adequately with splints, which I believe to be the case if one pays sufficient attention to the details of their manufacture and fitting.—I am, etc.,

E. W. HAYWARD,

Rajputana, Nov. 22.

Principal Medical Officer, Jodhpur.

Adrenaline Treatment of Asthma

SIR.—Dr. Alexander Francis's experience regarding the removal of polypi in aspirin-sensitive (December 3, p. 1179) agrees with mine. The removal of bone in them is usually disastrous. These patients have in an unusual degree the capillary permeability characteristic of allergy. At operation their noses flood with blood and the field is hidden. But the polypi have to be removed. They should not be tackled, however, till the patient has had a course of general treatment for a month or two. This includes an organic compound of calcium plus vitamin D but minus milk. Such treatment has served me well with a retired Army officer, asthmatic and aspirin-sensitive. The polypi recurred until this treatment had time to act, and also until I used ionization with a zinc needle buried in any buds that threatened to develop into polypi. The patient has now neither asthma nor rhinorrhoea. He never needs adrenaline.

That raw milk is a fertile source of asthma I have found for forty years. But it is not generally known that, short of asthma, it may cause rhinorrhoea. Milk rhinorrhoea has become common since the institution of "seltool milk." That raw milk should be stopped before trying the removal of the stellate ganglia for persistent rhinorrhoeas—as has been recently done to a lad who persistently took milk—does not seem to dawn on the rhinologist, nor the need for stopping it in treating hay fever. Other vitamins than D are of course important, and it is possible that foods rich in vitamin K—cabbage, spinach, liver—may be specially helpful because of the importance of this vitamin in the formation of prothrombin.—I am, etc.,

Glasgow, Dec. 4.

JAMES ADAM.

SIR.—I would like to thank Dr. Alexander Francis (*Journal*, December 3, p. 1179) for his courteous reply to my letter and for giving full particulars regarding the patient under discussion. As a matter of fact, I entirely agree with him as to the inadvisability of indiscriminate removal of polypi, but have certain suggestions to offer in response to his request.

1. Careful analysis, as recommended by Maxwell, to determine the prime source of the attacks. Maxwell's classification is, incidentally, as follows: (a) an allergen (bacterial; non-bacterial; bacterial plus secondary non-bacterial; or non-bacterial plus infection or toxæmia); (b) nasal; (c) bronchopulmonary; (d) alimentary; (e) endocrine; (f) psychological.

2. Nasal endoscopy by a competent rhinologist—to avoid missing a latent sinusitis. Sphenoidal and post-ethmoidal sinusitis frequently play a part in the production of allergic manifestations, and are almost invariably missed by the ordinary rhinoscopies. Suspicious findings demand suction lavage and bacteriological examination of the washings.

3. The protein metabolism may repay investigation. Lapage and Dzinich hold that the liberation of histamine is the deter-

mining factor in the allergic reaction, while the former points out that circulating amino-acids and other toxic bodies irritate the autonomic nervous system.

4. Maintenance of the proper balance of potassium and calcium in the tissues and perfect endocrine balance both affect the irritability of the parasympathetic, according to Fraenkel and Bray; therefore any abnormality found should be corrected.

5. Sunshine, ultra-violet light, x-ray therapy, and cold douching after hot baths increase the output of adrenaline, so helping to stabilize the autonomic nervous system; while nerve tonics such as zinc valerianate and liquor arsenicalis may be helpful.

6. Strict dietary control is advised by Jay to avoid overloading metabolism or including "allergenic" constituents.

7. Auto-genous vaccines are of very limited use (Bray, Theodore Just, and Frederico Nitti).

8. The fact that cutaneous and mucosal sensitivities do not run parallel courses and the changeability of sensitivity from time to time and from place to place negative the value of cutaneous tests and render desensitization rather futile (Bray and Chandler Walker).

9. Small doses of codeine and the giving of a sedative linctus at night are respectively recommended by the same two authors.

10. Sclerosing submucosal injections benefit a number of cases provided there be special indications.

11. Cauterization of sensitive areas is not a very popular measure, though W. Howarth claims improvement in 50 per cent. of asthmatics.

12. Intramucosal auto-cerotherapy and intravenous peptone have their supporters.

13. Surgery, except for sinusitis when satisfactory results are to be expected, should be extremely conservative (Bray, van Lennuven, Gill Carey, Moll). A submucous septal resection may leave an irritable ethmoid, while hypertrophic masses and hyperplastic sinus disease should be left severely alone; tonsils should only be removed if definitely infected. Lastly, Chandler Walker, Bray, Lapage, and others all agree that good results follow the removal of septic foci in cases of asthmatic bronchitis.

I hope that some of these suggestions at least may recommend themselves to Dr. Francis, and that with their adoption considerable relief may be afforded the patient.—I am, etc.,

Bath, Dec. 6.

C. A. HUTCHINSON.

Cyclopropane and Pulmonary Atelectasis

SIR.—During recent years there has been much discussion concerning the causation of post-operative pulmonary complications. It has been suggested that certain anaesthetic mixtures, such as cyclopropane and oxygen, which contain an abnormally high proportion of oxygen may lead to atelectasis or even major pulmonary collapse, either at the time of operation or subsequently during the post-operative period of recovery. This is due to the fact that oxygen is absorbed from the pulmonary alveoli much more rapidly than atmospheric air. To what extent this statement is true it is difficult to assess, as there are so many other factors involved in post-operative pulmonary collapse. Heavy premedication, obstruction of the airway, post-operative mechanical difficulties in respiration, bronchial spasm due to reflex irritation set up by too high a concentration of ether or (in certain cases) an endotracheal tube, must all play their part, while the current practice of producing an artificial apnoea in order to facilitate the work of the surgeon would appear to be not without danger to the patient.

During the administration of cyclopropane anaesthesia the patient inhales a mixture of gases containing anything up to 90 per cent. of oxygen. After a long operation this over-oxygenation is liable to result in unpleasant

after-effects, such as headaches, nausea, and possibly even mental symptoms in some cases. Moreover, unless the anaesthetist is careful to lower the oxygen percentage by easy stages towards the end of a long operation, the patient may suffer extreme shock on suddenly being transferred from 90 per cent. oxygen to atmospheric air. In order to overcome these objections it is quite easy to administer cyclopropane with ordinary air.

A Y-piece is incorporated with the rubber tube leading to the oxygen flowmeter of a Boyle's apparatus, one limb being connected to the oxygen supply cylinder and the other to a double-bellows as used for Shipway's apparatus. By adjusting the tap on the oxygen flowmeter and squeezing the bellows a steady flow of air at the rate of 1 or more litres a minute may be maintained for any length of time. If desired, a special flowmeter calibrated for air may be fitted to the Boyle's apparatus. During the induction of anaesthesia the rebreathing bag should be about two-thirds filled with air before starting the cyclopropane. Oxygen can be dispensed with altogether, but in practice it is better to adjust the flow of oxygen at the rate of 200 or 300 c.c. a minute, according to the metabolic requirements of the patient. Subsequent losses due to leakage should be made up with air by means of the double-bellows. Incidentally, by using this technique with the Waters's carbon dioxide absorber the air is delivered direct to the face-piece and thus is not contaminated by the contents of the rebreathing bag.

To prevent misunderstanding, I would like to emphasize that I do not claim any originality in administering cyclopropane with air. It seems reasonable, however, to suppose that the human respiratory system has been evolved expressly for the purpose of inhaling ordinary atmospheric air; whereas the modern tendency of anaesthesia seems to be directed to compelling the patient to inhale anything except this universal and convenient gas, thus contravening the laws of physics and physiology.—I am, etc.,

Newcastle-upon-Tyne, Dec. 5.

PHILIP AYRE.

Correct Footwear

SIR,—I am glad to see that at long last someone else has taken up the question of women's shoes and the results that occur from the unsuitable examples of footwear thrust on the female population, pandering to their vanity. I have been interested in the matter for some years from the public health point of view, and only at the end of October, just before I retired, I examined the heels of nearly 2,000 children in the schools of my district. I classified them into three grades of malformation, according to the extent to which the heels were worn and causing the stresses in the foot to become abnormal, and according to the degree of abnormality of the foot causing the heels to wear abnormally. I found a few of the children's heels were so bad that they were completely worn on the outer side, making an angle of 45 degrees, and I had to add two more categories, making five in all. The number of abnormal cases was very high, and for some so far unknown reason was much higher in the normal upper school than in the large central school for children of slightly lower mental attainments.

My attention was first drawn to this matter by watching the waitresses in large multiple tea-shops in London. Some of these in the late evening were to be seen hobbling about, tired out as the result of the pain produced by their footwear. In all these cases the heels were worn on one side, mostly the outer, and it was obvious that the constant abnormal strain was the *fons et origo mali*. One large multiple store that I approached considered making shoes of a standard pattern part of their employees'

uniform, but the girls refused to wear anything but a "court" shoe with a needlessly high heel. Vanity ruled the situation.

Anyone who looks at the heels of the crowds in the streets will be amazed at the number of bad heels there are, particularly among the poorer members of the community. I had the idea that much of this might be due to buying second-hand shoes or the handing down of shoes in the family, but the number of cases of this I found was far less than I expected. The psychological damage is often considerable, as the victim seems to think that everyone behind her is looking at her heels. She cannot get away from the fact as, in order to keep her feet decent, she has to buy many more pairs of shoes than her more fortunate sister. A point often overlooked is that these very high heels throw the body balance out completely, and produce stresses and strains far from the feet. When Dr. T. Marlin says (*Journal*, December 3, p. 1159) that "high heels seem to be necessary for about 90 per cent. of our womenfolk" he is merely stating that the necessity is dictated by vanity and nothing else. When I refer to high heels I do not mean the heel of 1½ inches of the "Cuban" type, but the 3-inch or so peg-top, which gives no support save to a perfectly normally balanced foot. Another contribution to the deformity of the shoes is dictated by the ignorant bootmaker, who puts rubber tips on the outer side of the heels of these unfortunates. What they want is support and not a yielding outer edge, which only hastens the deformity of the heel and with it the shoe. A man's shoe requires a double row of large flat-headed nails; a woman's heel smaller nails on the outer side and frequent repair. For the cheaper shoe the man can have a metal heel which can be easily replaced; the trouble is that they are not replaced early enough. Very high heels often deform not only the shoes but ultimately the feet by pushing the toes right forward and crowding them into the front of the shoes. Vanity, vanity, all is vanity!—I am, etc.,

Chelmsford, Essex, Dec. 5.

ELWIN H. T. NASH,
President, Society of Medical
Officers of Health.

The Blood Platelet

SIR,—Referring to your leading article on the blood platelet in the *Journal* of November 26 (p. 1090) it must seem an intrusion on the part of a general practitioner to offer any comment. But the article, with its record of an immense amount of investigation which has so far produced no definite conclusion, naturally makes any medical man wonder why this should be so, and whether it may not be that the formation of the blood platelets is to be sought and found in the blood plasma itself instead of in the bone-marrow, spleen, and lungs. There are myriads of protein particles in the blood plasma. Is it not likely that some change in their relations forms the platelets? And now there follows a letter (December 3, p. 1179) from Mr. J. E. R. McDonagh, who has for many years made a critical examination of the blood and plasma. His views appear to be rational and logical, and are supported by his experiments and research. It would be of interest to have them confirmed and accepted, so that the problem of the blood platelet might be concluded. Mr. McDonagh's studies throw a new light on the problems of medicine in all directions, to my mind, and he reads deeper into the fundamental nature of things than any other investigator does. Further light on the many questions involved would be welcome.—I am, etc.,

Glasgow, Dec. 7.

R. O. ADAMSON.

Play Therapy and Child Guidance

SIR.—It is encouraging to those of us whose work lies in the sphere of child psychology to read so wise and sympathetic an appreciation of the value of play therapy for children as was expressed in your leading article in the *Journal* of December 3 (p. 1150). Whereas it is not contended that there is, or should be, only one form of play therapy, it is important for the wise development of this treatment, as of any other, that different forms of this therapy should be distinguished and their origin and evolution known.

Play therapy for children in England arose from two sources. On the one hand, Mrs. Klein and her pupils have used play as the instrument of treatment for children in this country within the psycho-analytic school since 1927. The results of this form of therapy obtained with clinic children are set out in the *Decennial Review of the Institute of Psycho-Analysis*. All psycho-analytic treatment is given individually. Play for group treatment of children in clinics as a method was created in 1928 in the opening of the Institute of Child Psychology (then called the Children's Clinic), having arisen parallel with, but independently of, psycho-analysis. At this time, though the Child Guidance Council had been formed, there was no clinic under the Council in this country; the one existing child guidance clinic (the East London Child Guidance Clinic), one month older than the I.C.P., was under the Jewish Board of Guardians. There was no play at this clinic then, nor in the London Child Guidance Clinic, opened a year later. In 1933 a member of the staff of the I.C.P. joined the staff of the Tavistock Clinic and became its first "play therapist." In 1935, at the request of the West End Hospital, a therapeutic playroom was opened in that clinic under the direction of the I.C.P. in co-operation with the director of the hospital clinic. The methods in use at the Institute of Child Psychology were published in the *British Journal of Medical Psychology* (1931, 11, Part III), in the *Medical Women's Federation News-Letter* (July, 1938), and *Play in Childhood* (Gollancz, July, 1935). There are, therefore, two clearly formulated methods of play therapy, each with its own theory and technique.

Various child guidance clinics have established playrooms in recent years. It is not yet quite clear whether it would be more accurate to say that the children in these clinics play, or whether systematic play therapy is the therapeutic corner-stone, as is the case with child psycho-analysis and the work of the Institute of Child Psychology. No description has been published, and it is therefore difficult to judge. This distinction is not a mere verbal quibbling, since in evaluating results it must be clear to what method of treatment they apply. In your article you regret the lack of statistics in relation to results of therapeutic play. May we remind you that in your issue of July 30 of this year you published a statistical paper on play therapy for "problem" children, giving the immediate and late results of play therapy as used at the I.C.P. over the period from 1930 to 1935, and that a careful demonstration of results obtained from this form of treatment formed part of the Exhibition of the International Medical Congress for Psychotherapy, Oxford, 1938. As with all medico-psychological work, careful theoretical and practical training is essential for those who are to undertake play therapy. For the last five years a systematic course of theoretical and practical training has been held at the I.C.P., which is designed to provide other clinics with qualified workers for this type of treatment.

There are three statements in your article upon which we should like to comment. "It does not appear suitable for the majority of delinquents over 10 years old, although in some of these cases it has proved useful." This is not borne out by our experience at the I.C.P. We find that, when suitably handled, delinquent children of all ages respond favourably to this form of treatment. No one could appreciate more highly your statement that "much caution must therefore be exercised in putting forward claims for cure when all that has happened is that therapy has coincided with the natural resolution of a transient disturbance." We note also that you state that severe cases are found not to be suitable for group play therapy, but need instead individual treatment. This again has not been our experience, and among the cases put forward in the statistical paper quoted above are included cases of personality deviation, profound debility, and anxiety states which have been present for a number of years and which have been successfully treated by group play therapy, according to the methods used at the I.C.P.—We are, etc.,

MARGARET LOWENFELD,
ETHEL DUKES,
Directors.

Institute of Child Psychology,
London, W.11, Dec. 8.

Treatment of "Angina of Effort"

SIR,—I have read with great interest Dr. R. H. Dixon's article on cure or relief of cases misdiagnosed angina of effort (*Journal*, October 29, p. 891), and I am very glad that he has come to the same conclusions as have several writers before him. An article on angina pectoris, by W. von Althaus, appeared in the *Tidskrift i Gymnastik*, the official journal of the Swedish gymnasts, during 1901, in which he described three cases of the disease in which cellulitic (that is, fibrositic) areas were found, the removal of which by massage promptly cured the angina. Dr. Wetterwald of Paris also described the same on several occasions, and personally I have had cases which were of the same nature.

I would, however, like to add that sometimes the removal of fibrositic areas is not enough *per se*, but if combined with cervico-dorsal "mobilization" a cure will then result. I have found that a number of patients with functional disorders of the heart, including pseudo-angina, suffer from being very round-shouldered and have, in consequence of long years of disuse, practically lost the power of movement in the region mentioned. Thus many of the nerves connected with the heart come to lie in an area which is practically immobile, and thus perversion of their function may ensue. (For further details see *J. chart. Soc. Mass.*, 1934, 20, 7; and *Res. Quart. Amer. phys. educ. Ass.*, 1936, 7, 74.) Restoration of movement in this locality has nearly always gone hand in hand with improvement in the cardiac symptoms.—I am, etc.,

London, W.1, Dec. 7.

EDGAR CYRIAX, M.D.

Acute Bulbar Paralysis

SIR,—I was greatly interested in the paper by Drs. D. M. Anderson and J. H. Dixon with the above title in the *Journal* of November 26 (p. 1077).

Fairly recently I saw a patient who almost completely resembles the cases described in this article. At the end of July and in the early part of August four cases of acute anterior poliomyelitis were brought to my notice, all occurring in the same village. Three of the children represented mild forms of the disease, and not at any time did one fear a fatal ending. Each of these children exhibited paralysis of a limb. The

fourth child died. This last patient was a girl aged 6½ years. On July 15 she had a tonsillectomy performed and was soon apparently well and about. On July 30 she complained of severe headaches. The following day she seemed better but complained of a sore throat, and on careful inquiry this seems to have been rather a difficulty in swallowing than any painful condition. On August 1 she still complained of headache, and swallowing became almost impossible. She was sent to the isolation hospital by the practitioner as a "laryngeal diphtheria." On admission the throat was clear but there was much copious mucous secretion, some respiratory stridor, no cyanosis, pulse 156, constipation. On August 3 there was noted a marked neck rigidity, swallowing of fluids was impossible, Kernig's sign was present, and the plantar responses were of the extensor type. During the day the child became cyanosed and had convulsive attacks, and in the afternoon she died. The final diagnosis was acute polio-encephalitis.

The chief difference between this instance and that of the cases described by Drs. Anderson and Dixon was that the onset of the disease was fifteen days after tonsillectomy, but there are several points of similarity—namely: (1) other cases of acute anterior poliomyelitis were known to be present in the same area; (2) that this child had had a recent tonsillectomy performed; (3) dysphagia was a prominent symptom; (4) the disease was fatal; (5) the condition was that of an acute polio-encephalitis.

After reading the experience of Dr. D. M. Anderson and Dr. J. H. Dixon and the more personal experience described above, I do not think that I would allow a tonsillectomy to be performed on my child during a period when acute anterior poliomyelitis was assuming anything like epidemic proportions.

I am indebted to Dr. D. C. Evans and Dr. E. G. Munro Jones, medical superintendent and assistant medical superintendent respectively of the isolation hospital, for clinical notes after the admission of the case to hospital.—I am, etc.,

A. R. CULLEY,
Medical Officer of Health.

Carmarthen, Dec. 8.

New Menstruation Toilet

SIR,—A number of letters have appeared in your columns at different times referring to the internal sanitary pad. None of these has made any distinction between the (marine) sponge pad, covered with a fine layer of rubber at its external end, sponsored for some years now by certain firms dealing with feminine "beauty" preparations, and the reinforced cotton-wool tampon.

The sponge pad is soft, extremely comfortable, and absorbent, and when carefully introduced so that its upper end lies in front of the cervix can do no mechanical harm. It was first brought to my notice by a patient who found it the greatest boon in hunting. It would be difficult, however, on second thoughts, to imagine anything more repellent than this invention, since it is intended for repeated use (its price varies, according to size, up to 10s.), and women are invited to remove it at convenient intervals during the day, squeeze its contents down the wash-hand basin, rinse it under the tap, and reinsert, a cake of soap being supplied for occasional more thorough "cleansings." The woman who has this pad with her may feel extraordinarily "independent," but it has astonished me that particular criticisms of this method of "hygiene" and reports of infection resulting from the use of such pads have till now escaped appearing in the medical press. Perhaps the sponge pads have never become widely popular, but physicians who are asked for an opinion of the internal pad should not fail to keep in mind the possibility of this type being meant. On the grounds of cost they

might appeal to some patients, since, leaving out the risks of infection, they would certainly appear to work out cheaper than other kinds over a period of time.

The other type of internal pad with a cotton-wool basis is firmer, less easy to introduce, less adaptable, and less absorbent, and even in patients accustomed to wearing internal pads may be very painful. It is undoubtedly a more sanitary invention than the last (since it is removed to be destroyed), but what are its precise advantages, one asks, in patients who can (or who have to) adopt such means of internal protection, over the pad long used by theatrical artists, ballet dancers, and probably the majority of women on the Continent—namely, a little self-made roll of cotton-wool about two inches long, thick according to convenience, perfectly soft and adaptable, highly absorbent, inserted just within the vagina not high enough to get "lost," easy to remove and replace a dozen times a day, cost negligible?—I am, etc.,

London, S.W., Dec. 6.

MARGARET EMSLIE.

SIR,—I was interested to read the comment of Dr. E. Lawton Moss (November 26, p. 1113) on the use of absorbent tampons during menstruation instead of sanitary pads. Curiously enough, I have encountered during the past week a case of particularly bad vaginal and cervical infection which the patient herself attributed to the use of such tampons. While it is unlikely that the tampons were the cause of the original infection, it seems more than probable that they were responsible for the unusually severe development of the condition. It does seem necessary that some warning should be given against the non-medical use of vaginal plugs, especially where there is already any suspicion of infection.—I am, etc.,

Leicester, Dec. 7.

C. HAMILTON WILKIE,
Director of V.D. Services,
Leicester.

Decline of Breast-feeding

SIR,—It seems a pity that no medical woman with personal experience of breast-feeding has yet taken part in the most interesting correspondence following Dr. J. C. Spence's admirable article. It is in the hope that others, perhaps with more extensive experience than I, will follow my example that I am now writing. I have breast-fed my two children in spite of the efforts of nurses who were wise and kind, and indeed excellent in every way except in their management of the nursing mother.

The nurse tends to make breast-feeding a major problem. Every feed becomes a battle in which the child is constantly stimulated by pinches and pats; the breast is handled and the nipple gripped and thrust into the infant's mouth in a way which is physically uncomfortable and arouses a quite unreasoning resentment; the attitude is that the nurse and the child are the active parties, the mother merely a substitute for the bottle. All this makes breast-feeding unpleasant, and it is not until she is herself in control and can allow the infant to feed unhurriedly and undisturbed that the mother can find any satisfaction in it. Its effect on the infant is probably equally pernicious. I do not know how many women limit the duration of feeds; I suspect that one of the advantages of breast-feeding (when the supply is adequate) is that the infant takes as much as he wants instead of as much as he ought, theoretically, to need.

In the later weeks of pregnancy and the puerperium the nipples are extremely sensitive, and any handling is objectionable. The discomfort, often severe, which occurs in the first two weeks of breast-feeding is due not to "tender nipples" but to a spasm of the ducts. This is shown by

the fact that the pain is not felt when the infant grips the nipple but a few moments later, when the milk begins to flow. An identical sensation occurs sometimes during a hot bath, and it is then seen that a stream of milk is being forcefully ejected. I think this is important, because it implies that the whole conception of "hardening" the nipples may be fallacious.

The other thing I have learned is that the supply of milk is unaffected by most of the conditions usually cited (I exclude gross undernourishment, severe exhaustion, and a feeble infant, since these are outside my experience). It is probably dependent entirely on endocrine factors, and is certainly related to the menstrual cycle. During five months of lactation I had epimenorrhoea; before each period the supply of milk was enormously increased, so that neither breast was ever emptied; this increase persisted for about a week after the period. During the normal amenorrhoea of lactation the menstrual moulins were present, and there was always a similar accompanying increase in milk supply; in the mid-week of the cycle the supply diminished to such an extent that complementary feeding was considered, but was so resented by the infants that it was abandoned. Instead, the situation was met by increasing the frequency of the feeds; by this means the total yield was probably unaffected, but the infant was much happier, and as the supply increased he no longer demanded the extra feeds. After the first four months of lactation the variation in the yield became less marked (although it was still present), and it was then that the "symptoms" of lactation appeared: hair tending to stand on end, to fall out, and to lose its colour, and insomnia and irritability—curiously like the symptoms of hyperthyroidism.

Although successful breast-feeding is to be aimed at, yet bottle-feeding is infinitely preferable to breast-feeding which is a struggle. There can be few things more worrying than the uneasy fear that the infant is being underfed.—I am, etc.,

Dec. 8.

M.B., M.R.C.S.

SIR,—Miss Mary Cunnane's letter (November 26, p. 1112) in my opinion does not so much "challenge" my remarks as lend them force. She apparently accepts the opinion that there is too much wrongly timed and wrongly arranged interference with mother and baby in hospitals, and probably quite rightly puts this down to the exigencies of institutional treatment in general; but she feels that all this is different in the patient's own home. Yet at the beginning of her letter she writes: "Even if, as he says, the modern nurse takes full command of her patient's baby, it is surely a sign that there is something wrong with the system," etc.—and that is precisely what I was trying to make clear.

Her happy picture of how things go in a confinement at home does fit in often with puerperia where the district nurse comes in once a day, but even then the woman is often upset by the cares of an inadequately staffed household. When, however, the household is taken off her hands, then it is usually the case that she has a resident nurse all to herself; and it is those people that I had particularly in mind when I wrote my letter. Why on earth in such cases, where there is the whole twenty-four hours of the day available, should, for instance, a poor woman be awakened before daylight, made to use a bed-pan, fussed over and bullied, and then be expected quietly to provide milk for her infant? It is psychologically wrong, but is only one example of nursing obtuseness.—I am, etc.,

December 2.

JUVENIS.

Air Raid Precautions

SIR.—A study of the numerous letters on air raid precautions published in the *Journal* since the crisis shows that the writers are, almost without exception, gravely concerned at the almost complete lack of bomb-proof aid posts, casualty clearing stations, and civilian shelters in our cities.

That other countries are less backward in these respects was clearly shown during the debate on medical services in civil defence in the House of Commons on November 30, in the course of which Mr. Oliver Simmonds, M.P. for the Duddleston Division of Birmingham, who is also chairman of the Parliamentary Air Raid Precautions Committee, stated that he had recently had the opportunity of investigating medical defence arrangements in Paris, and had found that, even before the crisis occurred, in over thirty of the districts large underground casualty clearing stations had been constructed, each from 8,000 to 12,000 square feet in area, and each proof against a direct hit from high-explosive bombs up to 200 lb. and in many cases up to 500 lb. These hospitals contain about 200 beds each, and are so equipped that they can absorb sixty cases an hour and can supply all facilities for carrying out urgent operations on the wounded even during continuous air raids. Mr. Simmonds, after studying the question in France, Germany, and also under action in Spain, considered that no great surface hospital in a large city in this country would be able to carry on for more than a day or two after the outbreak of war. He added that it was a fantastic proposition to expect medical services to operate with even a fair degree of success in the centre of highly vulnerable and congested areas.

The seriousness of the picture which Mr. Simmonds drew will no doubt come as a surprise to some, but to those who have thought much about the question, and who have had experience of mass bombardment, his conclusions will not seem in any way exaggerated. To have such underground casualty clearing stations ready equipped at all times, situated in easily accessible areas in every district, and with medical and nursing staffs properly allocated, as is the case in Paris, would add very greatly to the sense of security of the civilian population. They would then realize, as did our troops in the last war, that all possible medical precautions were being taken for their safety. These bomb-proof hospitals would enable the medical organizations to give continuous service during incessant air raids, even if surface hospitals were being put out of action one after another.

In addition to the above it is essential that bomb-proof shelters for the civilian population should be provided on a large scale in all towns, for in no other way can the number of probable casualties be kept within manageable limits. If shelters and hospitals were built as we have suggested they would provide for many years to come an excellent insurance against aerial attack, and such a result is worth far more than any expense likely to be incurred in their construction. What has been done in Paris can be done in British cities, and if it is to be done it must be done quickly, for every day is precious.

It is earnestly to be hoped that the full weight of medical opinion will be used to emphasize the immediate importance of these plans.—We are, etc.,

R. OGIER WARD.
CLEMENT FRANCIS.

London, W.1, Dec. 12.

SIR,—While supporting strongly Major W. V. Fawcner-Corbett's suggestion (*Journal*, November 26, p. 1114) of a full staff for medical A.R.P. work, may I protest even

more strongly against his obvious but dangerous suggestion that the nucleus for this staff could be provided by the county and borough officials; and this on many grounds.

First of all, county medical officers are—or should be—already fully occupied with their normal jobs. Only a few months ago a county M.O.H. wrote to me that he was busily engaged on twenty big county schemes, of which, presumably, A.R.P. was one. In such conditions it is inevitable that a large part of the work gets done by others, usually hard-working and well-meaning clerks. The natural result is inefficiency, irritation, and extravagance. It certainly was so with A.R.P. during the crisis, and for some while to come A.R.P. work is large and important enough to demand the whole energies of the best men who can be found for the job. If it is to be efficient it cannot be standardized all over the country, for the requirements of each area differ greatly according to geographical, social, and industrial circumstances.

Secondly, county boundaries are the most curious things in the world, and if an A.R.P. scheme is to be efficiently and economically run it should be grouped according to areas of population and not municipal or county areas.

Thirdly, public health work does not demand nor develop those qualities which are required in emergencies such as air raids are likely to present. Incidentally these are likely to present such urgent and unforeseen problems of pure public health that public health officers will be more than occupied in their own departments, with no time to spare for the actual A.R.P. medical work itself. Though I think it is important that leaders in A.R.P. work should have sympathy and understanding of the problems of public health work, I think it is even more important that they should not be recruited from actual members of the public health services.

Finally, one must try to envisage the condition of affairs at the end of the struggle. If the heads of A.R.P. during wartime are to be existing public health officials, the only outcome I can see is a profession completely absorbed in the Government machine. Whether this should be regarded as a good or a bad thing I do not pretend to discuss here, but the issue is certainly involved in the organization which is to be built up in the next few weeks or months. I sincerely hope that other members of the profession will make known their opinions on the matter, and that the B.M.A. will take some really effective action to see that we do not become enslaved through our patriotic efforts to work in with Government plans.—I am, etc.,

Winsford, Cheshire, Nov. 28.

W. N. LEAK.

SIR,—Surely it has now become quite clear that, if war should occur, life in our big cities will only be possible in bomb-proof dug-outs of the type of the Maginot or Siegfried Lines. This means almost wholesale evacuation, since few people will be prepared to live under such conditions. At present we still talk of evacuation taking place "in the event of war," but presently all will realize that anything like orderly large-scale evacuation of cities when war breaks out would be quite impracticable, and that the evacuation will have to be begun now, while there is at least comparative peace. Further, the idea of billeting will have to be given up. The next war will not be a mere passing phase, but will mean practically the end of our great cities as we now know them. Also, the supply of food from abroad will be largely cut off. If our people are to keep alive at all—I mean such of them as escape destruction in the cities—they will mostly have to be settled on the land and trained to agriculture;

there they will have to raise food, and not primarily for marketing but for the subsistence of themselves, their families, and their neighbours.

It may be said that this is a terrible come-down for civilization. I think, however, that we have here simply a case of the working out of Nature's laws. After all, why should there not be laws of social happenings as well as of physiological and psychological? Apparently our whole hyperurbanized Western civilization has been for a long time increasingly flouting Nature; it has become entirely unnatural, artificial. War, therefore, means the destruction of radically unhealthy tissue, and that is what our great cities have become.

This was what I meant to say when, in another connexion, I raised the problem of "social pathology." Let us face the facts, and in no circumstances fail to take warning from Nature's danger-signal. The rural-urban balance in our civilization has become profoundly upset, and must be straightway redressed or complete disaster will overtake us. Let a well-thought-out and resolute back-to-the-land scheme therefore be entered upon forthwith. And in this good work the medical above all professions should lead, not be led.—I am, etc.,

North Queensferry, Fife, Dec. 5.

A. J. BROCK.

SIR,—The letters in your columns upon air raid precautions, written by men who, as regimental medical officers in war, had a close acquaintance with high explosive and its horrors, deserve a wider publicity than the *Journal*. Unfortunately the British public is lulled to believe that with a multiplicity of gas masks, first-aid lectures, and air raid wardens all is well. They have yet to realize that a yard of efficient bomb-proof shelter is worth more than the ministrations of dozens of doctors to the victim caught in the open by an enemy bomber. Limitation of casualties should be the first objective. Evacuation of population may be impracticable. Underground bomb-proof shelters are essential in all towns.

It would be interesting to know if the present heads of the Home Office and the Ministry of Health have any personal experience of bombardment—the only experience, I think, that can help to visualize a future inferno. Herr Hitler, being in the "forties," has that experience, and is in consequence a true believer in concrete. My friend Dr. F. G. Chandler, as I knew him in 1914, before we both became M.O.s to Highland battalions, was far from being a "yes-man," and I welcomed his letter in the *Journal* of December 3 (p. 1175). He has the courage and perseverance which may yet, in spite of obstruction, get things done. If he fails, then, as bombs fall upon an undefended St. Bartholomew's, he will, I know, be much consoled by the thought that at the House of Commons they have their vaults and underground passages.—I am, etc.,

D. W. PAILTHORPE.

Alresford, Hants, Dec. 6.

Major R.A.M.C. (ret.).

SIR,—There can be no question that if a modern bombing of London ever takes place it will be utterly impossible for students to continue their studies unless there are adequate bomb-proof shelters. These are the urgent requirement. They should be begun and made at once, not after months or years of argument. No other devices are likely to be of such use. Trenches are a good beginning, but not enough. The schemes for evacuating children and others to distant outlying places are more or less futile. Of course, if several days' notice is to be given there may be something in it, but no such notice is expected to be given. Surprise is to be the essence of the attack, and the arrival of bombing planes

is more likely to be a matter of minutes even than of hours, let alone days. In such an event the massing of crowds making for railway stations or other exits would provide just the targets bombers would desire. Therefore urge the authorities to construct bomb-proof shelters at once, either above or below ground. These are by far the most urgently required means of protection for the populace.—I am, etc.,

G. F. ROWCROFT,
Colonel.

Coonoor, S. India, Nov. 30.

The Refugee Problem

SIR,—I should be grateful if you would allow me through your columns to draw the attention of your readers to the special contribution which the Society for the Protection of Science and Learning is making, and has been making over the past five years, to the refugee problem, which the whole of the civilized world is to-day facing with such remarkable spontaneity and generosity.

This Society (of which His Grace the Archbishop of York is president and Sir Frederic Kenyon chairman) exists to help scholars and scientists displaced from their own universities and professions to be reabsorbed into academic life elsewhere, so that their intellectual gifts and training may not be wasted and so that each individual scientist, scholar, and doctor may still be able to make the contribution to knowledge which in many cases he and he alone is capable of making. So far we have succeeded in placing over 500 permanently and nearly 350 temporarily, and among those whom we have been privileged to help are men and women whose intellectual gifts and genius form part of the cultural wealth of the world.

The Society for the Protection of Science and Learning is not concerned at any time with the problem of those practising medical men who seek to come to Britain from countries where they are no longer able to receive patients. Its activities cover only those doctors whose research work has been interrupted in their own land and whose work is of such importance that our Medical Advisory Subcommittee considers that it should be carried on in this country. Needless to say, of very many applications in this class we are, at present, only able to give grants to a small proportion.

The Society is holding a number of meetings early in February in the academic centres throughout the country to enable all those engaged in teaching, learning, and research to give corporate and tangible expression to their sympathy. I hope these meetings will have the most generous possible support, as the latest developments in Germany, the crisis in Czecho-Slovakia, and the new legislation in Italy have trebled our waiting lists and made each individual problem more pressing and acute. As vice-president of the Society I should be grateful if you would publish this letter so that this part of the work undertaken to help these distinguished refugees and exiles of learning may be widely known.—I am, etc.,

6, Gordon Square, W.C.1, Dec. 8.

W. H. BEVERIDGE.

* The Society for the Protection of Science and Learning (formerly the Academic Assistance Council) seeks to help medical research scientists whose work has been interrupted in their own country for reasons of race, religion, or politics. It does not, however, deal at all with practising doctors, as such, who are the care of another committee, presided over by Dr. Robert Hutchison. It considers making grants towards the re-establishment in academic life of medical scientists who

undertake that they will not seek to practise and who are recommended highly by a specially constituted Advisory Subcommittee, as follows: Professor A. V. Hill, Sec. R.S., Professor C. S. Gibson, F.R.S., Professor M. Greenwood, F.R.S., Professor B. A. McSwiney, Professor G. Payling Wright, Dr. George Pickering, Dr. D'Arcy Hart, and Dr. D. N. Nabarro. Among the members of the Society's committee which is seeking to increase the funds available for this work are: Dr. Robert Hutchison, P.R.C.P., Mr. Hugh Lett, P.R.C.S., and Sir Cuthbert Wallace, while Sir Farquhar Buzzard is a member of the Society's Council.—Ed., *B.M.J.*

What is Accredited Milk?

SIR,—I have read the article "Raw and Pasteurized Milk" (November 19, p. 1049), in which you say "examination of the raw milk showed that 30 per cent. of samples contained tubercle bacilli, in spite of the fact that it came mainly from accredited herds." I am interested to note that you suppose that "accredited" herds should produce milk which is freer from tubercle bacilli than milk from non-accredited herds, because the certificate for "accredited" milk is granted purely on the cleanliness of the cowsheds, utensils, and milk itself, but with no tubercle testing of the individual cows or of the milk itself. It must therefore be obvious that the condemnation of "accredited" milk in containing tubercle bacilli should have no connexion, such as is implied in your article, with non-pasteurized milk from tuberculin-tested herds. I maintain that if the test were carried out on such milk, then a very much lower percentage of samples would be found to contain tubercle bacilli; and if this is so your confusion between the terms "accredited" and "tuberculin tested" has created a grossly mistaken impression. I write this as a layman, but as (I hope) an intelligent and progressive milk producer-retailer.—I am, etc.,

Stebbing, near Chelmsford, Nov. 30. Wm. H. CHAPLIN.

* The certificate for "accredited milk" is given not purely on cleanliness but on the veterinary examination of the cows. Under the Milk (Special Designations) Order, 1936, every milch cow belonging to an "accredited" herd must be submitted to an examination by a veterinary surgeon once in every three months, and any animal found to be suffering from a disease that is likely to affect the milk injuriously must be segregated or removed from the herd. The purpose of this injunction is clearly to ensure so far as possible by clinical examination that no cow with tuberculosis or other serious disease of the udder shall be allowed to contribute its milk to that of the herd. If clinical examination is of value in the early detection of udder tuberculosis, as many veterinarians believe, then milk from "accredited" herds should, on the average, be less frequently infected with tubercle bacilli than milk from ordinary herds. The fact that 30 per cent. of milk coming mainly from "accredited" herds was found at Reading to contain tubercle bacilli raises a question as to the efficacy of clinical veterinary examination in protecting the milk supply from tuberculous infection.—Ed., *B.M.J.*

Did Columbus Discover Syphilis?

SIR,—With reference to the annotation in the *Journal* of December 3 (p. 1153), syphilis was no doubt known among the Indians of Peru, under the Incas, before the arrival of the Spaniards. I was employed as medical officer to some isolated mines in Chili, fifty miles from the

coast, from 1882 to 1886, in which period no case of syphilis, congenital or acquired, was brought to me for treatment. Discussing this freedom with reliable men I was informed that Peruvian skulls existed with evidence of syphilitic damage, and, moreover, that the Inca overseers knew that mercury was curative. Sufferers from this disease were sent to work in the cinnabar mines, where this sulphide of mercury dust falling on the bare sweating skin no doubt produced early absorption. The name Chili so closely resembles place names in China that it is reasonable to suggest that the disease might have originated from some sailors on a Chinese junk. Indeed, the slang term for a prostitute was *una Chinita*.—I am, etc.,

Merionethshire, Dec. 5.

ARTHUR GRAYLING.

Medico-Legal

THE CROYDON TYPHOID LAWSUIT

A TEST ACTION

The epidemic of typhoid which broke out in Croydon in the autumn of 1937 caused forty-three deaths and attacked, in all, 341 persons. The findings of the inquiry which was held to investigate the disaster attached a substantial amount of blame to the county borough authority. Many of the persons who suffered made claims against the corporation, and one of these claims was selected by consent as the foundation of a test action, the findings of fact and law in which should, so far as they were applicable, decide the other claims.

The Case of Miss Read

One of the patients was a girl of 15 named Patricia Rosemary Read, and she and her father sued the council for damages sustained through her illness. Her father claimed special damages for the expense of her medical treatment, nursing, and other items, and she claimed general damages for pain, suffering, and inconvenience. The grounds of the action were fourfold: (1) breach of contract for the sale of goods, in which, in accordance with the Sale of Goods Act, 1893, Sect. 14, the corporation had warranted the purity of the water it supplied to a ratepayer; (2) breach of contract to render services, with a similar warranty; (3) breach of its statutory duty under the Waterworks Clauses Act, 1847, Sect. 35, to provide and keep in their pipes a supply of pure and wholesome water sufficient for the domestic use of the inhabitants of the borough; under the Public Health Act, 1936, Sect. 115, to secure that the water which they supplied for domestic purposes was wholesome; and under Sect. 111 of the same Act, to take from time to time the necessary steps to ascertain that its water supplies were sufficient and wholesome; and (4) common law negligence—that is, breach of a duty to use a requisite degree of care or skill in supplying to Mr. Read's house water which the corporation knew that he and the members of his household would drink.

The Addington Well

The hearing took place before Mr. Justice Stable in the middle of last month. A large volume of evidence was called, and brought out substantially the same facts as were elicited at the inquiry.* The corporation were generous in their admission of documents. The system through which the infection was spread is called the "high level" system,

and is fed from the Addington reservoir. This is fed from the Stroud Green well and the Addington well. There was no real doubt that the infection came from the Addington well. This is sunk in the chalk and has a number of adits—horizontal tunnels driven out in various directions near the bottom to collect water from the surrounding earth. It is supplied from a gathering-ground immediately to the south, and this, although it contains a number of possible sources of contamination, was not seriously incriminated. Its nature had, however, this importance in the case: that the risk of contamination from certain places in it, such as cesspools and a pig farm, was serious enough to throw on the corporation a duty of exercising considerable vigilance. The records of the corporation show that the Addington supply had for at least thirty years been under some measure of suspicion, and that the corporation had taken steps to improve the gathering-ground, had installed an ozone plant in 1908, a high-pressure plant and chlorinating plant in 1928, and ammoniating plant in 1936. In 1937 it spent a large sum in acquiring land to protect the gathering-ground. The water is pumped from the well to a high-pressure filtering station, then to the chlorinating plant, then to a filtered-water tank, and then to the Addington reservoir. The surroundings of this reservoir were at one time suspected, but the corporation took appropriate steps to protect the water, and there was no evidence that infection entered at that point.

For a considerable time before the epidemic broke out the water was analysed once a month. Samples were taken both from the well and from the reservoir: the former to show what precautions ought to be taken to make the well-water fit for human consumption, the latter to show whether those precautions had been effective. At the end of September, 1937, the corporation started work on the well. A depression had appeared in the floor of one of the adits and silt had collected; it was therefore desirable to cut a tunnel from this depression to one of the adits at a lower level. While the work was going on the water from the well was pumped to waste, and after the workmen stopped work in the evening about half an hour was allowed for any disturbance to subside and then water was again pumped to supply. This operation was finished on October 16, but another had immediately to be undertaken. One of the two pumps had broken down, and it became necessary to brick up two of the adits in order to prevent the well from receiving more water than the remaining pump could deal with. During this vital period, from October 16 to November 3, the whole of the water was pumped to supply whether the men were working in the well or not.

Eighteen workmen were employed, each of whom had worked for the corporation before, but none had been medically examined. They had been instructed to be careful to use the lavatories provided on the surface immediately before they went down to work. A man who wished to relieve himself was required to come to the surface to do so, but on a few occasions an open bucket was let down to allow a workman to urinate. One workman, who was called throughout the proceedings "Case A," had been in the employment of the corporation since 1921, and had seemed a perfectly fit and proper person to work in close proximity to the water supply. He had, however, suffered in the war from typhoid fever and was a carrier.

The history of the precautions taken by the corporation showed that in May, 1936, the medical officer of health received an analysis of the Addington water which showed the presence of *Bacillus coli*. He formed the opinion that the water was not adequately filtered. The borough engineer pointed out that a chlorinating plant was installed, and that, if the medical officer considered it should be used, that would be done, but he thought that it would be better to avoid using it if possible. On July 18, 1936, the chief water assistant—the officer responsible for water supplies—sent a memorandum to the borough engineer containing these words: "I would like to put on record that I have for the last two months been of the opinion that chlorination should be in regular use in view of the analyses received." This memorandum indicated, as the learned judge pointed out, that despite the apprehension expressed by the medical officer of

* The proceedings at the public inquiry were recorded in the *British Medical Journal* of December 11 and 25, 1937; January 1, 8, 15, and 22, 1938; and the report by Mr. H. L. Murphy, K.C., on February 19.

health in May and the opinion formed by the chief water assistant no steps had been taken to chlorinate the water. On July 20 chlorination was started, but no log of its use was kept. It seemed to have been used as a remedy for a varying impurity in the supplies, and to have been increased when the analyses showed a deterioration, and to meet a sudden emergency such as the death of a workman in the well at the end of 1936. At the end of October, 1936, an analysis showed a great increase of *B. coli*—a report which, incidentally, did not come to the notice of the chief water assistant for a fortnight. On November 13 this officer directed his subordinates to increase the rate of chlorination until further notice. At the end of April, 1937, for no reason that appeared at the trial and presumably by a mere oversight, the practice of taking an analysis of the raw water at the Addington well was abandoned. Neither the chief water assistant, the borough engineer, the water committee, nor anyone else so much as noticed that this precaution had been allowed to drop. On September 17, 1937, a week before the work on the well began, the practice of filtering and chlorinating the water was wholly abandoned, and it was not resumed during the entire time that the workmen were working down the well. On November 1, by which time the authorities knew of the epidemic, heavy chlorination was applied and—a fact which the judge regarded as significant—no more primary cases occurred after November 4.

Attitude of the Corporation

The learned judge drew special attention to what he called the wholly commendable attitude of the corporation towards the action. Instead of adopting a defensive and obstructive position, and leaving the plaintiffs to ferret out and prove as much or as little of the material facts as they could, the corporation made the fullest and most candid admission of all the material facts it could ascertain. When its officers knew that there was an outbreak of typhoid they made every effort to discover the origin and to expose any weakness in the system of administration, regardless of the consequences which their investigation might have for the persons who might be responsible and on whose sense of public duty the success or failure of the investigation largely depended. In making an investigation, which proved to be the instrument which brought the onslaught of the epidemic to a standstill in its very early stages, the officers of the corporation subordinated every consideration of private interest to the paramount necessity of finding out the truth. His Lordship had no doubt that the action of the corporation more than restored any loss of confidence the public might have experienced in its administration of these important health services. Mr. H. J. Wallington, K.C., who appeared for Mr. Read and his daughter, particularly commended the report of the medical officer of health, Dr. O. M. Holden. This, he said, was a very frank account, which sought to conceal nothing. The judge remarked that he was struck by the extraordinary candour which the medical officer seemed to have displayed, and by his disinterested pursuit of the truth, no matter where it led. Counsel agreed that his candour "jumped out of" every line of the report, and said that such considerations made him regret to have to make such a charge against persons of that type.

The Judgment

The hearing of the case occupied eight days, and Mr. Justice Stable reserved his judgment. Delivering it on December 2, he said that the evidence conclusively established that the corporation had been guilty of negligence, not merely of a failure to carry out a duty imposed by statute, but a lack of that care and skill which were to be attributed to a body which had undertaken to supply water to such a community. All the officers were men qualified for their work, and he found no trace anywhere of that degree of negligence which, arising either from indifference, inefficiency, or lack of a sense of responsibility, would amount to a deliberate dereliction of duty. The chief water assistant, who on October 14 had left the service of the Croydon Corporation to enter that of

the Brighton Corporation—just before the end of the first operation on the well and the beginning of the second—was fully qualified and a public servant of integrity, and nothing emerged from the evidence to diminish the confidence which his present employers reposed in him. He was very largely a victim of the imperfect and inadequate system of control in force. On his departure the senior officer directly in charge of the work had given instructions, which he honestly believed to be in accordance with the wishes of higher authority, that on and after October 16 the water should be pumped direct to supply. His Lordship formed a favourable opinion of this officer, but declared that so vital a decision ought not to have been left to a man in his position, and condemned a lack of system under which it could have been taken without at once being brought to the notice of the persons at the head of the chain of responsibility.

Sir Walter Monckton, K.C., who appeared for the defence, had argued that the possibility of the contamination was so remote that no one was to blame for not foreseeing it, and had stressed the danger of wisdom after the event. The learned judge said that in forming his conclusions he had been on his guard to measure the care and skill that were required, not in the light of what was known in October, 1938, but in the light of the experience of the men on the spot in the autumn of 1937. In his judgment the evidence conclusively proved that the epidemic was caused either by an infection brought into the water by the workman who was a carrier of typhoid, or by some unidentified and probably transitory condition in the gathering-ground. The defence had suggested the bare possibility that infection from the excrement of some passer-by had been washed down from the gathering-ground to the well. That this should have happened at the same time as a carrier of typhoid was working in the well extended, he said, the well-nigh limitless possibilities of coincidence almost to infinity. Moreover, whichever had been the origin of the infection, the consequences would have been avoided if proper use had been made of the available protective apparatus.

RESPONSIBILITY FOR WATER SUPPLY

He did not find substance in the criticisms which had been levelled against the sanitary arrangements made for the workmen at the well. He was satisfied that the responsible officers had provided a proper solution of this problem. He found no greater substance in the criticism directed against the absence of a medical examination of the workmen, the method of their selection for the work, and their supervision when at work. With all the wealth of expert testimony which the plaintiffs had at their command, they could only establish a solitary instance, at Caterham in 1879, of an epidemic of typhoid being caused by a carrier. Due care and skill had been taken in the selection of the men, and he was satisfied that the superiors under whose supervision they were working were conscientious, responsible, and trustworthy.

While the probabilities (continued his Lordship), estimated immediately before the outbreak, that the water could be infected by Case A were utterly remote, yet the bacteriologist or water engineer responsible for the supply of water to an urban community must be constantly on his guard against innumerable risks. Though the chance of any one of the risks materializing into a peril was remote, collectively and in the aggregate the danger was real and substantial. In his judgment the corporation had failed in its duty in two major respects. From July, 1936, when the chlorinating plant first came into use, the extent to which this precaution was enforced was haphazard, ill-considered, and inadequate. The decision at the moment of greatest peril, when the water was being put into supply and while the men were working in the well, to omit the customary precaution of filtration and chlorination was, even regarded in the light of what was known then, inexcusable. He would not apportion responsibility among individuals; *prima facie* it must rest on the shoulders of the water committee, to whom was entrusted the general superintendence of the water supply. No evidence had been adduced to show that any one member of that committee made any inquiry or took any step whatever to

formulate any established policy in connexion with chlorination, or to set up machinery to put that policy into effect, or to provide a proper system of supervision and inspection to secure that any policy which was adopted was being efficiently, regularly, and systematically carried out. In these circumstances, where the responsibility *prima facie* rested there he proposed to let it lie.

His Lordship continued: "Sir Walter Monckton further urged, and again with great force, that the policy of chlorination in connexion with chalk wells was of comparatively recent origin and was by no means universally liked. The trouble in this case, in my judgment, largely originated from the fact that on this all-important question there never was a settled policy at all. While I have absolved the corporation and its servants from every charge of negligence brought in connexion with the gathering-ground and the selection and supervision of its workmen, and the conditions under which they worked, these facts cannot be segregated from the other established facts in this case. If some paramount and overriding necessity existed—and I find that there was no such necessity—which demanded that water should be pumped in its crude state straight to supply while work was in progress in the well, then the additional risk to the health of the people of Croydon which was thus inevitably created ought to have been counteracted by additional precautions designed to obviate the possibility of infection being introduced into the water by the close proximity of the workmen. These precautions, which might have taken the form of continual analysis, searching inquiry into the antecedents of the men engaged on the work, and incessant supervision while they were so employed, were not taken. No one made it his duty to inquire whether or not they were taken, or to see that the precautions, if they had been adopted, were observed. The system in this respect proved itself inadequate to support the very heavy burden of responsibility which it had to carry."

THE CORPORATION'S STATUTORY OBLIGATION

On the questions of law involved, the learned judge held that there had been no contract between the corporation and Mr. Read. By the Waterworks Clauses Act, 1847, the corporation, having undertaken to supply water to the inhabitants of the borough, was under a statutory obligation to provide and keep in its pipes a supply of pure and wholesome water sufficient for the domestic use of those inhabitants who fell within a certain category—namely, owners and occupiers of dwelling-houses who had laid the necessary communication pipes and paid or tendered the water rate, and were therefore entitled to demand and receive a sufficient supply. Although rights and obligations under this relationship might be similar to, or identical with, rights created by a contract, the relationship was not a contractual one. Concerning the scope of the statutory duty, he said that Mr. Read fell into the category of persons to whom this duty was owed by the corporation, but his daughter did not.

His Lordship then considered in detail the question of whether or not the duty to provide and keep a supply of pure and wholesome water was an absolute one—that is, whether the corporation could be penalized for breaking it even though they might not have been negligent. After considering many authorities he held that the obligation was limited to the exercise of all reasonable care and skill to ensure that the water was pure and wholesome. He had no doubt that the standard of care and skill in a matter so vital to the public health was a high one, but if that standard was maintained he did not think that the corporation could be held liable for the consequence of some impurity which no care or skill could have prevented. He had, however, found as a fact that the corporation had not used a requisite degree of care and skill.

It had also been argued before him that existence of the statutory duty excluded a duty at common law, and that Miss Read could not recover damages because the corporation owed her no statutory duty. If this view of the law were right, he said, the consequences were startling. The corporation were obliged to supply water sufficient for the domestic needs of ratepayers. This meant a supply sufficient not merely for the ratepayers themselves but also for their families and house-

holds. It must have been within the contemplation of everybody who gave the matter a thought that the water so supplied would be consumed by persons outside the very limited class to which the duty was owed. Miss Read had contracted a dangerous illness as a direct result of the corporation's negligence. In the present case, the judge continued, a complete cause of action could be set out without mentioning the statute at all. If the corporation supplied to Mr. Read's house water for drinking purposes which it knew he and his household would consume, and failed to exercise the requisite degree of skill and care in that operation, with the result that what it supplied was not drinking-water but poison, a person injured would have a complete cause of action at common law for the damage sustained as the result of that negligence. He awarded an agreed sum of special damages to Mr. Read, and £100 general damages to his daughter.

The Corporation and Other Claims

The corporation has announced that it will not appeal against this decision, and it will deal with the 230 or so other claims against it as quickly as possible. The Finance Committee is anxious that proper compensation shall be paid in other cases where the issues are the same as those of the test action. Until the terms of settlement have been agreed no definite estimate can be given of the cost to the rates. The corporation proposes to raise a loan over a period of twenty years. A total cost of £100,000 would represent an increase in the rates of three-farthings in the pound for twenty years.

MENTAL PATIENTS IN AN UNLICENSED HOUSE

For the protection of persons of unsound mind, Parliament laid down in the Lunacy and Mental Treatment Acts, 1890-1930, that no person of unsound mind might be received or detained, or taken charge of for payment, in a house not licensed for the purpose by the Board of Control. Prosecutions for these offences are rare, and a case heard by the Bournemouth magistrates at the end of November* is of special interest.

Dr. X was summoned on three charges: taking charge of a person of unsound mind in an unlicensed house, receiving another person of unsound mind to board and lodge him, and detaining a person of unsound mind, all between September 8 and October 15 of this year. He pleaded not guilty. An officer of the Board of Control said that the house was not licensed and that some time ago the doctor's attention had been called to the provisions of the Lunacy Act. The patients in question were two women and a man. The wife of the man, giving evidence, said he had a stroke in November, 1937, and was admitted to the house in July, 1938, under the care of Dr. X, who agreed to take charge of him at a weekly rate, which she had paid from time to time to Mrs. X. The sister of one of the women patients said that Dr. X came to the house where they were living and took the patient to the home. In paying for her sister's presence there she had made the cheque out to Dr. X. She had learned a few days ago that it was Mrs. X's nursing home. A managing clerk of the solicitors who represented the relatives of the third patient said that from January, 1934, to the end of 1935 payments were made to Dr. X, but from the beginning of 1936 Mrs. X had taken over and all payments since then had been made to her. From then she had known that it was Mrs. X's nursing home. The medical superintendent of the Dorchester County Hospital and the medical superintendent of the Knowle Mental Hospital, Fareham, gave evidence that they had inspected the three patients and found them certifiable as of unsound mind. A police detective said that he had visited the house and that the defendant had said that the patients were not his and had their own doctors.

Mr. James Amphlett, counsel, instructed by Messrs. Le Brasseur and Oakley on behalf of the London and Counties

* Bournemouth Daily Echo, November 25, 1938.

Medical Protection Society, said that the defence maintained that the home did not belong to Dr. X and that he had nothing to do with the patients; moreover, they were not of unsound mind. The defendant, giving evidence, said that in 1932 he had run a private hotel, which was unsuccessful, and after closing it he had had a nervous breakdown. In 1936 he had become a bankrupt and was still undischarged. One of the patients had been sent by a doctor in 1933. She suffered from cerebral thrombosis, and he saw in her not the slightest sign of insanity. In June this year his wife took the house and she and he had both signed the lease, he at the landlord's request. He spent about four months of the year in bed; he practised as a neurologist and his wife ran the nursing home. He had never run it, and to anyone who came to the door he made very plain that he did not run it. If treatment were required for the patients, Mrs. X received instructions from their doctors and not from him. He never saw any sign of insanity in any of the three patients, and they were not of unsound mind. Cross-examined, he said that he was helping his wife to some extent to run the home, but only on the business side.

Mrs. X said she was a fully trained nurse and the proprietress of the home. Her husband was only her adviser. Two general practitioners of Bournemouth both testified that the three patients were not insane. The first practitioner said that one of the women had cerebral thrombosis and he had asked Dr. X to take her into his previous home at Chine Crescent Road, where he had been living in 1933. She was not insane, of unsound mind, or an idiot. He had seen her later in September of this year and found her normal. The home had proved most useful for senile patients who were not certifiable. The second practitioner said that the other woman was not a lunatic, and that the man had been his patient for twenty-six years, during the whole of which period his mental condition had been absolutely sound.

The Bench found all three charges proved and imposed a fine of £15 for each, with £15 costs.

The heading to a paragraph in this column last week (p. 1231) may have given the impression to a casual reader that pentothal was held to be the single cause of the patient's death. The pathological evidence (briefly summarized in the report) indicated two other contributory causes, and the coroner's verdict was "Death from misadventure."

Mr. Justice Croom-Johnson proposed the toast of "Medicine" at a dinner of the Manchester and District Medico-Legal Society on December 8. He is reported in the *Manchester Guardian* to have said that the realm which lay between the punitive and medical treatments of crime had been inadequately explored. He had been struck by the large number of occasions on which he was called upon to punish people when, in fact, they ought to be the subject of clinical examination and medical treatment. He did not wish to be misunderstood. There was abroad a feeling that the criminal should be better treated. In his judgment a danger existed that, by over-sentimental treatment of the criminal, the administration of law and order might be made extremely difficult for those who had the grave task to fulfil. "But we all feel, as we deal with case after case (especially those who come from our large centres of civilization), that a great deal more might be done in examining cases from the medical aspect." Judge Leigh, the president, said that the society had achieved a membership of more than two hundred in two years, and was helping its two constituent bodies to understand each other better.

The issue of the *Journal of Pediatrics* for November is devoted to the memory of Dr. Williams McKim Marriott (1885-1936), professor of research medicine at the University of California Medical School, and contains a bibliography of his writings and his portrait.

Medical Notes in Parliament

In the House of Lords on December 12 the Housing (Financial Provisions) (Scotland) Bill was read a second time.

In the House of Commons second readings were given to the Cancer Bill on December 12 and to the Reorganization of Offices (Scotland) Bill on December 13.

Dr. Walter Elliot dined with the Parliamentary Medical Committee on December 14.

Cancer Bill

In the House of Commons on December 12 Dr. ELLIOT moved the second reading of the Cancer Bill. He said that no one could deny the urgent necessity for some means of bringing adequate facilities for the treatment of cancer within the range of everyone. Although there was an obvious field for increased research into prevention and causation of cancer, in the past years substantial progress in this direction had been made. Records made by surgeons of the histories of the patients on whom they had operated had shown that patients with cancer could be freed from their disease. Radium had been found to have a definite action on cancer cells which led either to their destruction or to some change which facilitated their removal by healthy tissues. X rays had a similar effect. There seemed to be a belief that in certain conditions they produced even better results.

For these forms of treatment to be successful, however, they must be employed when the disease was at an early stage. There must, therefore, be ample facilities for early diagnosis and adequate treatment, both of which were at present lacking in this country. For many other diseases it was easy for patients, no matter in what remote part of the country they lived, to receive modern and adequate treatment, and, as a result, mortality from these diseases had fallen. He was hopeful that the powers which the Bill conferred would in time achieve sensible results with this terrible scourge, but they must be careful not to underrate the size of the problem.

SOME STATISTICS OF CANCER

Cancer had now become the second on the list of fatal diseases in this country. The annual number of deaths from this disease had been steadily mounting, and the total for Great Britain in 1937 was 74,000. Of the total deaths from all causes during the working period of life (15-65), 17 per cent. were due to cancer; nearly half the deaths (48 per cent.) occurred under the age of 65, while about 10,000 occurred under the age of 50, when working or business capacity was at its fullest and when the heads of families were most necessary to their children. The annual death rate for cancer per million of the population in Great Britain was 835 for 1901 and 1,624 in 1937. Thus the rate had nearly doubled in the course of a generation. That increase was in striking contrast to other diseases, where there had been and still was a steady fall, and meant that over 6,000 persons had died of cancer since the King's Speech on November 9.

All other countries which had registration systems manifested an upward trend. While in Great Britain the percentage increase in the death rate between the quinquennial period 1926-30 and the present day was 14 per cent., in Holland the percentage increase for the same period was 9.5 per cent., in Switzerland 3.7 per cent., and in France 3.9 per cent. These countries appeared statistically to have lower rates than our own, but it was impossible, for technical reasons, to be sure that they had less cancer than we had. Among primitive and native races cancer was by no means unknown, and in some of them there were forms of cancer which were more common than among ourselves. It was not possible, of course, to arrive at comparable mortality figures for these peoples.

There had been much discussion and investigation intended to ascertain whether the increasing number of deaths meant a real increase of cancer. The general opinion seemed to be that much of the increase was readily explicable in other ways, such as increased longevity, more accurate diagnosis, and so forth. In cancer of certain of the more accessible organs the

mortality was declining at almost every age—for example, in cancer of the lip, jaw, and skin. It was probable that this decline was due, at all events in part, to the effect of treatment. Some of the decline, on the other hand, was probably due to a lower incidence in these organs. But there was an increasing incidence for some organs. Certain forms of cancer were disappearing altogether. Cancer of the skin caused by undue exposure to x rays was, we might hope, a thing of the past. Other skin cancers due to exposure to tar, mineral oil, soot, etc., were to a large extent preventable, partly by avoidance of exposure, partly by preventive treatment of those conditions of the skin which preceded the actual cancer. It was probable, too, that some of our health services—for dental care, for the treatment of venereal disease, and for maternal care—contributed to prevention of diseased conditions which might progress to cancer.

From various inquiries conducted by the Ministry it had been estimated roughly that there were over 100,000 persons in the United Kingdom suffering from cancer during 1937. Of these about 10 per cent. were affected with the disease in organs for which treatment had not hitherto been practicable. A further 50 per cent. were susceptible at present to treatment by surgery alone, but only if their disease was diagnosed at an early stage. If the cancer had progressed too far for such treatment little could be done for these patients. In this group were included cancers of the stomach and intestine, which, taken as a whole, accounted for the largest number of deaths. There remained about 40,000 patients who suffered from the disease in easily accessible parts of the body. For these patients treatment by surgery, often combined with radiation, or radiation alone, was effective, especially in the early stages of the disease. Even when the disease appeared too far advanced for any treatment designed to be curative a considerable amount of alleviation and occasional cures could be obtained by the expert use of radiation. Moreover, it was not uncommon for "cures," by the usually accepted standard of five years' freedom from symptoms, to result from irradiation of what appeared to be a hopeless case.

"BOGY" OF INCURABILITY

It appeared from such investigations and estimates as the Ministry had been able to make that, under present conditions, only about one-quarter of the patients who could be treated with advantage obtained treatment at centres which were adequately equipped and staffed. He meant by that having expert surgeons, expert radiotherapists, and a sufficiency of radium and deep x-ray apparatus. It was true that not all the remaining patients were susceptible to treatment, but more might become so if facilities were improved. Some of these cases, for example, belonged to the large group of cases of intestinal cancers, in which symptoms were commonly so indefinite that they were neglected until the disease was far advanced. For such cases the problem was not so much the provision of treatment as promotion of that earlier diagnosis which was so vital.

The long waiting lists at most of the voluntary hospitals had two consequences of great importance to the cancer patient. First, there might be delay in initiating treatment, and, secondly, few voluntary hospitals were able to afford bed accommodation for those patients who were beyond hope of cure and whose sufferings could be greatly alleviated by modern treatment.

There was another cause of delay. Many cancer patients applied for treatment only at a stage when treatment was no longer possible. The reason for this appeared too often to be that the patients, realizing they were not well, and fearing that they were suffering from cancer, which they regarded as incurable, delayed seeking advice until the disease was too advanced. For many diseases delay in seeking medical advice was dangerous; for cancer it was deadly. This bogy of incurability was one of the things that the Bill was designed to combat.

LOCAL ORGANIZATION AFTER CONSULTATION

They proposed by means of this Bill to attempt to secure that no one, wherever domiciled, who was suffering or suspected

by his doctor to be suffering from cancer, would be out of easy reach of the best available advice. Further, everyone would be able to obtain admission to an appropriate hospital, whether for further examination or for whatever treatment was best suited to his condition. The Bill provided for the organization by county and county borough councils throughout the country of arrangements for the diagnosis and treatment of cancer. In the London area conditions were not similar to the rest of the country, and the problem to be dealt with was less than elsewhere. The large voluntary hospitals here were in a position to ensure that few patients with cancer could not obtain readily full facilities for adequate treatment, provided the patients attended at an early enough stage of the disease to make it practicable, while the hospitals administered by the London County Council provided themselves extensive facilities for treatment. It had been estimated that out of some 11,000 persons in London suffering from cancer, about 10,000 were now receiving some form of treatment. Similar conditions applied to almost the same degree in some of the larger towns, and a principal object of this Bill was to secure further progress in the parts of the country not so fortunately situated.

The local authorities were required to submit to the Minister schemes showing their arrangements for ensuring that patients should receive whatever treatment was best fitted to their condition. These schemes would be worked out after consultation with the voluntary hospitals and medical practitioners in the area and with the Radium Commission. Additional beds would be needed in some districts, and centres for consultation so conveniently placed as to be available for the whole population. Provision was made for the combination of local authorities in joint committees, on which persons other than members of the local authorities could be co-opted. This should bring in the staffs and boards of voluntary hospitals, and should make it possible for two or more authorities to use one treatment centre. It would also be possible for one local authority to utilize the services, in appropriate instances, of two or more treatment centres.

FINANCE OF THE SCHEME: EXCHEQUER GRANT

This was not a radium Bill; it was a cancer Bill. It aimed at bringing the whole range of treatment, by every means of proved efficacy, within the sphere of every person in the United Kingdom. The proposals would involve the expenditure of money, and would be financed by local and central authorities in conjunction with each other. The additional liabilities imposed on local authorities by the Bill were to be assisted by grants from the Exchequer. This would be done at first by specific grants to each local authority, and later by an addition to the total of the block grant. The expenditure to be taken into account in determining the grant would be the additional expenses incurred by local authorities in excess of those already incurred by them in the year ended March 31, 1938, on the treatment of cancer, and was to be determined to the satisfaction of the Minister in accordance with directions to be given by him after consultation with the appropriate associations of local authorities and, if necessary, with individual local authorities.

It was estimated that the Exchequer contribution when the service was in full operation (which would probably be some five years hence) would amount to approximately £300,000 per annum for England and Wales and £50,000 for Scotland. At a very rough estimate the charge on the Exchequer during the first year of the operation of the scheme would not exceed £70,000.

TREATMENT AND DIAGNOSTIC CENTRES

This estimate was based on the assumption that in order reasonably to meet the more immediate future needs there would be required, first, the equivalent of about twelve new treatment centres in addition to the twenty-two existing treatment centres fully equipped and staffed, with radiotherapeutic departments, at general hospitals geographically distributed over the country. The twenty-two centres were situated at hospitals so placed geographically that there were still large areas of the country for which the proper facilities were not reasonably accessible. Thus, in England and Wales

we had one hospital on the Tyne, three in the West Riding, three in South Lancashire, four in the Midlands, two in the Eastern Counties, one on the Cornwall-Devon border, one in South Wales, one in Hampshire, one on the Severn, and one near London, leaving three principal areas of the country inadequately provided for. These were a horizontal band of country south of the Tyne, between it and the West Riding, North and Mid-Wales, and an oblique band from the Wash to Devon.

The largest of the National Radium Centres were associated with the teaching hospitals of provincial medical schools, and it was hoped that through these channels, as well as others, a larger number of expert radiotherapists would become available to staff the existing centres, when expanded, and the new ones to be formed. It could not be too strongly emphasized that treatment by radiation must be administered by those who had received special training. In inexperienced hands both radium and x rays were dangerous. When radium was first introduced for the treatment of cancer there was not infrequently damage to patients, because the dangers resulting from the inexperienced use of this powerful weapon were not fully realized. The same applied to the use of deep x rays.

Secondly, additional beds, approximately 1,000 in number, would be required at the existing or new centres or in hospitals associated therewith; and, thirdly, about 300 to 350 consultation centres for diagnostic and other purposes.

The estimate of an Exchequer contribution of £500,000 for England and Wales was based on the assumption that the total net additional expenditure of local authorities in England and Wales would be in the region of £600,000—namely, additional beds, £390,000; consultation centres, £350,000; and, say, £30,000 for travelling expenses of patients. This total would be reduced by the amount recovered from patients. This amount was necessarily conjectural, and had been assumed as £170,000, thus giving the net total cost of £660,000 for England and Wales, involving Exchequer grants of £500,000.

PROPOSALS CONCERNING RADIUM

Turning to the provision of radium and other radiotherapeutic substances, Dr. Elliot said that in this matter they proposed to work through the two existing organizations—the National Radium Trust and the Radium Commission. These bodies were constituted by Royal Charter in 1929, the Trust to acquire and hold radium and the Commission to manage its distribution. The Trust owned about 20 grammes of radium, which it bought out of funds provided partly by public subscription and partly out of a grant of £100,000 from the Exchequer. It had also about 18 grammes on loan with an option to purchase at £4,500 a gramme, including containers. This radium could not be retained indefinitely on loan; and if it was to be kept for use here the Trust must be put in a position to pay for it. The radium managed by the Commission was at present distributed mainly in the twenty-two radium centres already referred to. Clause 3 of the Bill provided that the Minister might, from moneys voted by Parliament, lend the Trust up to a maximum of £500,000 to enable it to buy radium and other radio-active substances and apparatus and appliances for radiotherapeutic treatment. Obviously the first charge on this fund would be the money to enable the Trust to pay for the 18 grammes which it had on loan. But more radium would be required for the purposes of the Bill, and when the Government decided on its introduction it authorized the Trust to negotiate for further supplies before its decision was made public. The Trust had accordingly secured an option to buy a further 10 grammes a year for the next five years at a price of £4,500 a gramme, this not including containers. The Trust was, however, not pledged to buy more than 2 grammes a year (10 grammes in all), so that the new actual commitment amounted to not more than about £50,000, and the Trust had an option which, if it exercised it, would involve an expenditure of another £200,000. If the price of radium fell, the Trust would be able to take advantage of the lower price except in regard to the 10 grammes mentioned, and it could,

of course, accept tenders from other companies if the price was satisfactory.

The radiotherapeutic treatment of cancer included the use of deep x rays as well as radium. Experiment in the technique of this form of treatment was constantly proceeding—for example, recent experiments with a voltage of 1 million. Also, the recent invention of the cyclotron had opened up possibilities of new developments. It was desirable that the financial resources and the services of the Trust should be available in respect of these other forms of radiotherapeutic treatment. To enable it to carry out these new functions effectively consideration was being given to the revision of its Royal Charter: (1) so as to authorize it to acquire and hold other substances and appliances for radiotherapy, in addition to radium; and (2) to provide for any desirable alterations in the personnel of the Trust and Commission.

PROHIBITION OF MISLEADING ADVERTISEMENTS

Clause 4 of the Bill prohibited the publication of misleading advertisements offering treatment and cures for cancer. These advertisements were not accepted now by the two great newspaper organizations (the Newspaper Proprietors' Association and the Newspaper Society), both of which had informed him that they supported the inclusion of this clause. Many of the so-called cures for cancer which had from time to time been offered to the public were in themselves harmful; their danger was that of inducing the sufferer to postpone proper treatment until it was too late. The Bill accordingly prohibited the circulation of these advertisements to the lay public, while placing no difficulties in the way of bona fide announcements made to the medical, nursing, and pharmaceutical professions, whether in respect of the methods of treatment already referred to as being effective or of other methods which might be discovered in the future.

There would, he thought, be no objection to the main purpose of the Bill. It had, however, been suggested that the weighting of the population which was adopted for block grant purposes was unsuitable for the present service. On that it might be said that the weighting was designed to give effect to the relative needs of various authorities in relation to their expenditure as a whole, and that any question of the suitability of the weighting factor was not appropriate to the present Bill. This basis of distribution was reviewed less than two years ago, accepted by the associations of local authorities, and again confirmed by Parliament.

On the technical side it had been suggested that the Bill provided for too great an expenditure upon radium. It would be realized that there was a difference between the world-wide attack on causes that science everywhere was making and this national attack on the disease itself by means of diagnosis and treatment. Great Britain played a prominent part in research, carried on either under the aegis of such organized bodies as the Imperial Cancer Research Fund directed by the Royal Colleges of Physicians and Surgeons, the British Empire Cancer Campaign controlled by a group of distinguished lay and medical persons, or by specialized institutes and organizations such as those of the Royal Cancer, Middlesex, St. Bartholomew's, London, Leeds, Edinburgh, and other hospitals or by individual workers. He had already received an assurance from the Imperial Cancer Research Fund and the British Empire Cancer Campaign that they would continue to do their utmost, and he was sure this would apply equally to the other voluntary organizations he had mentioned. He need not remind the House also of the most valuable research which had been carried on for many years by the Medical Research Council, with the help of moneys provided by Parliament. This indispensable work would, of course, be continued and developed quite independently of the present Bill.

DEEP X-RAY THERAPY AND THE CYCLOTRON

Mr. J. D. COOKE said that up to the present the cause of cancer had not been discovered. It was, nevertheless, quite certain that by a combination of methods many patients were being cured to-day. Emphasizing that early diagnosis was the most important thing, he said that there was no surgeon

who did not recognize that radium, x rays, and surgery were much less important than the fact of getting the cases known. A greater number of patients could be cured if they could arrive at an earlier diagnosis and give earlier treatment. There was no question about the importance of the educational factor, but there were many difficulties to overcome. It was very necessary that, in giving information about the disease and the necessity for early treatment, they should avoid creating a form of cancer neurosis. All medical men knew that although cancer was a very serious disease, the fear of cancer was almost as bad, and it would not be easy to conduct an effective educational campaign unless they recognized and dealt with this difficulty. These difficulties could be got over by stressing the great improvements in scientific treatment and the fact that a very large number of patients could be cured—and without operation, which was a thing that people objected to—if only they would take steps to have the condition diagnosed and treated. Publicity in the Press would be a great help; and in several ways possibly the B.B.C., by means of scientific health talks in which this particular matter could be gently and delicately introduced, could render assistance.

The next important thing was that there should be readily available for the patient for early treatment the resources of the hospitals—the surgeon, the radiologist, the expert in radium, and the nursing staffs. It was quite wrong to suggest that there need be any fear of this team of experts. He did not think it would be possible under the Bill to give all the increased educational facilities needed for training people. It was vital that every opportunity should be taken to give the fullest scope for further education in this direction, because x rays and radium were most dangerous weapons. It was most important that this Bill should not be regarded as a radium Bill. In recent months, perhaps years, the value of deep x-ray therapy, compared with radium therapy, had been increasingly appreciated. The former had certain advantages: it was much less expensive, it could be applied with a greater degree of safety, it had a deeper penetration, and it could be made more regionally available all over the country. More especially in superficial cases it was more effective than radium.

The Bill would certainly increase the opportunity for therapeutic research. Every bed made available for the treatment of cancer was a source of therapeutic research. There was great scope for work at the present time in deciding whether deep x-ray therapy was superior to radium treatment. There was also an instrument in use called the cyclotron, which was invented in the United States. He did not understand it himself, but it produced what were called neutrons, which were said to have a penetrating power five times as great as radium and deep x rays. There were, he understood, only two of these instruments in the country to-day—one at Liverpool and one at Cambridge. He mentioned these things to emphasize the fact that scientific progress was constant and progressive, and although at the moment there might be a suggestion that £500,000 should be spent on radium, they must contemplate the possibility that within a year or two something much more important and effective would be available. It was most important that the research and the funds should be made available not only for radium but for any other treatment that might be equally or possibly more effective.

A most important thing in regard to hospital work was the follow-up observation treatment. The Minister had made an important provision by arranging that the travelling expenses of the patients and the friends who accompanied them might be paid. Otherwise, there might be a tendency on the part of persons who could not afford the expense to neglect the second, third, fourth, and even fifth visits which ought to be made to the hospital. On the whole the Bill would prove magnificent in its effects.

PLANS FOR SCOTLAND

Mr. WEDDERBURN said that the need to make modern facilities for diagnosis and treatment of cancer available was no less in Scotland than in England. Deaths from cancer

in Scotland numbered 7,810 in 1937, as against 3,635 deaths from all forms of tuberculosis. It was estimated that the number of diagnosed cases of cancer in Scotland to-day exceeded 12,000. There were four Scottish centres approved by the Radium Commission—at Glasgow (2), Edinburgh, and Aberdeen. Extension of the cancer service in Scotland might be based on the existing national radium centres, with the addition of perhaps one other. From these centres a service would be regionally organized to cover the whole of the country. Within each region there would be subsidiary hospital centres (generally in large towns) where consultative sessions would be conducted by experts from the parent centre, who would also supervise such treatment as could be carried out at some of the local centres and refer to the parent centre cases that required highly specialized resources. These local consultation centres would be useful also for follow-up work. It was estimated that the additional provision necessary for the early treatment of cancer in Scotland should provide for about 6,000 patients a year. Assuming that each cancer bed if fully utilized would deal with about twenty cases a year, a total of not less than 300 beds would probably suffice. This would involve the provision of perhaps from 150 to 200 new beds. It was proposed to set up a small advisory committee in Scotland composed of persons having the necessary experience of local government and of treatment requirements to review existing facilities for cancer treatment and the possibility of expansion of these, and to make recommendations on the extent to which it appeared desirable that local authorities should act together in making arrangements for the cancer service.

MEDICAL OPINION: "A RADIUM BILL"

Dr. SUMMERSKILL thought the Bill would make some small contribution to combating cancer, but it should be called a Radium Bill; it was not in the slightest respect a comprehensive Cancer Bill. The Minister was over-optimistic in saying that the cancer centres would be adequately staffed in five years; she would put it at, perhaps, fifteen years. The Bill said nothing about finance for research. The lower they got in the economic scale the more sharply the cancer death rate rose, and the poor were not being treated in the first stages. The only long-term solution of the problem was to introduce a State medical service in the country.

Sir ERNEST GRAHAM-LITTLE said that the Minister of Health should have consulted the experts who had knowledge and experience behind them. The Minister was mistaken, no doubt genuinely, in thinking that the Bill would not be regarded as a Radium Bill. He (Sir E. Graham-Little) had found consternation in the ranks of those who practised these special subjects. They said that the net result of the Bill was to impress on the public that there was nothing but radium for the treatment of cancer. Unfortunately the Minister had not overtaken the actual therapeutic position of the treatment of cancer. Radium was really a receding force rather than an advancing one. It was not nearly as safe as some other treatment, and required the most expert and special knowledge.

Emphasizing the extreme difficulty of early diagnosis of cancer, he pointed out that it was the general practitioner who saw the early cases. Unfortunately, the general practitioner was not in love with the Bill. It became even more necessary here than in any other department of medicine that the general practitioner should be more able to recognize the disease. He was voicing a considerable section of specialist opinion when he said that the scheme for the arrangement of the centres entirely through the local authorities was very suspect. In London the voluntary hospitals would be distinctly uncomfortable at the idea that they had to apply to the London County Council for any help under this scheme.

Pleading for more research, he said that one view was that the cause of cancer was an ultra-microscopic virus. Surely the obvious remedy for that was to experiment with better microscopes. With microscopes of greater power the prospect was very strong of being able to find the actual causes of many diseases which at present were rather glibly described as ultra-microscopic. It was in that direction that money should be freely spent. Provision for this, which was much

the most important part of the cancer problem, had been scandalously under-estimated in the scheme.

Sir HENRY MORRIS-JONES urged that general practitioners should be in a position to send any case of which they were in doubt to a hospital, not only for treatment but for investigation. Unless facilities for investigation were coupled with those for treatment there was a danger that the Bill would be weak in this aspect of dealing with the problem. The Minister had made ample provision in the Bill to enable him to consult all those involved, both lay and professional, in such a way that the best advice was secured for the interests of those suffering from cancer. He welcomed the Bill, which was in the right direction.

THE GENERAL PRACTITIONER AND THE SCHEME

Sir FRANCIS FREMANTLE said the Minister, to a certain extent, had himself to blame for the fact that there had been such an outcry that the Bill had been produced as if it were a Radium Bill. Although it was called a Cancer Bill, it was recognized everywhere that the reason for the secrecy was the proposed purchase of, or the option to purchase, radium. Therefore that seemed to be the centre of the proposal in the Bill. The lines on which the Minister now recommended the Bill to the House were laid down in a memorandum on the provision of radiotherapeutic departments in general hospitals, issued by the Ministry of Health in March. One paragraph of that memorandum stated that "the effective treatment of cancer now demands the partnership of three highly specialized forms of therapy—surgery, radium, and x rays." In a report of the Medical Research Council, of which he (Sir Francis Fremantle) had an advance copy, there were summarized the reports from all the research centres, and there was a table showing the relative frequency of surgical and radiological treatment in the research centres. By surgical treatment alone 27 per cent. of the cases had been treated; by radiation alone, 31 per cent.; and by x rays alone, 23 per cent. That showed that in the research centres and hospitals the figures were fairly easy as between the three different methods of treatment. That was a reason why the Bill should not be called a Radium Bill, but a Bill for the treatment of cancer in the best up-to-date way.

The general practitioners were the persons to whom people went when they had something wrong with them. Was the Ministry of Health consulting the organizations which represented the general practitioners? It might be that the Ministry was doing that, but he asked for an assurance that the British Medical Association would be consulted, if they had not already been consulted, concerning the terms in which the scheme was to be worked out. The general practitioners ought to be brought into the scheme from the beginning, because it was on them that we must depend. More and more research was needed. One of the greatest things the Minister could do would be to see that provision was made for the proper training of medical men in the latest methods of radium and x-ray treatment. It would be possible and wise to set aside some particular place and to build up a school for training these people.

GOVERNMENT REPLY

Mr. BERNAYS, replying to the debate, said it was certainly not the Ministry's intention to press radium on the medical profession. There was no intention in any way to stereotype the method of the treatment of cancer. That was a question for the specialist. If the Minister had announced the introduction of the Bill before he was ready it would have sent up the price of radium. Therefore it was not possible to have prior consultations. What mattered most was the consultations about arrangements which would be made under the Bill, and he gave the fullest assurance that the Minister would keep in the closest touch with the medical profession and those skilled in the newest methods of remedy. The Minister would be willing to consider a conference with expert members of the medical profession if a desire for it were expressed by all the interests concerned.

The Bill was read a second time, and committed to a Committee of the whole House.

Obituary

The death of Emeritus Professor H. C. J. GRAM on November 14 recalls that method of staining with which his name has been identified among many generations of bacteriologists. He was born in 1853, the son of a professor of law. It was as early as 1884 that he described his method of staining, and it was a source of considerable amusement to him that thenceforth he should be best known to the medical world outside Denmark by this reaction. His first scientific publications dealt with the number and size of the blood corpuscles. He was, however, interested in clinical problems, and one of his studies in this field concerned the clinical reactions of theobromine. In 1891 he was appointed professor of pharmacology, and in the following year he assumed the duties of senior physician to the Frederik Hospital, Copenhagen. In 1900 he was appointed a professor of medicine, and he did not retire from his hospital and professional appointments till 1923.

An obituary notice of Dr. N. D. BARDSWELL appeared in our last issue at page 1234. The following cable from the Governor of Cyprus has been received by the National Association for the Prevention of Tuberculosis: "I have learnt of Dr. Bardswell's death with deep regret, which will be shared by all classes in Cyprus, where his work and visits have entirely changed public attitude towards tuberculosis in a manner which is of greatest assistance to Government in its campaign against the disease. I should be grateful if sincere condolences could be conveyed to Mrs. Bardswell."

Correction.—In the memoir of Professor W. McDougall published last week the word "uncriticizability" was by inadvertence printed "uncriticized ability."

Universities and Colleges

UNIVERSITY OF BRISTOL

C. H. G. Price has been approved at the examination for the degree of M.D.

UNIVERSITY OF SHEFFIELD

At its meeting on December 9 the University Council received the resignations of Dr. Arthur Pool of the post of lecturer in mental diseases and of Mr. A. W. Fawcett of the post of lecturer in surgical pathology. The Council accepted the resignations with regret and thanked Dr. Pool and Mr. Fawcett for their services to the University.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates for the degrees of M.B., B.Ch. have satisfied the examiners at the examination indicated:

SURGERY.—G. C. D. Evans, R. Tiplle.

NATIONAL UNIVERSITY OF IRELAND

The honorary degree of LL.D. was conferred on Sir Walter Langdon-Brown, Emeritus Professor of Physic in the University of Cambridge, at University College, Dublin, on December 8.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary meeting of the Council was held on December 8, with the President, Mr. Hugh Lett, in the chair.

Mr. Seymour Barling was appointed to represent the College on the Court of Governors of Birmingham University, and Mr. L. E. C. Norbury on the Central Council for District Nursing.

It was decided that the following words should be added in parentheses between paragraphs 15 (b) and 15 (c) of the regulations for the Fellowship:

"Provided that the candidate has dissected the entire cadaver, the study of dissected parts either in the dissecting room or in the museum may be included in the sixty weeks."

Diplomas

Diplomas of Fellowship were granted to the following thirty-nine candidates:

G. Mael, Housden, M. Gordon, H. J. Croot, D. M. Cooper, I. N. Blusger, R. Sampson Handley, I. H. Griffiths, Margaret M. C. Loudon, B. W. Fickling, E. P. H. Drake, S. R. Chandra, H. R. S. Harley, S. Marinker, V. D. Logue, H. S. Kander, E. H. Hambly, J. K. Bremer, E. S. James, E. A. E. Hedberg, L. Chanock, N. R. Desai, A. W. Douglas, E. E. Dunlop, H. H. Eddy, N. Garber, W. B. Highet, T. G. Lowden, R. I. Mahadevan, Mary H. Mayeur, K. Mazhar, F. H. Mills, A. L. Newson, H. R. C. Norman, J. G. O'Donoghue, R. Orgias, H. Park, E. P. Row, H. Sobhi, G. M. Thomson.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians of London, to the following seventeen candidates:

J. N. Abelsohn, P. T. Ashby, C. J. Bashall, A. K. Boyle, J. T. H. Butt, W. A. Cobb, T. Dinsdale, Margaret B. Dow, P. G. L. Essex-Lopresti, N. R. James, D. C. R. R. Jenkins, A. Leitch, A. D. Morgan, O. N. Roussel, R. Shaw, A. J. Smith, Una M. Westell.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on December 5, with Dr. John Henderson, president, in the chair, the following were admitted Fellows of Faculty under Chapter III of the regulations:

Duncan McCallum Blair, M.B., Ch.B., D.Sc., John William McNec, M.D., F.R.C.P.

The following were admitted Fellows of Faculty under Chapter II of the regulations:

Prem Datta Bhargava, M.B., B.S., D.T.M. and H., Hugh Cameron McLaren, M.B., Ch.B., Nau Nihal Singh, M.B., B.S., D.T.M., Thomas Ferguson Stewart, M.B., Ch.B., John Wilson, M.B., Ch.B.

Medical News

The House of the British Medical Association, including the Library, will be closed for the Christmas holiday from 5 p.m. on Friday, December 23, to 9 a.m. on Wednesday, December 28 (Library 10 a.m.). Owing to the holiday the *Journal* for December 24 will go to press on Tuesday, December 20, and all editorial communications and advertisements intended for that issue should reach the Editor and Advertisement Manager respectively by the first post on Monday, December 19, at the latest. Material for the issue of December 31 should reach the Editor or Advertisement Manager by the first post on Friday, December 23.

A meeting of the Royal Microscopical Society will be held at B.M.A. House, Tavistock Square, W.C., on December 21, at 5.30 p.m., when papers will be read by Mr. J. Smiles on "The Application of Annular Oblique Incident Illumination to the Study of Normal and Infected Chorio-allantoic Membrane" and Mr. N. Ingram Hendey on "Some New Species of Diatoms."

The issue of *La Riforma Medica* for October 8 contains an illustrated account of the eleventh International Congress of Surgery, held at Brussels from September 19 to 22, by Professor D. Giordano of Venice.

Dr. Joseph Hoguet has been appointed medical director of the New York World's Fair of 1939. The medical exhibits are to illustrate the progress of medicine and of public health and the anatomy of man.

The King has appointed Dr. Edgar Cochrane to be a Member of the Executive Council of the Island of Grenada.

On November 19, his seventieth birthday, Dr. Thomas S. Cullen, professor of gynaecology at Johns Hopkins University, was given a dinner at Baltimore.

The German Chancellor has recently awarded the German Red Cross distinction of the first class to the French physicians, Professor Baumgartner and Dr. Paul, for their treatment of Herr vom Rath, the assassinated Counsellor of the German Embassy in Paris.

EPIDEMIOLOGICAL NOTES

Acute Poliomyelitis

There was a slight decrease in the incidence of acute poliomyelitis in England and Wales during the week—37 (39 in the week before)—but in London the figures rose from 7 to 9 in the week under review. The chief counties affected were: London 9 (Wandsworth 3, Battersea, Deptford, Hackney, Lewisham, Stepney, Woolwich 1 each); Gloucestershire 4 (Bristol 4); Southampton 4 (Bournemouth 2, Southampton and Romsey 1 each); Essex 3 (Colchester, Hornchurch, and Ilford 1 each); Leicestershire 3 (Leicester 3). Of the 2 cases of acute poliomyelitis notified in Scotland 1 each occurred in Ayr County and Kirkcaldy.

Enteric Fever

Notifications of enteric fever in England and Wales rose in the week under review from 21 to 29, while in London they fell from 9 to 8. The chief centres affected were: London 8 (Islington and Shoreditch 2 each, Lambeth, St. Pancras, Stepney, Westminster 1 each); Durham 4 (Sunderland 3, Ryton 1); Essex 4 (West Ham 2, Hornchurch and Thurrock 1 each); Kent 3 (Dartford, Folkestone, and Penge 1 each). Another case of typhoid fever was notified at Shoreditch on Saturday, December 10, making a total at the time of going to press of 26 confirmed cases in the borough and 5 outside the borough, which are probably related to the outbreak. A second death from typhoid fever was reported in Shoreditch on Friday, December 9.

The Registrar-General's Statistical Review for 1937

In the middle of 1937 the estimated population of England and Wales was 41,031,000—19,705,000 males and 21,326,000 females. A birth-rate of 14.9 per thousand persons living was recorded; this rate was 0.1 above that for 1936, 0.2 above that for 1935, and 0.5 above that for 1933, which was the lowest ever recorded. The highest rates were recorded in Staffordshire (17.4) and Durham (17.1), and the lowest rates in Cardiganshire (11.4) and East Sussex (12.0). The death-rate for the year was 12.4 per thousand persons living; 0.3 above that for 1936 and 0.7 above the rate for 1935; it is the highest rate recorded since 1922 with the exception of that for 1929, when the rate was 13.4. When allowance is made for the fact that the average age is increasing every year the resulting corrected death-rate was 9.3, or 0.1 above that for 1936 and 0.3 above that for 1935, the lowest on record. Over a hundred years the average death-rate was 5.1 at ages 5 to 10 years, 3.0 at ages 10 to 15, and 274.1 for people of 86 years and over.

Deaths from all causes in 1937 were 260,057 males and 249,517 females. Infectious and parasitic diseases accounted for a total of 57,996 deaths, compared with 47,769 in 1936, the lowest on record. At 1.41 per thousand the specific mortality from infectious diseases represented an increase of 0.24 per thousand on that of the previous year. The increase was due mainly to the influenza epidemic in the first quarter of the year, when 8,991 males and 9,644 females died from that disease, compared with 3,176 and 2,881 respectively in the previous year. The measles death-rate per million children under 15 years of age, which up to twenty years ago was seldom below 1,000, reached the low record of 114. The scarlet fever death-rate (31 per million under 15) was the lowest recorded, and the whooping-cough death-rate of 195 was the lowest except in 1935, when the rate was 170. There were 152 deaths from infantile paralysis, compared with 102 in the previous year, while the number of deaths from food poisoning (22 males and 15 females) is the highest in the eleven years in which records are given. A decrease was recorded in the mortality of women due to the accidents of child-birth; a rate of 0.94 from septic causes and 2.19 from other causes per thousand live and stillbirths was recorded, compared with rates of 1.34 and 2.31 respectively in 1936. The mortality of infants under 1 year was 58 per thousand live births and was 1 per thousand greater than that for 1935, the lowest on record.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended December 3, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great-towns (125 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week.) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|----------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 16 | 1 | 7 | — | — | 17 | 1 | 9 | 2 | — | | |
| Deaths | — | — | — | — | — | 1 | 1 | 1 | — | — | | |
| Diphtheria | 1,545 | 156 | 248 | 72 | 19 | 1,765 | 210 | 268 | 63 | 43 | 1,465 | 210 |
| Deaths | 28 | 4 | 8 | 2 | 1 | 44 | 6 | 6 | 7 | 1 | | |
| Dysentery | 64 | 15 | 21 | — | 1 | 454 | 124 | 42 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Encephalitis lethargica, acute | 6 | — | — | — | — | 2 | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Enteric (typhoid and paratyphoid) fever | 29 | 8 | 2 | 7 | 4 | 72 | 5 | — | 8 | 1 | 36 | |
| Deaths | — | — | — | — | — | 4 | — | 1 | — | — | | |
| Erysipelas | — | — | 81 | 3 | 7 | — | 1 | 78 | 5 | 7 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Infective enteritis or diarrhoea under 2 years | 41 | 13 | 11 | 5 | 3 | 38 | 8 | 12 | 4 | 5 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Measles | 1 | 24 | 34 | 1 | 7 | 18 | 2 | 353 | 7 | 159 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Ophthalmia neonatorum | 72 | 8 | 21 | — | — | 74 | 9 | 24 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Pneumonia, influenzal† | 681 | 97 | 18 | 6 | 13 | 1,096 | 123 | 39 | 4 | 8 | 1,075 | 123 |
| Deaths (from influenza) | 24 | 1 | 3 | 6 | 2 | 45 | 7 | 14 | — | 1 | | |
| Pneumonia, primary | — | — | 373 | 11 | 11 | — | 27 | 548 | 10 | 23 | | |
| Deaths | — | 1 | — | 14 | — | — | — | — | — | — | | |
| Polio-encephalitis, acute | — | — | — | — | — | 3 | 1 | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Polio-myelitis, acute | 37 | 9 | 2 | 2 | — | 21 | 1 | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Puerperal fever | 11* | 11 | 10 | 3 | 1 | 9* | 9 | 12 | — | — | | |
| Deaths | — | 2† | — | — | — | — | 2† | — | — | — | | |
| Puerperal pyrexia | 130 | 15 | 11 | — | 1 | 180 | 20 | 19 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Relapsing fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Scarlet fever | 1,902 | 158 | 359 | 64 | 91 | 2,689 | 171 | 592 | 130 | 111 | 2,700 | 326 |
| Deaths | 2 | — | — | 1 | — | 8 | 2 | — | 1 | — | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Whooping-cough | — | 190 | 325 | — | 10 | — | — | 47 | — | 6 | | |
| Deaths | 16 | 4 | 7 | 1 | — | 8 | 2 | 2 | 1 | — | | |
| Deaths (0-1 year) | 348 | 66 | 74 | 39 | 20 | 377 | 78 | 110 | 36 | 20 | | |
| Infant mortality rate (per 1,000 live births) | 58 | 54 | — | — | — | 64 | 65 | — | — | — | | |
| Deaths (excluding stillbirths) | 4,574 | 878 | 691 | 192 | 147 | 5,461 | 1,171 | 787 | 186 | 170 | | |
| Annual death rate (per 1,000 persons living) | 11.2 | 11.2 | 14.1 | 13.0 | 13.0 | 13.5 | 14.7 | 16.1 | 12.7 | 15.1 | | |
| Live births | 6,073 | 1,146 | 880 | 290 | 202 | 5,806 | 1,111 | 786 | 336 | 212 | | |
| Annual rate per 1,000 persons living | 14.9 | 14.6 | 17.9 | 19.6 | 17.9 | 14.3 | 14.0 | 16.1 | 22.9 | 18.8 | | |
| Stillbirths | 245 | 32 | — | — | — | 298 | 53 | — | — | — | | |
| Rate per 1,000 total births (including stillborn) | 39 | 27 | — | — | — | 49 | 46 | — | — | — | | |

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.
† Deaths from puerperal sepsis.

‡ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Medical Apparatus in 1816

Dr. I. E. McCracken (Newcastle-on-Tyne) writes: I cannot help Dr. Collins (*Journal*, November 12, p. 1028) in regard to part (1) of his query, but I can give him a reference to the term "suspended animation" in part (2). In the annual reports for the period he refers to of the Newcastle-on-Tyne Dispensary the term "suspended animation" is used often, and refers to attempts made to recover persons who apparently were dead from drowning. The committee of the dispensary instigated the development of centres on the banks of the river, where boatmen and others received instruction in methods of artificial respiration. I do not recall the mention of any particular apparatus being used for this purpose.

Condensation Water from Theatre Skylight

Dr. LEONARD P. LOCKHART (Beeston, Notts), in reply to Dr. E. S. Hemsted (December 3, p. 1188), writes: The following is a method successfully employed by me for over ten years. Run a copper gutter at the drip point with a tubular drain through the woodwork, and don't let painters ever block up the outflow. This guttering and drain need periodic cleaning.

LETTERS, NOTES, ETC.

The Problem of the Female Inebriate

Dr. COURTENAY C. WEEKS (33, Bedford Place, W.C.1) writes: From time to time medical practitioners are faced with the problem of what to do with female inebriates whose financial position prevents them from being sent to the more expensive nursing homes. May I bring to their notice the excellent shelter home run by the C.E.T.S. and the Women's Union at Highbury, London, N.5. I can vouch for the home and for the care with which the inmates are treated. Full particulars may be obtained from Miss F. E. Relf, Women's Union, 27, Gordon Square, London, W.C.1.

Contraindication to Sulphanilamide Therapy

Dr. E. IVINY PUDDY (King's Lynn) writes: In view of the statement that "no ill effect has been known to occur to babies whose mothers are receiving this [sulphanilamide] therapeutic remedy," made by Dr. V. E. Lloyd in the October number of the *Journal of Clinical Research*, may I report the following exception. A primipara, aged 23, was delivered by forceps on April 29; the perineum was sutured. Puerperal pyrexia followed. On May 5 I pre-

scribed one 7½-grain tablet of prontosil album three times a day. The infant, which was breast-fed, had had icterus neonatorum but was steadily improving, and the skin was only a pale lemon colour. On May 7 the infant had become an orange colour and the prontosil was stopped forthwith in view of this sudden worsening of the jaundice. By May 14 the infant had recovered. Since this occurrence I have regarded icterus neonatorum in a breast-fed infant as a contraindication to the administration of prontosil to the mother.

Infections of the Hands and Fingers

Mr. J. L. AYMARD writes: The tribute you paid to the late distinguished surgeon Sir David Wilkie by publishing his valuable article upon the above subject in your issue of December 3 leads me to say that, though we differed on some minor points, upon the main issue of lymphatic control we were thoroughly agreed. Only one point, which must be of great interest to those who have read and studied the reference to upper arm control by an elastic band and the figure reproduced on page 1127, I will supplement by quoting from a letter he wrote to me on July 23. "It may very well prove that elastoplast is equally good or better than an elastic bandage to produce mild venous and lymph stasis in a limb. However carried out there can be no question of its value in acute infections." My attempt to expose Bier's congestion as a myth handed down will be found in a book, *The Foment Danger, Wound Infection and its Treatment by Lymphatic Control and Elastoplast*, just published by Messrs. Cornish Bros., New Street, Birmingham.

Thimble for the Surgeon

Dr. F. ALLEN (Nagpur, India) writes: In the *Journal* of October 15 (p. 789) there appears a note by Dr. T. E. Coulson on the use of a thimble. I should like to point out that I was taught this method years ago by Sir William de Courcy Wheeler, and I believe it is mentioned in his book on operative surgery.

Infra-red Rays

"G.P." writes: Perhaps more attention should be paid to the treatment of neuritis and neuralgic pains by infra-red rays. I have had neuritis of the arm for two years or more, and sometimes the pain has been very acute and has lasted for hours. Treatment by drugs, such as salicylates, quinine, arsenic, and iron, proved quite valueless. I set up an infra-red lamp and started treatment five days ago. The pain has entirely gone, though it is too early to say it will not recur. I might point out that it is not necessary to undress to apply the rays; the removal of thick clothing, such as the coat, is all that is required.

Medical Postage Stamps

The eagerly awaited Curie stamp has reached us from France, horizontal in shape, blue-grey in colour, 1 franc 75 centimes plus 50 centimes in value, and bearing the legends "Pierre et Marie Curie découvrent le radium Nov. 1898" and "Union Internationale contre le Cancer." Though the expressions are pleasing enough, the design is overcrowded and unbalanced. A similar stamp has also been released by each of the twenty-one French colonies, lighter in colour and with a slightly different inscription. Soviet Russia has recently issued a set of seven child welfare stamps, all of which are horizontals except the 15 copecks (upright). On the 10 deep green a young mother watches her baby being weighed at a maternity station. The 15 blue-green depicts children receiving a history lesson around Lenin's statue in Leningrad. On the 20 violet-brown and the 40 light brown children are seen looking through microscopes. The 30 red-brown figures boys at a Crimcan pioneer youth camp, and on the 50 deep blue and the 80 light green children are portrayed playing with mechanical toys built by themselves. While the designs are interesting and even striking, artistically they cannot compare with some of the previous issues.

Corrigendum

In a summary of a paper which Dr. Francis Braid read at the annual meeting of the British Orthopaedic Association (*Journal*, December 10, p. 1222) "secondary to cirrhosis of the liver (present in both patients)" should have read thus: "dysfunction of the liver, evidence of which was present in one of the patients."

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Deutsche Medizinische Wochenschrift

Berlin vol. 64 October 7, 1938

- Internal Medicine and Neurology. W. Norderbruch—p. 1445.
Treatment of Socalled Prostata. A. W. Lohrer—p. 1446.
Conservative and Surgical Treatment of Calculi of Uterus. H. Boemgenhaus—p. 1447.
Post-operative Diseases of Urinary Tract after Gynaecological Operations. O. Baver—p. 1447.
Clinical Significance of Finding Actinomyces. H. Schuessmann—p. 1447.
Radiography in Campaign against Pulmonary Tuberculosis. F. Bräunlich—p. 1449.
Lipidophagy as Late Fatty Lesion. F. Aschoff—p. 1479.
New Instrument for Puncture of Chest or Abdomen and for Pneumothorax Treatment. J. Veres—p. 1480.
Employability in Industry of Persons with Reduced Working Capacity: I. Heart Disease. H. Zur—p. 1481.

Post-operative Urinary Tract Diseases.—This study, from the University Maternity Hospital in Munich, includes a table in which information is given concerning post-operative diseases of the urinary tract after gynaecological operations at this hospital in the period 1932 to 1938. The conditions under which these complications arose are discussed.

Journal of the American Medical Association

Chicago vol. 111 October 1, 1938

- Relation of Drug Therapy in Neurologic States. R. Kracke—p. 1255.
Present Status of Serum Therapy of Lobar Pneumonia. M. Blaukernherm—p. 1260.
Anoxia of Newborn and Associated Cerebral Injury. F. Schenker—p. 1263.
Frolicious Tumours. C. Tucker and C. Hellwig—p. 1270.
Ovarian Paraneural Stenosis and Malignant Prognosis. B. Hemmstedt—p. 1273.
Pathological Changes in Amyotrophy following Tripanamide Therapy. F. Leinfelder—p. 1276.
Gordon Test for Hodgkin's Disease. J. McNaught—p. 1280.
Hodgkin's Disease. C. Wright—p. 1286.
Vitamin C. O. Beyer—p. 1290.
Air Filtration. T. Nelson—p. 1298.

Chicago vol. 111 October 8, 1938

- Erythrocytosis as Occupational Disease. J. Klauder—p. 1345.
Electrolytic Control Factor in Use of Metals in treating Fractures. C. Verabie and W. Stuck—p. 1349.
Sulphanilamide Treatment of Acute Infections of Central Nervous System. J. B. Neal—p. 1353.
Hematis. J. Weir—p. 1356.
Coccidioidomycosis. E. D. Ason—p. 1362.
Decompression of Small Intestine in Treatment of Intestinal Obstruction. C. Johnson, G. Penberthy, R. Neer, and J. Kennig—p. 1365.
Aetiology of Nausea and Vomiting of Pregnancy. J. Finch—p. 1368.
Sensitivity to Rabbit Serum. A. Brown and P. Secher—p. 1370.
Sulphanilamide Treatment of Trachoma. T. Lee—p. 1371.
Pathology of Vitamin C Deficiency. G. Dallhoff—p. 1376.

Nausea and Vomiting of Pregnancy.—Allergic sensitivity to the secretion of her own corpus luteum of pregnancy is regarded by Finch as the aetiological factor in nausea and vomiting in the early months of pregnancy. In a series of cases he obtained a cutaneous reaction following the injection subcutaneously of 0.02 to 0.03 c.c.m. of progestin, directly proportional to the severity of the symptoms. Negative reactions were obtained in patients who had no symptoms. Allergic desensitization by the subcutaneous injection of corpus luteum extract and progestin relieved the symptoms in the former group. Intradermal testing with progestin may determine even before pregnancy whether a patient will or will not be affected. A high proportion of patients with pregnancy sickness had other allergic conditions or gave a family history of allergy.

Klinische Wochenschrift

Berlin vol. 17 October 8, 1938

- Choice of Radiation (X Rays and Radium) according to Required Distribution of Dose. P. Ott—p. 1425.
Is there any Relation between Human Blood Groups and Haemolytic Properties of Streptococcus? O. Wünsche—p. 1429.

- Concentration and Elimination of Ascorbic Acid during Pregnancy, Labour, Lactation, and First Few Days of Infant's Life. A. Elstby and P. Becker-Christensen—p. 1432.
Orthostatic Collar. W. Kaufmann—p. 1434.
Absorptive Capacity of Blood for Oxygen in Rheumatic Patients. W. Fehle, K. Wolff, and F. Steinkamp—p. 1435.
Hepatic Metabolism of Glyceraldehyde or Cardiac Metabolism of Glyceraldehyde. I. J. Neuteboom—p. 1437.
Technique of Thrombocyte Count and its Significance in Artificially Induced Fever. H. Babik—p. 1441.
Fat Organs, particularly so-called Brow Fat: Their Significance for the General Metabolism. W. Eger—p. 1444.
Complement Content of Spleen Serum. L. Gerczyk and G. v. Ludány—p. 1444.
Inactivation of Adrenaline by Succinic Acid. P. Marquardt—p. 1445.
Results of Investigation of 7,000 Applicants for "Marriage Loan." Felberth—p. 1446.

Applicants for Marriage Loans.—Investigation of 7,000 applicants for "marriage loans" showed that only 4.6 per cent. were unsuitable for marriage, mainly on account of debility and mental deficiency. The incidence of syphilis and gonorrhoea was remarkably small. Of the spinster applicants 24 to 31 per cent. and of the divorced or widowed women 30 to 53 per cent. were pregnant at the time of the application. The mortality among the illegitimate children was much higher than that of the legitimate offspring. The average age of the men was 27 years, of the women 24.6. Most of the applicants belonged to the artisan and working classes.

Lancet

London vol. 2 October 8, 1938

- Medical Race. R. Hutchison—p. 813.
Thyroidectomy for Relief of Cardiac Pain. G. Bourne and J. P. Ross—p. 815.
Macrocytic Haemolytic Anemia associated with Increased Red Cell Fragility. S. C. Dyke and I. Young—p. 817.
Rad. therapy of Menopausal Menorrhagia. T. F. Todd—p. 821.
Osteogenic Sarcoma of Tibia. C. MacLeod—p. 824.
Tuberculosis of Endocardium in Case of Hypertension. G. E. S. Ward and N. H. Martin—p. 827.
Breucella. A. H. Buzarro—p. 828.
Spontaneous Haemithorax. K. M. A. Perry—p. 829.
Complementary Feeding of Suckling Infant. A. E. Russell and T. McKee—p. 832.
Fetido-vasectomy. R. H. Boyd—p. 833.

Thyroidectomy for Cardiac Pain.—Thyroidectomy was done in twelve carefully selected cases of angina of effort, unsuccessfully treated otherwise. There were no operative deaths and but three failures. Methods of case selection and the operative technique are described.

Medical Journal of Australia

Sydney vol. 2 September 3, 1938

- Factors in Prognosis of Cardiac Disease. A. Holmes & Court—p. 361.
Some Observations upon Examination of Men Exposed to Lead Hazard, Including Original Method for Examination of Blood for Polychromasia. L. Windsor-McLean—p. 367.
Endemic Typhus in North Queensland. R. Mathew—p. 371.
Mantoux Test: Single Injection Method. D. Anderson and C. Harvey—p. 378.
Pathological Reports from Children's Hospital, Melbourne. R. Webster—p. 381.
Case of Calcified Cerebral Tumour. E. Robertson—p. 383.
Case of Arterial Angioma of Spinal Cord. E. Robertson—p. 384.
Case of Cerebral Adhesions. L. Snow—p. 385.

Single Injection Mantoux Test.—Tuberculin P.P.D. is a purified protein derivative of tuberculin. It is a solid of constant and low molecular weight, non-sensitizing on repeated injection, unable to produce focal reactions, indefinitely stable, and highly potent in the production of the skin reactions in infected animals. Anderson and Harvey find that a single injection of 1/40 c.c.m. detects nearly all reactors to the orthodox dose of tuberculin with a minimum of sharp reactions.

Medizinische Klinik

Berlin vol. 34 October 7, 1938

- Clinical Picture of Hormonal Insufficiency in Women. K. Sommer.—p. 1315.
Sterility Due to Spasm of Tubes: Causation and Treatment. W. Breipohl.—p. 1316.
Hallux Valgus Complex. C. Mah.—p. 1317.
*Air and Light Treatment of Surgical Tuberculosis. H. Alexander.—p. 1321.
Disorders following Injections of Drugs containing Quinine. K. Schwartz.—p. 1324.
Intravenous Injections of "Trasentin." J. Jansen.—p. 1326.
Treatment of Haemorrhagic Diatheses with Vitamin C. G. Walther.—p. 1327;
Concluding Remarks by H. Winckelmann.—p. 1329.
Hysteria and Compensation Neurosis in Social Insurance. F. Pfeffer.—p. 1330.
Treatment of Septicaemia: General Review. M. Haedicke.—p. 1333.

Air and Light Treatment of Surgical Tuberculosis.—Surgical tuberculosis is considered as a general and not a local affection. The dietetic and the climatic therapy may be advantageously combined with orthopaedic treatment; 80 per cent. of permanent cures are reported. The duration of the treatment varied between fifteen and twenty-seven months, and was longer in the presence of infected fistulae.

Medizinische Welt

Berlin vol. 12 October 8, 1938

- Thyroid and Circulatory System. H. Löhr.—p. 1443.
*Injection Treatment of Deformed Joints. W. König.—p. 1446.
Results of Protracted X-ray Therapy of Laryngeal and Pharyngeal Tumours. G. Kriessmann.—p. 1450.
Asthma and Workmen's Compensation Cases. A. Welzel.—p. 1453.
Trauma in Production of Cardiac Valvular Deficiency. H. Lucke.—p. 1456.
Excretion of Prolan in Male. J. Ritzke.—p. 1457.
Treatment of Blepharitis. V. Schreiner.—p. 1458.

Injection Treatment of Deformed Joints.—Diseases producing deformity in joints are, according to König, unsatisfactorily treated in practice. A correct diagnosis followed by removal of all foci of infection is essential. The joints themselves require correction of the deformity by physiotherapy; contractures should be overcome by the injection of novocain into the soft parts, and changes in the joints themselves should be treated by injections of metallic agents.

Münchener Medizinische Wochenschrift

Munich vol. 85 October 7, 1938

- Puerperal Sepsis. W. Schultz.—p. 1537.
Pertussis in Adults. H. Seblack.—p. 1541.
Benign Gastric Tumours in Pernicious Anaemia. W. Haring.—p. 1544.
Critical Examination of Results obtained by Samuel's Cycloscope. R. Imbach.—p. 1545.
Experimental Gangrene produced by Thermal Congestion and Anaesthesia. H. Schwan.—p. 1546.
Modern Treatment of Squint. F. Weckert.—p. 1547.
Rheumatism as Wrong Diagnosis. H. Müller.—p. 1548.
Medical Referee and Treatment of Wounds. F. König.—p. 1550.
Duck Eggs as Cause of Two Epidemics in Army. Schad.—p. 1550.
Comparisons with and without Administration of "Targasin" in Treatment of Diphtheria. E. Wallbrich.—p. 1551.
Toxicity of Uleron. E. Probst.—p. 1551.
Microscopical Examination of Urine. J. Lipp.—p. 1553.
Some Unusual Spheres of Action of Syphilis. H. Krauss.—p. 1554.

Nature

London vol. 142 October 1, 1938

- Polarographic Seroreaction for Cancer. R. Brdicka.—p. 617.
Saccharum Zea Cross. E. K. Janaki Ammal.—p. 618.
Vowel Vibrations and Vowel Production. E. W. Scripture.—p. 619.

London vol. 142 October 8, 1938

- Cyclotron and its Applications. J. Chadwick.—p. 630.
Antiquity of Modern Type of Men. J. Reid Moir.—p. 672.
*Annual Cycle of Responsivity of Castrated Albino Mice to Oestrone Injection. J. Duszynska.—p. 673.
Decarboxylation of Aspartic and Glutamic Acids. A. I. Virtanen, P. Rintala, and T. Laine.—p. 674.
Dose and Response in Vitamin E Treatment. A. L. Bacharach.—p. 675.

Responsivity to Oestrone Injection.—Dr. J. Duszynska describes a seasonal rhythm in the response of castrated

albino mice to injections of oestrone, similar to that reported in the case of the action of androgen on capons. The response is greater in spring than in autumn. This variation affects the conclusions arrived at from biological assays by the vaginal smear methods, unless carried out in comparison with standard preparations.

New England Journal of Medicine

Boston vol. 219 October 6, 1938

- Oral Aspects of Diabetes Mellitus. A. Rudy and M. M. Cohen.—p. 503.
*Maximum Temperature of Expired Air as Rapid Measure of Human Body Temperature. F. G. Benedict, C. G. Benedict, R. C. Lee, and H. B. Lee.—p. 509.
Chronic Arthritis of Shoulder: Diagnosis and Treatment. J. F. Kuhns.—p. 516.
Treatment of Chronic Bronchial Asthma. E. A. Brown.—p. 520.
Progress in Nutrition. F. L. Burnett.—p. 524.

Temperature of Expired Air.—An apparatus, based on the thermo-electric principle, is described by means of which it is possible to survey the temperatures of large groups of people within a relatively short time. The method seems to be particularly applicable to temperature measurements on school children during epidemics of colds and influenza.

Nordisk Medicinsk Tidskrift

Stockholm vol. 16 October 8, 1938

- Chemotherapy of Bacterial Diseases. K. Motzfeldt.—p. 1567.
*Investigations of Mental Debility with Reference to Significance of Early Diagnosis. H. Nypaard.—p. 1573.
Problem of Sterilization in Hospitals. C. Naeshind.—p. 1578.
Scandinavian Hospital on Mediterranean. B. Franzén.—p. 1580.

Mental Debility.—This Danish study of 198 cases of mental debility showed that it was not recognized in 148 cases (75 per cent.) till after the debility had given rise to disturbances of a social character.

Policlinico

Rome vol. 45 October 3, 1938 (Sez. Prat.)

- Influence of Tropical Climate on Leucocyte Count and Arneith Formula. R. Pellicciotta.—p. 1805.
So-called Reactive or Organo-vegetative Epilepsy. A. Faraone.—p. 1815.

Rome vol. 45 October 10, 1938 (Sez. Prat.)

- Atebrin Haemoglobinuria. T. Lucherini.—p. 1849.
Acute Syphilitic Cardio-renal Syndrome. M. Petacci.—p. 1859.

Presse Médicale

Paris vol. 46 October 5, 1938

- *Contribution to Electro-encephalographic Study of Epileptics. P. Pagniez, W. Liberson, and A. Plichet.—p. 1466.
Action of Toad Venom on Heart. R. Lutembacher.—p. 1469.
*Uretero-pyelography in Infants. R. Bouchard.—p. 1472.
*Angiocardiography in Children. A. Castellanos, R. Pereira, and A. Garcia.—p. 1474.

Electro-encephalograms in Epilepsy.—As a result of the examination of thirty-three cases of major and minor epilepsy, the authors consider that electro-encephalography may prove to be useful in the prognosis and treatment of epilepsy; characteristic waves are obtained during the attacks and all severe or intractable cases also show abnormal waves in the intermediate periods.

Uretero-pyelography in Infants.—The author is of the opinion that this procedure is quite safe and fairly easy for an expert. He advocates its use in cases of pyuria and abdominal tumour in infants or young children as it yields much more definite and reliable information than does urography.

Angiocardiography in Children.—The authors, after a short historical survey, describe their own methods and some results obtained in both normal and pathological cases.

Paris vol. 46 October 5, 1938

Kidney and Arterial Hypertension. L. Langeron and R. Deboeck—p. 1481
 *Gold Treatment of Bronchial Asthma. Autodesensitization of Body by Means of Hyposulphites. I. Vignani, V. Malaf, and S. Rabinowitch—p. 1482

Kidneys and Blood Pressure.—The authors discuss the relation between the kidneys and hypertension from the pathological, clinical, experimental, physio-pathological, and therapeutic points of view, and conclude that recent knowledge confirms the classical view of the importance of the kidneys in hypertension.

Gold Treatment of Bronchial Asthma.—The authors have treated thirty-five cases since 1933 with twenty-seven "complete and lasting successes." The therapeutic effects are due to a combination of various factors: the anti-anaphylactic action of sulphur, the influence of various cations, the affinity of gold for pulmonary tissue. The presence of the allergen responsible for the asthma is also essential.

Proceedings of Staff Meetings of Mayo Clinic

Minnesota vol. 13 September 28, 1938

Bronchiolitis. H. W. Schmidt—p. 69
 Abscess of Superior Petrosal Sinus. About Thirty Years after Spontaneous Recovery from Mastoid Disease. H. L. Lillie—p. 612
 Cardiac Clinics: III. Clinic on Atrophy of Heart, Catarrh of Stomach with Marked Irritation. I. A. Wilson—p. 614
 Hodgkin's Disease of Stomach. Six Cases. G. I. Mulling, W. C. MacCarty—p. 615
 Construction of Quadriceps Tendon and Capsule of Knee with Ligation of Motion of Knee. J. W. Seaward and R. K. Ghormley—p. 623

Minnesota vol. 13 October 5, 1938

Late Results in Treatment of Amoebic Abscess of Liver and Hepatitis. C. H. Hodgson and P. W. Brown—p. 628
 Effects of Chronic Passive Congestion on Liver, with Special Reference to Problem of Cardiac Catheter. F. W. Boland and I. A. Wilson—p. 627
 Ureteral Obstruction caused by Vesical Diverticulum. T. L. Schulte and J. T. Priestley—p. 630
 Tuberculosis of Mucous Membrane of Nose. Case Report. O. L. Halberg, H. Montgomery—p. 632
 Review of J. B. Murphy, *Stemmy Petrol of Surgery*. W. J. Mayo—p. 636
 Vascular Clinics: VI. Thrombosis of Arteries of Right Upper Extremity resulting from Anomalous First Rib. A. W. Adson and F. A. Allen—p. 637

Minnesota vol. 13 October 12, 1938

Oxygen Administration. Value of High Concentration of Oxygen for Therapy. W. M. Boothby—p. 641
 Oxygen for Therapy, and Apparatus. Apparatus for Administration of Oxygen or Oxygen and Helium by Inhalation. H. W. R. Lovelace—p. 646
 Design and Construction of Masks for Oxygen Inhalation Apparatus. A. H. Bulbulian; C. W. Mayo—p. 654

Minnesota vol. 13 October 19, 1938

Anesthetic Procedures at Mayo Clinic. V. For Operations on Extremities and for Anal, Rectal, and Perineal Operations. E. B. Tuohy—p. 657
 Use of Needles in Roentgen-ray Localization of Renal Calculi. W. Walters and C. G. Sutherland—p. 661
 Blood Reservoir Function and Rhythm of Spleen. Preliminary Report of Experimental Study. J. H. Griedley and J. F. Herrick; H. E. Foxey—p. 663
 Intestinal Intubation; I. Studies in Acute and Subacute Obstruction of Small Intestine. D. M. Wilson, J. T. Priestley—p. 666

Schweizerische Medizinische Wochenschrift

Basle vol. 68 October 8, 1938

Haemorrhagic Pleurisy in Infants. Fällens—p. 1133.
 Pathogenesis and Treatment of Rheumatism. C. Hafliger—p. 1134
 Gold Treatment of Chronic Articular Rheumatism. W. Tschopp—p. 1136
 Diagnosis of Adrenal Tuberculosis. L. Held—p. 1139.
 *Experimental Conveyance of Poliomyelitis to Oxen. E. Frauchiger and W. Hofmann—p. 1140.

Transmission of Poliomyelitis to the Ox.—Intranasal, intraperitoneal, and intraspinal injections of an emulsion of human brain and spinal cord from patients who had suffered from poliomyelitis led in oxen to transitory paresis of the limbs, altered gait, atrophy of certain muscle groups, and alterations in the cerebrospinal fluid. This is a preliminary report; the results of attempted retransmissions and of histological examinations of the central nervous system of the oxen affected are not yet available.

Science

New York vol. 88 September 16, 1938

Animal Experimentation in Biology and Medicine. A. J. Carlson—p. 245.
 Capsular Polysaccharide of Type XIV *Neisseria* and its Relationship to Specific Substances of Human Blood. C. L. Hoagland, P. B. Reeson, and W. F. Goebel—p. 261
 Ultra-violet Absorption Spectrum of Catalase. K. G. Stern and G. I. Lavin—p. 261
 Antenne Stability of Western Equine Encephalomyelitis Virus. C. L. Beck and R. W. G. Wyckoff—p. 264.

New York vol. 88 September 23, 1938

Changing Values of Science. R. C. Wallace—p. 265
 Terility and Intelligence of College Women. R. R. Willoughby—p. 281
 Survival of Plant Cells Immersed in Liquid Air. B. J. Luyet and G. Thoenes—p. 284
 Isolation and Oxidation of Ethyl Alcohol by Excised Diabetic Liver Tissue. B. B. Clark, R. W. Mottram, and J. F. Farelles—p. 285
 Vitamin E and Avian Neurolymphomatosis. R. K. Cole—p. 291
 Periods in Science of Competing Teams. L. V. Huntington—p. 287

New York vol. 88 September 30, 1938

Light Eyes and Glare Sensitivity. H. R. DeVries and P. Robinson—p. 299
 Recovery of Eastern Equine Encephalomyelitis Virus from Brain Tissue of Human Cases of Encephalitis in Massachusetts. L. T. Webster and J. Howell Wright—p. 305
 Production of Glucagon-like Substance (Protein) by Placental Cells in Tissue Culture. G. O. Gey, G. E. Seeger, and L. M. Hellman—p. 307

New York vol. 88 October 7, 1938

Practice of Medicine. R. Cole—p. 309
 Research Council on Problems of Alcohol—p. 329
 Influence of Adrenalectomy on Anterior Pituitary Secretion in Rats. J. A. Minko—p. 332
 Chemical Nature and Nomenclature of Citric Derivatives. A. DeM. Welch—p. 333
 Historical Determination of Vitamin B₁ (Thiamin) in *Rhizopus* *oryzae*. P. M. West and P. W. Wilson—p. 334

South African Medical Journal

Capetown vol. 12 October 8, 1938

Chemoprophylaxis of Malaria in Portuguese India. I. F. de Mello—p. 710.
 Wild Animals as Carriers of Infection. G. de Kock—p. 725

Capetown vol. 12 October 22, 1938

Sulphanilamide in Treatment of Meningococcal Meningitis. J. A. Bell—p. 745.
 Modern Therapeutics. Wheat and Chaff. C. H. Coetzee—p. 748
 National Health Insurance. J. C. Gie—p. 753
 *Influenza as Factor in Heart Disease. E. E. Wood—p. 759
 Case of Cysticercosis of Bone. A. Segal—p. 762
 Case of Severe Toxaemia of Pregnancy. I. Hendler—p. 763.
 Idiocyrtosis to Ichthyol. H. G. Horro—p. 763.
 Case of Syphilis of Bone. S. Behr—p. 764

Influenza and Heart Disease.—After an influenzal attack the bundle of His may be affected with resultant partial heart-block, which may last for a long time if not treated. Influenza does not affect the valves of the heart, and has little action on the healthy myocardium, but it may produce a serious increase in a pre-existing myocarditis. Influenza is probably of more importance in causing or increasing heart disease than has hitherto been realized.

Ugeskrift for Laeger

Copenhagen vol. 100 October 6, 1938

Ictany and Parathyroid Insufficiency. H. Nielsen—p. 1127
 *Investigations of Nicotinic Acid Consumption in Two Patients with Idiopathic Steatorrhea (Sprue). J. Bink and B. Brogger—p. 1131
 *Treatment of Pellagra with Nicotinic Acid: Survey and Case Report. O. Bernth and G. K. Störup—p. 1137
 *Case of Pellagra treated with Nicotinic Acid. J. Ravn—p. 1140

Nicotinic Acid.—These three papers give laudatory accounts of the therapeutic value of nicotinic acid in certain well-defined conditions.

Wiener Klinische Wochenschrift

Vienna vol. 51 October 7, 1938

Diagnosis and Treatment of Pituitary Diseases. R. Fleckseder—p. 1093
 Clinical Course and Pathological Anatomy of Spontaneous Choroiditis. A. Fleischer—p. 1096
 Treatment of Inflammatory Diseases of Biliary Passages. F. Karda—p. 1099.
 Diagnostic Importance of Blood Sedimentation Test in Lymphogranuloma Inguinale (Paradenitis Venerea). W. Schmidt—p. 1100
 Anorexia in Childhood. G. Zederbauer—p. 1101.
 Schatz's "Merranoider." E. Leinzinger—p. 1104.
 Heredity and Personality. H. Möschl—p. 1107.

SPECIAL JOURNALS

Acta Paediatrica

Uppsala vol. 23 October 15, 1938

- *Comparison of Organic Acids and Sulphanilamide as Urinary Antiseptics (Eng.). H. Helmholz.—p. 1.
On White Blood Picture during First Year of Life, especially with regard to its Course (Eng.). J. Magnusson.—p. 14.
Investigations of Vitamin C Standard in Healthy Children and in Children suffering from Gingivitis (Eng.). C. Herlitz.—p. 43.
Neuroblastoma of Left Adrenal with Intrathoracic Metastases (Ger.). J. Reurink.—p. 78.
Specialist of Children's Diseases and Educational Problems (Ger.). B. Leichtenritt.—p. 93.
Experimental Studies on Conditioned Salivary Reflexes in Children (Eng.). C. Bernhard.—p. 118.
Undesirable Tuberculin Reactions (Eng.). H. Behrendt.—p. 129.

Urinary Antiseptics.—Mandelic acid acts only in acid urine; sulphanilamide acts best in an alkaline urine. The former is the drug of choice in infections due to *Streptococcus faecalis*. The latter, because of the ease of administration, is the best drug in the average case. It is the drug of choice in acute infections, in *proteus* infections, and in patients with reduced renal function. Helmholz points out that organic acids and sulphanilamide supplement each other according to the types of organisms producing the urinary infection.

American Journal of Anatomy

Philadelphia vol. 63 July 15, 1938

- Epiphyseal Union Pattern of Ungulates, with Note on Sirenia. T. W. Todd and A. W. Todd.—p. 1.
*Effect of Thyroid Deficiency upon Bodily Growth and Skeletal Maturation in Sheep. T. W. Todd, R. E. Wharton, and A. W. Todd.—p. 37.
Development and Atresia of Graafian Follicle and Division of Intra-ovarian Ova in Guinea-pig. M. T. Harman and H. D. Kirgis.—p. 79.
Intra-ocular Homotransplantation of Prepubertal Testes in Rat. C. D. Turner.—p. 101.

Thyroid Deficiency in Sheep.—This study is based upon the skulls and/or skeletons of five pairs of twin sheep, one of each pair being thyroidectomized in early life. There were also five other sheep of which there were no normal twins. These were compared with normal skeletons in the Hamann and Hunterian Museums. The effect of hypothyroidism is not evident until the animal is 3 months old, when there occurs a diminution in the gain of weight. There is inhibition in the velocity of growth without prolongation of the growth period. Obvious pathological changes are not evident in the diaphyso-epithelial plane until the animal is 2 years old. The disturbance in the growth of the skull affects chiefly the region of the premaxilla and maxilla. Eruption of the permanent teeth is delayed, and the normal sequence of eruption is disturbed.

American Journal of the Medical Sciences

Philadelphia vol. 195 September, 1938

- Late Results in Treatment of Amoebic Abscess and Hepatitis of Liver. P. W. Brown and C. H. Hodgson.—p. 305.
*Haematopoietic Principle in Diseased Human Liver. L. Schiff, M. L. Rich, and S. D. Simon.—p. 313.
Consideration of Phenomenon of Purpura following Scarlet Fever. M. J. Fox and N. Enzer.—p. 321.
Chronic Leukemia: Study of Incidence and Factors influencing Duration of Life. B. S. Leavell.—p. 329.
Failure of Electromagnetically Induced Heat to increase Renal Efficiency. E. Platt, P. J. Fouts, and I. H. Pace.—p. 340.
Chemotherapy of Types VII and III Pneumococcal Infections with Sulphanilamide 4,4'-di-(acetyl-amino)-diphenylsulphone, and 4,4'-diamino-benzene-sulphanilamide. F. B. Cooper, P. Gross, and M. Lewis.—p. 343.
Studies on Liver Function in Pneumococcal Pneumonia. T. J. Curphey and S. Solomon.—p. 348.
*Note on Rapid Desensitization in Case of Hypersensitiveness to Insulin. A. C. Cutler.—p. 359.
Semen Analyses of Two Hundred Fertile Men. R. S. Horschkiss, E. K. Brunner, and P. Grenley.—p. 362.
Vitamin C in Spinal Fluid. H. Worts, J. Liebmann, and S. B. Worts.—p. 384.

- Note on Lack of Correlation of Capillary Fragility with Vitamin C Content of Blood, Spinal Fluid, and Urine. J. Liebmann, H. Worts, and E. Worts.—p. 388.
Note on Lack of Haemo-regulatory Effect of Ascorbic Acid on Patients with Polycythaemia Vera. E. V. Kandel and G. V. LeRoy.—p. 392.
Relief of Anginal Pain following Removal of Intrathoracic Non-toxic Nodular Goitre. J. Edeiken and E. Rose.—p. 395.
Isolated Calcified Aortic Stenosis. W. F. Friedewald and A. R. Ewing.—p. 400.
Varieties of Single Coronary Artery in Man occurring as Isolated Cardiac Anomalies. F. B. Krumhaar and W. E. Ehrlich.—p. 407.
Anaemia of Alcohol Addicts. Observations as to Role of Liver Disease, Achlorhydria, Nutritional Factors, and Alcohol in its Production. A. Bianco and N. Jolliffe.—p. 414.
Convulsive (Pentamethylenetetraval) Shock Therapy in Depressive Psychoses. A. E. Bennett.—p. 420.

Haematopoietic Principle in Diseased Human Liver.—Extracts were prepared post mortem from five human livers of cases with chronic liver disease. They were shown to contain the haematopoietic principle by injection into a suitably controlled group of patients suffering from pernicious anaemia in relapse. Although three extracts were prepared from the livers of patients with cirrhosis who had suffered from macrocytic anaemia, they produced characteristic reticulocytosis, increase in haemoglobin and red cell count, and marked clinical improvement. This suggests that the macrocytic anaemia associated with liver disease is not caused by a failure of the liver to store the specific anti-anaemic substances.

Rapid Desensitization in Insulin Hypersensitivity.—The patient was proved to be allergic even to pure crystalline insulin, which caused urticaria and a local wheal upon intracutaneous injection. By means of small, slowly increasing doses at short intervals desensitization was accomplished within fifteen hours and the reactions to intracutaneous tests became completely negative after twenty-four hours.

American Journal of Ophthalmology

St. Louis vol. 21 September, 1938

- Biological Frontal Flaps in Ophthalmology. J. F. S. Esser.—p. 963.
Effects of Oxygen Deprivation on Visual Field. J. N. Evans and R. A. McFarland.—p. 968.
Orthoptic Training for Aviators. A. H. Schwichtenberg.—p. 980.
Inflammatory Pseudotumour of Orbit. P. M. Lewis.—p. 991.
Chloroma. A. D. Frost.—p. 997.
Mechanics of Cataract Operations. E. Jackson.—p. 1011.
Beal's Conjunctivitis. P. Thygeson.—p. 1017.
*Paredrine in Cycloplegia. J. S. Tassman.—p. 1019.
Visual-testing Methods in Schools. J. B. Hitz.—p. 1024.
Extrusion of Foreign Body: Visual Recovery. H. W. Woodruff.—p. 1028.
Maculo-cerebral Degeneration. D. Nathan.—p. 1029.

Paredrine.—Paredrine, a sympathomimetic, used three minutes after one drop of 1 per cent. atropine produced maximal cycloplegia in children up to the age of 16 in sixty minutes; recovery occurred in three days. In older patients homatropine instead of atropine was used. There was no irritation or rise of intra-ocular tension.

St. Louis vol. 21 October, 1938

- Nature of Ocular Fluids. H. K. Meyer, E. M. Smyth, and L. Gallardo.—p. 1083.
Effect of Dinitrophenol on Lactose Cataracts. W. E. Borley and M. L. Tainter.—p. 1091.
Glaucoma. O. Barkan.—p. 1099.
*Kayser-Fleischer Ring: Wilson's Disease. L. J. Goldbach.—p. 1118.
Lectures on Motor Anomalies. H. A. Bielschowsky.—p. 1129.
Studies on Inclusion Blepharitis. H. L. A. Juhannelle, R. W. Harrison, and A. C. Lange.—p. 1137.
Routine in Eye Examinations. T. D. Allen.—p. 1147.
Epidemic Superficial Punctate Keratitis. L. C. Hobson.—p. 1153.
Primary Epibulbar Epithelioma. G. W. Binkley and M. P. Motto.—p. 1156.
Treatment of Chronic Dacryocystitis. P. Southgate.—p. 1158.

Kayser-Fleischer Ring.—Three cases are described. Two, in a brother and sister, had a definite greenish-yellow pigmented ring 2.5 mm. in width just within the corneal scleral margin. The history of the stages in the recognition

of the disease are traced back to 1858, and the many diverse theories of causation are fully enumerated. Most of the recorded cases have occurred in Germany.

American Journal of Pathology

Boston vol. 44 September, 1938

- Malignant Giant-cell Tumour of Bone I. W. Stewart, B. L. Coley, and J. H. Farrow—p. 515.
Blood Plasma Proteins as Influenced by Liver Injury Induced by Carbon Tetrachloride and Gum Acacia C. C. Luckson, G. P. Becker, and R. L. Knuth—p. 537.
Comparative Morphological Study of Mammary Gland in High and Low Tumour Strain of Mice I. Jekete—p. 577.
Studies on Infectious Agent of Inclusion Pneumonia I. A. Jolietto, R. W. Harrison, and A. C. Lange—p. 579.
Phagocytic Activity of Human Leucocytes, with Special Reference to their Type and Maturity A. J. Hertzog—p. 595.
Lymph Node Metastasis of Sarcoma S. Watten and R. W. Meyer—p. 605.
Primary Liposarcoma of Bone J. Duffy and I. W. Stewart—p. 621.

Lymph Node Metastasis of Sarcoma.—The proportion of cases in which sarcoma metastasizes in lymph nodes is very variously stated, but is usually believed to be small. Of 237 cases observed by the authors, a series from which lymphosarcoma and certain other growths were excluded, seventeen (7 per cent.) were proved to have metastases in lymph nodes. The dissection of neighbouring lymph nodes during operation for the radical removal of a sarcoma is said to improve the prognosis.

American Journal of Physiology

Baltimore vol. 123 September, 1938

- Effects of Intra-arterial Epinephrine on Blood Flow in an Intestine N. W. Revue—p. 543.
Acid-base Balance of Blood Serum in Hyperthermia W. H. Davenport, R. M. Sieber, L. Munster, and V. C. Myers—p. 550.
Sustained Hyperphosphatemia of Dietetic Origin in Dog I. V. Dink, W. C. Cowin, and J. L. Bolman—p. 555.
Observations on Creatinine and Urea Clearances, on Responses to Water Intention, and on Concentrating Power of Kidneys in Normal, Diabetic Insipidus, and Hypophosphatized Dogs H. L. White and P. Henneberger—p. 566.
Influence of Thyroid Gland on Absorption in Digestive Tract I. L. Aghajanian and M. Stuckholm—p. 577.
Effect of Pregnancy and Lactation on Growth in Rat H. B. Cole and G. H. Hart—p. 589.
Removal of Foreign Substances by Lymphatics of Snake Lung L. A. Gillilan and R. E. Conklin—p. 595.
Effects in Man and Dogs of Massive Doses of Insulin on Composition of Blood Serum A. Keys—p. 608.
Proliferation of Crohn's Epithelium in Intestine and in Prostatic-Injected Prostate Studied with Colchicine Method E. L. Jahr and O. Riddle—p. 614.
Work Performance of Hypophosphatized Rats treated with Anterior Pituitary Extracts D. J. Ingle, H. D. Moon, and H. M. Evans—p. 620.
Relation of Insulin and Adrenaline to Uric Acid Excretion in Rabbit S. P. Miller and A. C. Kupper—p. 625.
Renal Function in Opossum and Mechanism of Cortico-adrenal and Post-urinary Action H. Silvette and S. W. Britton—p. 640.
Aluminium in Nutrition of Rat E. Hove, C. A. Elvehjem, and I. B. Hart—p. 640.
Influence of Vascular Factors on Mean Pressure, Pulse Pressure, and Phase of Peripheral Flow C. J. Wiggers—p. 644.
Study of Circulatory Failure of Adrenal Insufficiency and Analogous Shock-like Conditions W. W. Swingle, W. M. Parkins, A. R. Taylor, and H. W. Hays—p. 659.
Effect of Adrenal Corticoid Hormone upon Circulatory Collapse of Adrenaline Shock W. M. Parkins, W. W. Swingle, A. R. Taylor, and H. W. Hays—p. 668.
Effects of Chemical Stimulation of Carotid Body upon Reflex Contraction of Tibialis Anticus Muscle W. Kaufman—p. 677.
Central Effects of Sodium Sulphide upon Reflex Contraction of Tibialis Anticus Muscle W. Kaufman—p. 687.
Vitamin A Reserve of Fur-bearing Animals A. D. Holmes, F. Tripp, and G. H. Satterfield—p. 693.
Blood Chemical and Other Conditions in Normal and Adrenalectomized Sloths S. W. Britton, R. F. Kline, and H. Silvette—p. 701.
Adrenal Insufficiency in American Monkeys S. W. Britton, H. Silvette, and R. F. Kline—p. 705.
Normal Antithrombin of Blood and its Relation to Heparin A. J. Quick—p. 712.
Renal Clearances of Iopax, Neotopax, and Skiodan in Man W. W. Smith and H. A. Ranges—p. 720.
Effect of Bilateral Ligation of Lumbo-adrenal Veins on Course of Pancreas Diabetes H. E. Himwich, J. F. Fazekas, and S. J. Martin—p. 725.
Experiment in Human Dietary Night Blindness G. Wald, H. Jeghers, and J. Arminio—p. 732.
Diffusion of Glucose and Sucrose from Cerebrospinal Fluid A. O. Bernstein, M. I. Greersen, and Mr. Kammer—p. 747.

- Influence of Calcium and Potassium Salts on Uterine Contractions in Normal and Adrenalectomized Rabbits S. B. Ruess and E. W. Blanchard—p. 742.
Experimental Evidence supporting Conception of "Adaptation Energy" H. Selye—p. 755.
Respiratory Effects from Application of Cocaine, Naloxone, and Lobeline to Floor of Fourth Ventricle H. C. Nicholson and S. Sobin—p. 766.

Massive Doses of Insulin.—In the treatment of schizophrenia by insulin shock therapy there is a moderate increase in the concentration of the serum proteins and a marked decrease in the concentration of potassium; the latter is ascribed to hyperactivity of the adrenal glands provoked by the hypoglycaemia.

Renal Clearances of Organic Iodine Compounds.—Organic iodine compounds are excreted in part by the renal tubules and the clearances are depressed as the plasma concentration is elevated. All these substances depress the phenol-red clearance. They are apparently excreted by the same common cellular mechanism and thus enter into quantitative competition for that mechanism.

Human Dietary Night Blindness.—The subject was markedly hemeralopic due to vitamin A deficiency. Following temporary cure with a single dose of vitamin A, hemeralopia reappeared with greatly increased rapidity, presumably due to depletion of vitamin A reserves during the initial deficiency. The development of hemeralopia was repeatedly checked temporarily by the oral administration of vitamin A or carotene. The behaviour of the cones parallels that of the rods. Vitamin A appears to be the precursor of cone visual pigments as well as of the rhodopsin of the rods. The night blindness was cured by giving milk, butter, fresh fruits, vegetables, and vitamin A, and the subject then possessed perfectly normal visual adaptation and was otherwise in good health.

American Journal of Roentgenology and Radium Therapy

Springfield Ill. vol. 40 October, 1938

- Seventeen Years' Experience in Radiation Therapy of Cancer Zurich 1919-35 H. R. Schinz—p. 485.
Principles Governing Roentgen and Radium Therapy H. Huthuisen—p. 497.
Temperature Coefficient of Effect of Radiation on Proteins and its Relation to Injury of Living Cells J. H. Clark—p. 501.
Cancer of Larynx H. Coustard—p. 509.
Radiation Therapy of Chronic Mastitis H. C. Taylor, jun. and R. L. Brown—p. 517.
Osteoradionecrosis in Intra-oral Cancer W. L. Watson and J. E. Scarborough—p. 524.
Radium Therapy in Primary Carcinoma of Uterus I. I. Kaplan—p. 535.
Roentgenological Localization of Tumours affecting Spinal Cord J. D. Camp—p. 540.
Accidental Extra-cranial Pneumothorax Roentgenographic Appearance W. R. Oschsh—p. 545.
Tumours of Hypophysis Cerebri from Roentgenographic Viewpoint C. W. Schwartz—p. 545.
Enlarged Parietal Fissures J. I. Fraxer and L. C. Wormley—p. 571.
Enphysemas or Separation of Capital Epiphysis of Femur in Adolescence M. M. Fennert—p. 580.
Significance of Lateral View of Rectum S. A. Robins and W. S. Altman—p. 593.
Subarachnoid Alcohol Injection for Relief of Brachial Neuritis H. C. Saltzman and F. Schreiber—p. 609.
Note on Reduction of Backscatter from Roentgen Beams B. Cassen and K. L. Corraan—p. 605.
Photo-electric Dosimeter J. E. Moran and R. J. Reeves—p. 610.
Traumatic Malacia of Tarsals and Metatarsals C. W. Brainard and W. O. Upson—p. 616.

Chronic Mastitis.—Twenty-two cases of chronic mastitis treated by direct irradiation of the breast are reported; improvement was noted in about two-thirds. Eighteen cases of chronic mastitis treated by irradiation of the ovaries are also recorded, with improvement in seventeen. The indications and contraindications for these methods are discussed.

Annals of Surgery

New York vol. 108 September, 1938

- Gelatinous Mammary Cancer C. F. Geschickter—p. 321.
Differential Diagnosis of Hyperparathyroidism J. H. Garlock—p. 347.
Treatment of Post-operative Tetany with Dihydroxyacetone O. C. Pickhardt and A. Bernhardt—p. 362.
Congenital Diaphragmatic Hernia E. J. Donovan—p. 374.
Direct Inguinal Hernia C. R. Robins—p. 389.

- Madelung's Deformity. J. I. Anton, G. B. Reitz, and M. B. Spiegel.—p. 411.
Intracapsular Fractures of Neck of Femur. P. A. Wade.—p. 440.
Parathyroid Tumour. A. S. McQuillan.—p. 464.
Treatment of Actinomycosis with Thymol. F. W. Bancroft and M. Stanley-Brown.—p. 468.
Reversed Colles's Fracture. L. E. Snodgrass.—p. 472.
Edward Martin: Memoir. E. L. Eliason.—p. 476.

Archives of Ophthalmology

Chicago vol. 20 October, 1938

- Physiological and Clinical Ophthalmological Problems in Relation to Individual Variability (*to be continued*). A. Brückner.—p. 541.
Nature of Filterable Agent of Trachoma. P. Thygeson and P. Richards.—p. 569.
Evaluation of Holatropine-benzedrine Cycloplegia. H. F. Sudranski.—p. 585.
Cataract Operation to reduce Incidence of Prolapse of Iris. F. C. Parker.—p. 597.
Induced Size Effect: I. New Phenomenon in Binocular Space Perception associated with Relative Sizes of Images of Two Eyes. K. N. Ogle.—p. 604.
Experimental Iontophoresis of Rabbits' Corneas: Two Cases of Corneal Dystrophy with Treatment by Ionic Medication. S. G. Szegeh and W. LeG. Cooper.—p. 624.
Inferior Iridotomy in Operations for Cataract on Eyes with Posterior Synchiae or Pupillary Membrane: Value of Operation. P. A. Chandler.—p. 641.
Results of Autotransplantation of Cornea into Anterior Chamber: Their Significance regarding Corneal Nutrition. T. Gundersen.—p. 645.
Intern's Experiences with Verhoeff Method of Cataract Extraction. P. H. Case.—p. 651.
Cobalt-blue Filter for Observation of Fit of Contact Lenses. T. E. O'Brien.—p. 657.
Blepharitis Comb. J. W. Smith.—p. 658.

Verhoeff Cataract Extraction.—In this intracapsular method of extraction, where two corneo-scleral sutures are inserted and each pillar of the iridectomy is torn from its root for 2 mm., the lens is grasped just below the equator at 12 o'clock and gentle traction exerted. There was a prolapse of the vitreous in 8.75 per cent, and rupture of the capsule in 10.3 per cent, of cases.

Australian Journal of Experimental Biology and
Medical Science

Adelaide vol. 16 September, 1938

- Use of Glass Electrode in Biological Laboratory. H. F. Holden.—p. 193.
Myxoma and Shope Fibroma: V. Myxoma in Fibroma-immune Rabbit, with Summary of Present Knowledge of Relationship between Myxoma and Fibroma Viruses. E. W. Hurst.—p. 205.
Micro-analysis of Gases, with Description of New Apparatus for Use in Dry Method of Analysis for Carbon Dioxide and Oxygen. D. Gilmore.—p. 209.
Tissue Culture of Rickettsia of Q Fever. F. M. Burnet.—p. 219.
Experiments on Problem of "Free" and "Bound" Histamine and Acetylcholine. E. R. Trethewie.—p. 225.
Infection of Central Nervous System by Louping-ill Virus: Investigation by Quantitative Egg Membrane Technique. F. M. Burnet and D. Lush.—p. 233.
Polynuclear Count in Australian Aborigine. B. Macraith.—p. 241.
Susceptibility of Dog to Q Fever. E. H. Derrick, D. W. Johnson, D. J. W. Smith, and H. E. Brown.—p. 245.
Liberation of Histamine by Staphylococcal Toxin and Mercuric Chloride. W. Feldberg and C. H. Kellaway.—p. 249.
Influenza Virus on the Developing Egg: VIII. Comparison of Two Antigenically Dissimilar Strains of Human Influenza Virus after Full Adaptation to Egg Membrane.—p. 261.

Polynuclear Count.—There is a marked shift to the left compared with the mean of whites living in England or in Melbourne. This has been observed before both in natives and in white people living in hot climates.

Biochemical Journal

London vol. 32 August, 1938

- Activation of Female Sex Hormones: III. Mono-esters of α -oestradiol. K. Miescher, C. Scholz, and E. Tschopp.—p. 1273.
Acid-soluble Pigment of Human Hair. L. E. Arnow.—p. 1281.
Effect of Body Stores on Efficiency of Calcium Utilization. K. V. Rottensten.—p. 1285.
Determination of Calcium in Rat Urine. R. Truszkowski, J. Blauth-Opieńska, Z. Dobrowolska, and J. Iwanowska.—p. 1293.
Investigations into Method of Estimating Vitamin E: II. Further Observations on Vitamin E Deficiency and Implantation. A. L. Bacharach and L. Alchorne.—p. 1298.
Physiological Properties of Ascorbic Acid. I. Effect upon Weights of Guinea-pigs. E. W. McHenry, E. J. Reedman, and M. Sheppard.—p. 1302.

- Isomerization of Carotenoids. L. Zechmeister and P. Tuzson.—p. 1305.
Colorimetric Determination of Substances containing Grouping $-\text{CH}_2-\text{CO}-$ in Urine Extracts as Indication of Androgen Content. N. H. Callow, R. K. Callow, and C. W. Emmens.—p. 1312.
Effects of Pancreatic Extracts on Fat Deposition in Dietary Fatty Liver. H. J. Channon, J. V. Loach, and G. R. Tristram.—p. 1332.
Effect of Cholesterol Feeding on Lipoid Deposition in Liver of Rats. P. A. Loizides.—p. 1345.
Investigations on Nature of Haemopoietin, the Anti-anaemic Principle in Hog's Stomach: IV. Biochemical Method of Lasch for Quantitative Determination of "Intrinsic Factor" in Gastric Juice. T. S. G. Jones and J. F. Wilkinson.—p. 1352.
Further Observations on System Ascorbic Acid—Glutathione—Ascorbic Acid—Oxidase. E. M. Crook and F. G. Hopkins.—p. 1356.
Alcohol Dehydrogenase of Animal Tissues. C. Lutwak-Mann.—p. 1364.
Molecular Weight of Crotoxin. N. Gralen and T. Svedberg.—p. 1375.
The $l(+)$ -glutamic Dehydrogenase of Animal Tissues. J. G. Dewar.—p. 1378.
Purification of Uricase. J. N. Davidson.—p. 1386.
Glycolysis of Triose Derivatives by Extracts of Tumour and of Muscle. G. H. Hitchings, R. H. Oster, and W. T. Salter.—p. 1389.

Ascorbic Acid and Body Weight.—Guinea-pigs fed for twenty-one days on a scorbutic diet plus ascorbic acid were significantly heavier than others of the same initial weight receiving only the basal diet, even when the food intake of the two groups of animals was the same. Since the difference was not due to lower food intake associated with loss of appetite, it might be accounted for by alterations in metabolism, water balance, and food absorption caused by lack of ascorbic acid.

Deutsches Archiv für Klinische Medizin

Berlin vol. 182 August, 1938

- Experimental and Clinical Investigations with New Insulins. F. Strieck.—p. 373.
Treatment of Diabetes with "Depot Insulin Brunnengraeber." R. Schlamm.—p. 402.
Treatment of Diabetes with Protamine-insulin. G. Stettner.—p. 413.
Diagnostic Value of Chest Wall Leads in Clinical Electrocardiography. F. Grant.—p. 440.
Observations on Louping-ill in Human Beings. K. Wesemeler.—p. 451.
Contribution to Method of Estimation of Volume of Single Red Blood Cells. E. Probst.—p. 455.
Clinical Judgment of Bone Marrow and Blood Picture: IV. Bone Marrow and Blood Picture in Chronic Occupational Benzol Poisoning. R. Stodmeister.—p. 459.

Electrocardiography.—Grant examined electrocardiographically with a chest wall lead 600 patients; the electrode was near the heart, being placed in the fourth left intercostal space in the mid-clavicular line. Among these patients were twenty cases of infarction of the heart and 180 with other cardiomyopathies. On the results of the findings, which were controlled clinically and by post-mortem examination, this additional method is recommended.

Journal of American Chemical Society

Easton, Pa. vol. 60 September, 1938

- Structure of Insulin Molecule. D. M. Wrinch and I. Langmuir.—p. 2247.
Synthesis of 2 and 6-substituted Derivatives of 20-Methylcholestanrene (Derivatives of Carcinogenic Hydrocarbons). L. F. Fieser and V. Desreux.—p. 2255.

Journal of Infectious Diseases

Chicago vol. 63 September-October, 1938

- Small-colony Variation in *Bact. paratyphosum* B (Tidy) and Other Bacteria, with Special Reference to G Type of Hadley.—p. 129.
Demonstration of Plasma-anticoagulant in Exudates of Bacterial Origin. E. Neier.—p. 193.
Studies in Metabolism of *Coccidioides immitis* (Stiles). R. A. Stewart and K. F. Meyer.—p. 196.
Response of Specifically Immunized Mice to Re-inoculation with Virus of St. Louis Encephalitis, with Special Attention to Development of Myelitic Symptoms. E. A. Cook.—p. 206.
Effect of Splenectomy and Blockade on Protective Titer of Antisera against *Trypanosoma equiperdum*. L. R. Kuhn.—p. 217.

Bacterial Colony Variation.—A strain of *Bact. paratyphosum* B gave rise to dwarf-colonized variants resembling the G type of *Bact. dysenteriae* Shiga described by Hadley and others. These colonies were composed of coecal elements, which passed Berkefeld filters, were more thermoresistant than the normal form, and were entirely insusceptible to bacteriophage. Reversion to the normal form was not

observed. The description of these findings is followed by a long review of previous observations on bacterial variation of this kind and a discussion of its possible implications.

Journal of Pediatrics

St. Louis vol. 13 October, 1938

- Tonic Neck Reflex in Human Infant. A. Gessell—p. 455
Use of Honey as Carbohydrate in Infant Feeding. J. W. Schmitz and F. M. Kneiss—p. 465
Statistical Studies on Prematurity: I. Incidence of Prematurity and Effect of Certain Obstetric Factors; II. Mortality of Prematurity and Effect of Certain Obstetric Factors. C. H. Peckham—p. 474
Influence of Metabolism on Teeth. J. O. McCall and F. Krasnow—p. 490
New Tuberculin Patch Test. W. D. Steward—p. 510
Borphenometer as Test for Vitamin A Deficiency. C. I. Snellberg—p. 504
Relation of Intestinal Bleeding to Histologic Gastric Mucosa and Ulceration in Meckel's Diverticulum. A. L. Abrams—p. 513
Nervous System in Acrodynia. A. J. Lubin and H. K. Haber—p. 515
Sulphanilamide in Treatment of Gonorrheal Ophthalmia in Children. M. W. Michel—p. 527
Rupture of Liver in Newborn Infant. H. B. Silver—p. 542
Congenital Absence of Teeth. J. L. Stein and A. Gether—p. 547
Methyl Salicylate Poisoning in Infant. A. Lamas—p. 550

Tuberculin Patch Test.—This test was found to be as reliable as the Mantoux test and painless. For this reason it is to be preferred for children; no instruments are needed. There are no severe local or constitutional reactions, nor is there any chance of infection.

Journal de Physiologie et de Pathologie Générale

Paris vol. 36 September, 1938

- Effect of Local Anaesthetics on Chronaxie and Resistance of Isolated Nerves. J. Renier and A. Quevauxville—p. 629
Determination of Euglobulin and Pseudoglobulin in Normal and Pathological Human Serum. C. Hecht—p. 652
"Residual" "Chromic Index" in Plasma of Diabetic. M. R. Dandurand—p. 669
Effect of Removal of Mammary Glands on Blood Sugar and on Liver and Muscle Glycogen in Lactating Guinea-pig. M. Cahare—p. 679
Effect of Adrenaline in Large and Small Doses on Anaesthetized Animal (Amphomimetism). Dan elopoli and J. Marcon—p. 681
Passage Into Nervous System of Urea Injected into Blood. M. Riser, P. Valadier, and J. Guiraud—p. 694

Residual "Chromic Index" in Diabetes.—In addition to glucose, normal deproteinized plasma contains substances which are destroyed by potassium dichromate in acid solution. The "residual" index, which is arrived at after allowing for the destruction due to glucose oxidation, is increased in simple diabetes and more extensively in consumptive diabetes, the increase being proportional to the severity of the symptoms. Insulin therapy abolishes this increase, and it is suggested that accumulation of these unknown substances is due to the failure of normal steps in carbohydrate metabolism.

Passage of Urea into Nervous System.—A rapid rise in blood, brain, and muscle urea occurred in dogs under chloralose anaesthesia receiving 2 to 3 grammes per kilogramme of body weight of urea intravenously. The maximum rise was reached in fifteen minutes, except in the cerebrospinal fluid, in which this only occurred in two to two and a half hours, though after this the urea concentration in the cerebrospinal fluid paralleled the blood-urea concentration; the same lag occurred if the ureters were tied. It is not considered to represent any special property of the meningeal membranes but to be due to the smallness of the available interchange surfaces.

Journal of Urology

Baltimore vol. 40 September, 1938

- Primary Sympathoblastoma of Left Adrenal with Extension into and Obstruction of Pelvic Cavity of Adjacent Kidney. S. L. Krohn and W. J. Kennedy—p. 359
Experimental Hydronephrosis in Dogs: I. Composition of Blood Serum. L. Eichelberger, with Technical Assistance of M. Roma—p. 366
Bilateral Torsion of Ureter. J. Victor Berry—p. 378
Uretero-vaginal Fistula Successfully Repaired by Combined Vaginal and Trans-urethral Operation. H. V. Findlay—p. 384
Endometriosis of Bladder. P. S. Adams—p. 390
Myositis Ossificans following Suprapubic Prostatectomy. J. Schwartz—p. 397
Thrombophlebitis of Periprostatic Plexus. A. Hyman and H. Leiter—p. 403

- *Multiple Primary Cancers. H. L. Kretschmer—p. 421
Diabetes in Surgical Urology. J. Duff and F. W. Williams—p. 446
Practical Cystometer. O. W. Davidson—p. 452
Better Medical Writing: Some Typical Errors and How to Avoid Them. R. M. Hewitt—p. 454
Gangrene of Glans Penis and Urethra in Diabetic. T. M. Townsend and W. M. H. Ez—p. 464

Multiple Primary Cancers.—A detailed description is given of five personal cases of multiple malignant neoplasms with special reference to those of urogenital origin. In three instances there were found independent growths arising in two different organs of the genito-urinary system; in one instance there was a growth of the prostate together with an epithelioma of the ear; and the fifth patient manifested three concomitant carcinomata originating respectively in the bladder, the prostate, and the colon. These comparatively rare cases are discussed, and also certain clinical fallacies in their diagnosis. A bibliography is appended.

Monatsschrift für Kinderheilkunde

Berlin Bd. 76 October 22, 1938 Heft 1 and 2

- Human Immunity to Tuberculosis. H. Vogt—p. 1
Appendicitis in Childhood. F. Wenzler and J. Müller—p. 11
Blood Transfusion and Rickets. J. Wolff—p. 30
Thoracic Anomalies. E. Hofmann—p. 40
Arterial Hypertension in Infancy. S. Blazsó and J. Kramár—p. 51
Aetiology of Mononucleosis. W. Tobler—p. 62
Nucleosis Erythraemia. A. Sakamoto and K. Yukune—p. 72
Development of Premature Infants. W. Schöberlein—p. 80
Scarlet Fever. F. S. Bornmann—p. 107
Dietetic Disturbances in Infants. H. Vogt—p. 114

Premature Infants.—Schöberlein examined ninety-six children who had been born prematurely. They were between the ages of 6 and 18. At the end of the second year of life 73 per cent. were able to walk and 48 per cent. were able to talk; 42 per cent. were described as nervous; 63 per cent. as being less able to concentrate than normal children; 55 per cent. as more easily fatigued. Of the boys 25 per cent. had undeveloped testes, 16 per cent. of the children were above normal intelligence, 25 per cent. below it. The author believes that the number of premature infants must be reduced by better ante-natal care and improvement in social conditions in order to reduce the high mortality (in his series 47 per cent.).

Practitioner

London vol. 141 November, 1938

- Parache. W. M. Morrison—p. 577
Affections of External Ear. G. Scott—p. 586
Chronic Running Ear in Childhood. J. Crooks—p. 594
Intra-aural Complications of Ear Disease. J. P. Stewart—p. 603
Deaf Child. P. Franklin—p. 613
Recent Advances in Hearing Aids. P. M. T. Kerridge—p. 625
Treatment by Manipulation. A. J. Burrows and W. D. Collart—p. 633
Pulp Infections of Fingers. A. L. d'Abreu—p. 648
Clinical Application of Renal Efficiency Tests. J. V. Wilson—p. 653
Collection of Pathological Specimens. A. Renshaw—p. 665
Diet in Health and Disease. XVII. Diet in Diabetes Mellitus. T. I. Bennett—p. 677

Radiology

St. Paul vol. 31 October, 1938

- Röntgen Kymography as Diagnostic Aid. P. Stumpf—p. 391
Roentgenological Diagnosis of Tumours Involving Sacrum. J. D. Camp—p. 398
Lead Radon Tubules in Treatment of Carcinoma of Tongue. F. E. Simpson—p. 404
Roentzenography of Second Cervical Vertebra by Ottomelli's Method. L. G. Jacobs—p. 412
*Sensitization to X-radiation by Direct Electric Current. J. R. Carty—p. 414
Roentzenographic Demonstration of Pulmonary Veins. B. S. Epstein—p. 416
Emphysematous Cholecystitis and Pericholecystitis. E. A. Schmidt—p. 423
Effects of Roentgen Rays on Activation and Production of Enzyme Tyrosinase in Insect Egg (Orthoptera). O. M. Ray—p. 428
*Variations in Position of Normal Cecum. L. J. Friedman and C. Stein—p. 438
Oesophagus Growth and Development. E. C. Vogt and V. S. Vickers—p. 441
Coarctation of Aorta: Three Cases with Necropsy Findings in One. T. B. Weinberg and C. Gartenlaub—p. 445
Effect of Radiation Applied Directly to Brain and Spinal Cord. I. Experimental Investigations on *Macaca rhesus* Monkeys. L. M. Davidoff, C. G. Dyke, C. A. J. Berg, and I. T. Tarlov—p. 451

- Characteristics of X Rays. J. L. Weatherwax.—p. 464.
Concerning Diagnosis of Lesions in Lower Spinal Canal. J. C. Bell and R. G. Spurling.—p. 473.
Radium Protection: Advisory Committee on X-ray and Radium Protection.—p. 481.
Bulletin of Inter-society Committee for Radiology: What is the Issue? M. C. Cialli.—p. 491.

Sensitization.—The direct electric current can produce sensitization to x-radiation in normal rabbit tissue, producing an intense local reaction which gradually fades beyond the limit of the electrode. The use of this method to intensify the effect of external radiation in the treatment of malignant disease has at least a logical as well as an experimental background.

Normal Coccyx.—Angulations at the sacro-coccygeal and first coccygeal articulations are to be found in the normal spine, but cases presenting an appreciable variation constitute only a small proportion of the total number. The variation may occur in either the transverse or the sagittal plane and, more rarely, in both.

Rivista di Neurologia

Naples vol. 11 August, 1938

- Neurological Syndrome of von Recklinghausen's Neurofibromatosis. F. Vizioli and S. Tolone.—p. 281.
Multiple Cerebral Glioblastoma of Pons and of Corpus Callosum without Psychic Symptom. D. Alessi.—p. 321.
*Spasmodic Scoliosis in Differential Diagnosis between Lumbar Pain Symptomatic of Compression of Cauda Equina and Protracted Idiopathic Lumbar Pain. C. Masci.—p. 340.
*Motor Paralysis in Herpes Zoster. F. Rocchi.—p. 367.

Spasmodic Scoliosis.—As a result of the study of a large number of cases the author establishes the rarity of scoliosis in compression of the cauda equina and its common occurrence in protracted idiopathic lumbar pain. This sign is therefore useful in differential diagnosis. The idiopathic forms should be regarded as manifestations of lumbar arthritis with an accompanying neuralgia.

Motor Paralysis in Herpes Zoster.—Two cases of motor paralysis in herpes zoster are described, one of the abdominal wall—not easily diagnosed—and the other of the face. The various aspects of this condition are discussed, and the author points out that when the virus of herpes zoster affects cells of the anterior horn it behaves as do other neurotropic viruses, picking out certain groups of cells.

Rivista di Patologia Nervosa e Mentale

Siena vol. 52 July-August, 1938

- Torsion Spasm with Atletosis. P. E. Maspey and A. Romero.—p. 1.
On Problem of Hallucinations. A. Romero.—p. 17.
Agreement of Seroreactions of Takata and Weltmann with Pathogenic Factors of Schizophrenia. A. Zalla.—p. 66.
Multiple Tubercles in Brain. A. Romero.—p. 81.
*Pathogenic Interpretation of Occipito-cervical Pain and of Cervical Rigidity in Some Meningo-encephalitic and Sinus Affections. C. Piero.—p. 100.
Use of Centrifuge in Lange Reaction and Mastix Reaction. R. Bozzi.—p. 128.
Appearance of Interfascicular Oligodendroglia and their Homology with Cells of Schwann. F. Loreti.—p. 135.
*Interruption of Synergy of Ocular Movement during Insulin Coma. G. Curti.—p. 171.

Occipito-cervical Pain.—The author has superficially anaesthetized the nasal mucosa in some cases of typical and atypical trigeminal neuralgia and in cases of head pain not of nasal origin. In eight cases in which a nasal origin of the pain was not suspected, and in which no lesion could be found in the nose, relief of the pain was immediate, as it was in four cases of pain definitely due to other causes. The author thinks this is due to a general reduction of sensory impressions reaching the brain and that intracranial painful stimuli will not reach the threshold of consciousness unless reinforced by the sensory impressions from the nose.

Insulin Coma.—The author has observed an interruption of the synergy of ocular movement during insulin coma in cases of dementia praecox treated with insulin. He regards it as a release phenomenon induced by the abolition of higher (conscious) cortical control.

Zeitschrift für Hygiene und Infektionskrankheiten

Berlin vol. 121 September 5, 1938

- Epidemiology and Epidemiography of Cholera in Russia. R. Olzcha and H. Zeiss.—p. 1.
*Researches on Possibility of Transmission of *Trichomonas vaginalis* by Bath-water. P. Weiter.—p. 27.
*Preparation and Assay of Rabbit Pneumococcus Serum. F. Kauffmann, M. Bjørneboe, and B. Vammen.—p. 36.
Specific Protein in Rabbit Pneumococcus Serum. M. Bjørneboe.—p. 56.
Effect of Bactericides on Human and Bovine Tubercle Bacilli: III, Experiments with Certain Rapid-acting Agents in Alcohol and Phenol Groups. E. Haifer.—p. 67.
*So-called "Thrust-pipe" in Water Supplies. F. Weyrauch.—p. 75.

***Trichomonas vaginalis* and Bath Water.**—The water of a large number of open-air and indoor swimming-baths was examined for *Trichomonas vaginalis* with invariably negative results. This protozoon is sensitive to cold, sunlight, and chlorine, and is therefore probably killed in the water of swimming-baths. On the other hand, the domestic bath, especially when for any reason several persons use the same same water, is a possible vehicle of transmission.

Rabbit Serum in Pneumonia.—This paper records the technique used for immunizing rabbits in the preparation of anti-pneumococcal therapeutic serum. Serum was prepared for all thirty-two types, and therapeutic trials in Denmark are briefly described as giving admirable results.

"Thrust-pipe" in Water Supplies.—In outlying districts it is the custom to supplement the public water supply by means of a pipe thrust into the bed of a near-by stream. Such pipes may be hidden or forgotten. The danger of consequent water-borne epidemics is commented upon, and a simple device for the chlorination and filtering of such accessory water supply is described and illustrated.

Berlin vol. 121 October 28, 1938

- *Antagonistic Action of Staphylococci on Capsulated Bacteria. M. Price.—p. 81.
*Technical Principles of Sterilization-testing: II, Behaviour of Earth Spores in Steam Sterilization: Their Suitability as Spore-test. G. Sobernheim and C. Mundel.—p. 90.
*Effect of Tissue Lipoids on Course of Bacterial Intoxication. K. W. Claiberg and R. Hükel.—p. 113.
Experiences in Relationship of Pneumonias and Pneumococci in Clinic. H. Höring.—p. 119.
Experiences with "Bacilli-carrier Widal Reaction." M. Kristensen and E. J. Henningsen.—p. 129.
Dog as Source of Paratyphoid Infection. K. E. Magnusson.—p. 136.
New Salmonella Type (*S. abortus-canis*). S. Gard.—p. 139.
Occurrence of Nitrous Gases in Use of Schamotte Gas Burner for Heating Purposes. F. Sander.—p. 142.
Hygienic Investigation of Wells in Relation to Security of Water Supply of Towns. B. Schmidt.—p. 148.
*On Germicidal Properties of Garlic (*Allium sativum*). O. E. Böcker.—p. 166.

Staphylococci and Encapsulated Bacteria.—On agar media the presence of *Staph. aureus* or of *Staph. albus* not only restrains the growth of, but acts as a bactericide to, *B. rhinoscleromatis*, *B. ozaenae*, and Friedländer's bacillus. Filtered bouillon cultures exhibit the same antagonistic action. The author concludes that this is due to a thermostable filterable secretion or excretion of the staphylococci incidental to their growth.

Earth Spores in Steam Sterilization.—Native spores found in earth are much more resistant to steam than cultured spores. This high resistance cannot be increased or even maintained by culturing, and so attempts to breed a specially resistant race of spores failed. It is assumed that this property of native spores is due to a chemico-physical influence of the earth itself, is mechanical in nature, and has nothing to do with nutrition. For testing, the impregnation of previously sterilized earth with a known quantity of cultured spores is advised.

Tissue Lipoids and Bacterial Intoxication.—Guinea-pigs so fed as to induce a storage of tissue lipoids did not differ in any way from control animals in regard to diphtheria intoxication.

Garlic.—Garlic exhibits a highly volatile potent germicide, which is active even at a distance (20 cm.). Of the three forms used—infusion, juice, pieces—the potency was in the order given. This effect is not due to "radiation" but to a penetrating exhalation of the nature of a vapour. Organisms planted on culture media exposed to this vapour will not grow.



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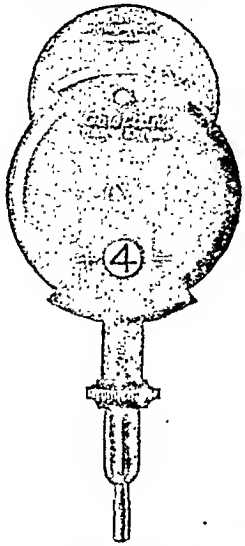
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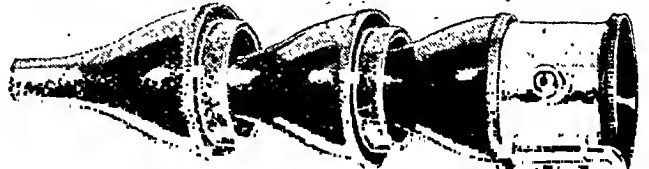
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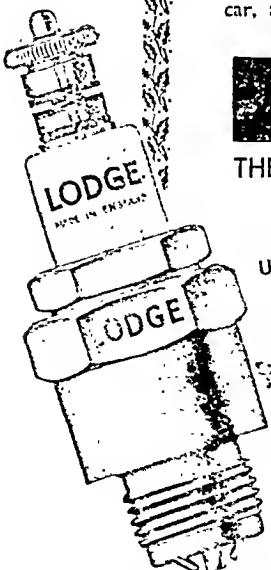
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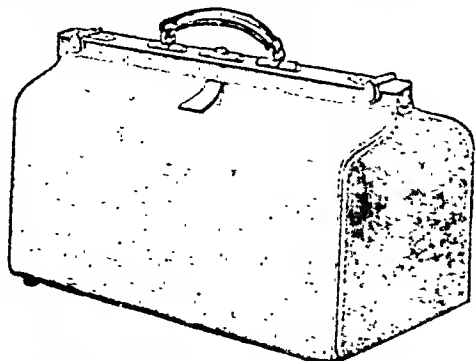
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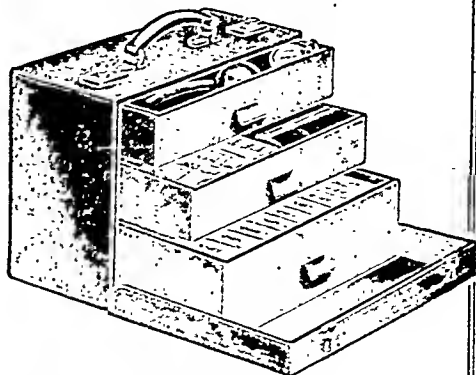
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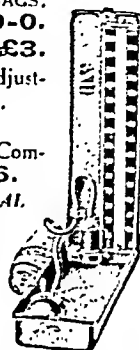


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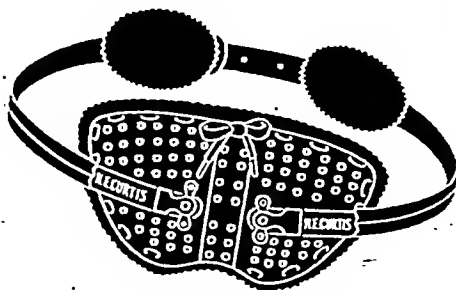
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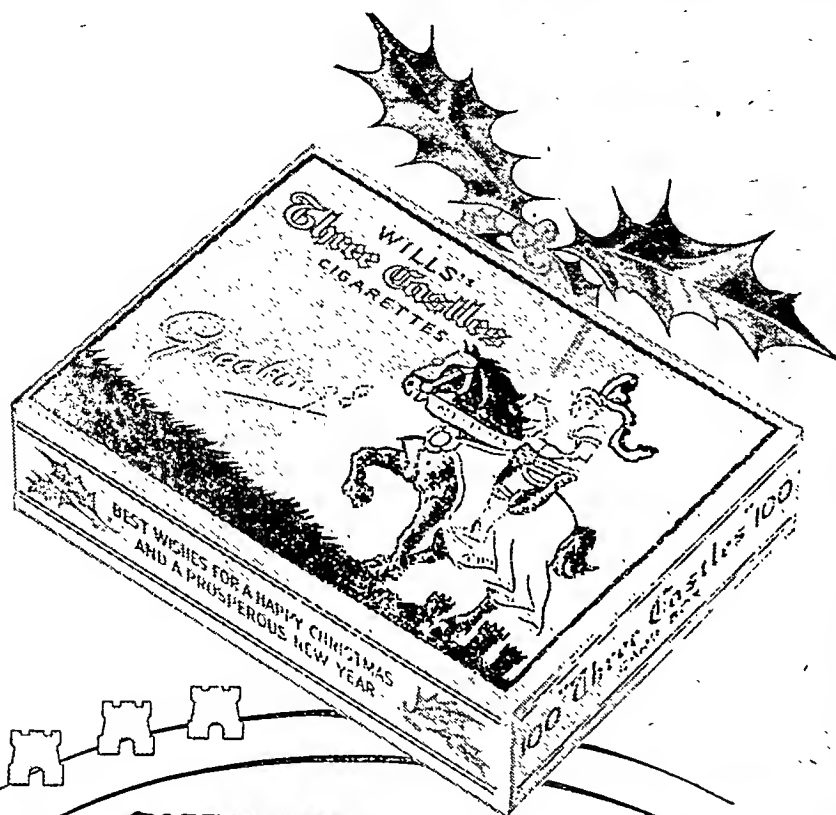
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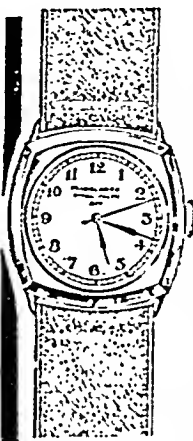
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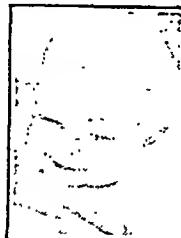
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This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.

The Hospital is governed by a Committee appointed by the TRUSTEES of the Manchester Royal Infirmary.

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For terms and further particulars apply to the Medical Superintendent, who may be seen in MANCHESTER by APPOINTMENT.

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Telephone: Rodney 2641-2642.

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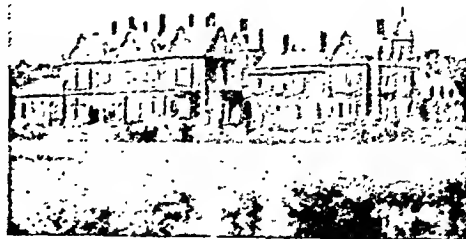
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ORME, M.B., B.Ch.
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The CHESTERFIELD LECTURES, constituting a systematic Course in Dermatology, will be given at 5 p.m. from January 3rd to February 28th.

SYLLABUS—WINTER SESSION, JANUARY 3rd to FEBRUARY 28th, 1939

| 1939 | Subject. | Lecturer. | 1939. | Subject. | Lecturer. |
|---------------|--|----------------------|----------------|---|--------------------|
| Jan. 3, Tues. | Syphilis | Dr. A. C. RONDBURGH | Feb. 2, Thurs. | Electro-Therapeutics | Dr. R. T. BRAIN |
| " 5, Thurs. | Ringworm Infections | Dr. J. M. H. MACLEOD | " 7, Tues. | Common Skin Diseases in Childhood | Dr. H. T. BARRON |
| " 10, Tues. | Scleroderma | Dr. G. B. DOWLING | " 9, Thurs. | Bullous Eruptions | Dr. J. L. FRANKLIN |
| " 12, Thurs. | Pigmentary Disorders | Dr. W. N. GOLDSMITH | " 13, Tues. | Diseases of the Nails | Dr. H. CORSI |
| " 17, Tues. | Eczema | Dr. W. GRIFFITH | " 15, Wed. | Histopathology of some Common Skin Diseases | Dr. I. MUENDE |
| " 18, Wed. | Introduction to Histopathology of the Skin | Dr. I. MUENDE | " 21, Tues. | The Treatment of Acne | Dr. HUGH GORDON |
| " 24, Tues. | Sycosis | Dr. L. FORMAN | " 23, Thurs. | Malignant Conditions of the Skin | Dr. A. BUPPERS |
| " 26, Thurs. | Erythema-Squamous Eruptions | Dr. G. DUCGWORTH | " 28, Tues. | Treatment in Diseases of the Skin | Dr. J. A. DRAKE |
| " 31, Tues. | Tuberculosis Cutis | Dr. J. E. M. WIGLEY | | | |

An Examination will be held at the end of the course in March, and the CHESTERFIELD MEDAL will be awarded to the best candidate, provided the required standard is reached. An intensive Course will also be held during the month of May.

CLINICS.—Instruction will be given daily in the Out-Patient Department, as follows:—

| | | | | | |
|--------------------|--------------------------|----------------------|---------------|------------------------|---------------|
| Monday, 2 P.M. .. | DR. GRIFFITH | Wednesday, 2 P.M. .. | DR. WIGLEY | Friday, 2 P.M. .. | DR. DUCKWORTH |
| 6 P.M. .. | DR. MUENDE (Pathologist) | 6 P.M. .. | DR. DOWLING | 6 P.M. .. | DR. BRAIN |
| Tuesday, 2 P.M. .. | THE MEDICAL REGISTRAR | Thursday, 2 P.M. .. | DR. CORSI | Saturday, 9.30 A.M. .. | DR. PORTER |
| 6 P.M. .. | DR. FORMAN | 6 P.M. .. | DR. GOLDSMITH | | |

LABORATORY.—Arrangements can be made for Classes, individual instruction or for research work. For Particulars and Fees apply to the Dean.

FEES.—For Hospital Practice, including Lectures, One Guinea per month. Registered Medical Students may attend the lectures free on signing their names and giving the name of their Hospital.

Medical Practitioners will be welcome as occasional visitors on presentation of their cards. For further particulars apply to the Dean, or Secretary.
LEONARD G. R. TURPIN, Secretary. J. E. M. WIGLEY, M.B., F.R.C.P., Dean.

BRITISH POSTGRADUATE MEDICAL SCHOOL

DEPARTMENT OF SURGERY

A Course of Six Lectures on

FRACTURE DISLOCATIONS AND OTHER INJURIES OF THE JOINTS

will be given by

Mr. R. WATSON JONES,
M.Ch., F.R.C.S.,

on

JAN. 6, 13, 20, 27, FEB. 3, 10, 1939.
at 2.30 p.m.

DEPARTMENT OF PATHOLOGY

A Course of Four Lectures on

NEPHRITIS, AND RENAL CHANGES IN HYPERTENSION

will be given by

Professor J. SHAW DUNN, M.A., M.D.,

on

JAN. 11, 18, 25, FEB. 1, 1939.
at 4.30 p.m.

DEPARTMENT OF MEDICINE

A Course of Six Lectures on

NEPHRITIS

will be given by

Dr. T. IZOD BENNETT, M.D., F.R.C.P.,

on

JAN. 10, 16, 17, 21, 31, 1939.

and by

Professor J. H. DIBLE,
M.B., Ch.B., F.R.C.P.,

on JANUARY 23, 1939.
at 4.30 p.m.

These lectures are for regular students of the School, but a limited number of tickets are available, without fee, for medical practitioners. Applications for tickets should be addressed to the Dean, British Postgraduate Medical School, Ducane Road, Shepherd's Bush, London, W.12.

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| M.B., B.S.(Lond.). | Final 1913-37 (Completed Exam.) | 255 |
| F.R.C.S.(Eng.). | Primary 199 Final 192 | |
| M.R.C.P.(Lond.). | 1919-37 | 286 |
| D.P.H. | (Various) 1909-37 (Completed Exam.) | 348 |
| F.R.C.S.(Edin.). | 1918-37 | 65 |
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Sir,—Please send me the following booklets by return.

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Examination in which interested
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THE HOSPITAL FOR DISEASES OF THE SKIN, 71, BLACKFRIARS ROAD, LONDON, S.E.1.

A Course of Lectures on Dermatology, especially designed for the needs of general practitioners and medical men working in Welfare Centres, &c., will be held at 4.30 p.m. on Wednesdays in January and February, 1939, beginning on January 11th. No fee will be charged, but those desirous of attending must send their names on a postcard to the Secretary at the above address before January 9th. The Lectures will be as follows:—

| | | | |
|----------|-------|-------------------------|--|
| JANUARY | 11th. | Dr. H. HALDIN-DAVIS. | DRUG ERUPTIONS. |
| | 18th. | Dr. G. MITCHELL HEGGOS. | PSYCHOGENIC FACTORS IN DISEASES OF THE SKIN. |
| | 25th. | Dr. F. J. EGAR. | CUTANEOUS MANIFESTATIONS OF SYPHILIS. |
| FEBRUARY | 1st. | Dr. P. M. DEVILLE. | PENPHIGUS AND DERMATITIS HERPETIFORMIS. |
| | 8th. | Dr. BEATRICE LEWIS. | ACNE AND ROSACEA. |
| | 15th. | Dr. S. BLACKMAN. | SUPERFICIAL RAY THERAPY. |
| | 22nd. | Dr. E. SKLARZ. | HISTOPATHOLOGY OF COMMON SKIN TUMOURS. |

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The Course of Instruction can be commenced at any time. Candidates holding appointments are admitted to Part II. course as part-time students.

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Short Intensive Postal and Oral Revision Courses in preparation for these Diplomas.

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The Course will begin on January 2nd, 1939. Applications should be made to PROF. F. GOLLA, Director of the Central Pathological Laboratory, The Maudsley Hospital (Tel.: RODney 2411).

Preliminary Examinations

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

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Salary will be at the rate of £600 per annum, rising by annual increments of £25 to £700 per annum.

The successful candidate will be required to devote the whole of his time to the duties of the office and work under the direction of the Senior Medical Officer. The duties will consist of supervision of the Authority's Dental Officers, school dental inspection and treatment, the dental treatment of Maternity and Child Welfare Centre patients, and patients of the County Borough Institutions, as required. He must be prepared to undertake clinical work in addition to his supervisory duties.

Previous experience in school dental work for at least three years is essential. Canvassing will be considered a disqualification.

Forms of application may be obtained from the undersigned on receipt of a stamped, addressed, business envelope, and completed forms should be submitted not later than January 5th, 1939.

The appointment will date from May 1st, 1939, and will be subject to the Local Government Superannuation Act, 1937.

J. F. CARR.

Director of Education.

Education Office

Town Hall,

Stoke-on-Trent.

November 30th, 1938.

BOARD OF CONTROL. ENGLAND AND WALES.

The Board of Control (Lunacy and Mental Deficiency) invite applications from registered medical practitioners (men and women) for a vacant appointment as COMMISSIONER on the BOARD'S STAFF.

Candidates should be experienced in the care and treatment of persons suffering from mental disorder or mental defect.

The salary commences at £850 per annum, and rises by eleven annual increments of £30 to £1,180 and then to £1,200 per annum. In the case of a candidate with special experience of the administration of mental institutions the commencing salary may be advanced to a point, not exceeding £75, above the minimum of the scale.

The appointment will be subject to the usual Civil Service conditions as to pension, holidays, etc., and also, in the case of women, marriage. Subject to certain conditions, previous established service in a Mental Hospital or Mental Deficiency Institution can be aggregated with Civil Service for superannuation purposes.

Commissioners are required to devote their whole time to the Public Service.

Canvassing through Members of Parliament or in other ways will render a candidate liable to disqualification.

Forms of application, with further particulars of the appointment, may be obtained from the Secretary, Board of Control, Hobart House, Grosvenor Place, London, S.W.1.

No application can be considered unless received on the prescribed form not later than January 7th, 1939.

CITY OF PLYMOUTH. CITY GENERAL HOSPITAL (570 Beds).

Applications are invited from duly qualified and registered medical practitioners for the post of JUNIOR ASSISTANT MEDICAL OFFICER. Salary at the rate of £250 per annum, with full residential. All fees received by the Officer must be refunded to the Council.

The appointment will be for the period of six months in the first instance, and renewable for a further period of six months, and will be terminable by one month's notice on either side.

The duties of the post will be largely on the surgical side of the Hospital.

Further details may be obtained from the Medical Superintendent.

Forms of application may be obtained from the undersigned, and should be forwarded, together with copies of not more than three recent testimonials, not later than December 29th.

Town Hall,

Stonehouse,

Plymouth.

T. PEIRSON,

Medical Officer of Health.

GUY'S HOSPITAL—DENTAL SCHOOL.

Applications are invited for the WHOLE-TIME POST OF DENTAL RESEARCH FELLOW. The appointment to begin as soon after January 1st, 1939, as possible. Preference will be given to a biochemist who is prepared to undertake work on dental diseases. The appointment will be for two years in the first instance with the possibility of reappointment. The stipend will be at the rate of £400 per annum.

Applications, accompanied by the names of three persons to whom reference may be made, should be submitted not later than December 31st, 1938, to the Dean, Guy's Hospital Medical School, S.E.1, from whom further particulars regarding the appointment may be obtained.

NORMAN GAMBLE RESEARCH FUND OF THE ROYAL SOCIETY OF MEDICINE.

Applications from individuals (British subjects) for GRANTS IN AID OF RESEARCH IN OTOTOLOGY should be made to the Secretary of the Royal Society of Medicine, 1, Wimpole Street, London, W.1, not later than February 28th, 1939. Applicants should give full particulars of the work proposed.

EXPERIENCED COACHING IN PHYSIOLOGY, Pathology, and Medicine by M.D. Lond. (Hons.), M.R.C.P.Lond., B.Sc. Physiology Lond. All exams. Classes held.—Address, No. 7902, B.M.A. House, Tavistock Square, W.C.1.

UNIVERSITY COLLEGE HOSPITAL. BILTON POLLARD FELLOWSHIP.

Applications are invited for the above FELLOWSHIP of an annual value of £650, commencing February 1st, 1939, the tenure of which is limited to the men students of University College Hospital who have held a resident appointment or its equivalent at the Hospital.

Candidates must hold the qualification of M.R.C.P. (London) or F.R.C.S. (England), and must declare their intention of engaging in the practice of medicine or surgery.

Forms of application can be obtained from the Secretary of University College Hospital, Gower Street, W.C.1, and must be returned not later than Monday, January 2nd, 1939.

UNIVERSITY COLLEGE HOSPITAL.

Applications are invited for the whole-time post of ASSISTANT to the Department of Radiotherapy. The salary will be at the rate of £500 per annum.

Applications, accompanied by such evidence of fitness for the post as the candidates may desire to furnish, should reach the Secretary, University College Hospital, Gower Street, W.C.1, not later than Monday, January 2nd, 1939.

CITY OF LIVERPOOL.

SENIOR RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the above appointment at the Alder Hey Children's Hospital, West Derby, Liverpool (940 beds), for a period of twelve months in the first instance.

Candidates must be single, fully qualified and registered, and should, preferably, have had considerable experience in diseases of children and possess one of the higher qualifications in medicine.

Salary at the rate of £350 per annum, rising by annual increments of £25 to £450 per annum, together with the usual residential allowances. All fees received in connexion with the appointment to be handed over to the City Council.

The position offers exceptional opportunity for anyone wishing to specialize in diseases of children.

The person appointed will be required to work under the direction of the Medical Superintendent.

The appointment will be made in accordance with the Standing Orders of the City Council and will be determinable by three months' notice on either side. Canvassing, either directly or indirectly, will be deemed a disqualification.

Applications upon forms obtainable from the Medical Officer of Health, Hospitals Department, Liverpool, 2, to be endorsed "Senior R.A.M.O.", and returned to the undersigned so as to be received not later than Friday, December 30th, 1938.

Municipal Buildings,

Liverpool, 2.

December, 1938.

W. H. BAINES, Town Clerk.

SURREY COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT.

FARNHAM COUNTY HOSPITAL (197 Beds)

ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of Assistant Medical Officer at the Farnham County Hospital, Hale Road, Farnham.

Candidates must have held resident hospital appointments and should preferably possess a higher qualification.

The tenure of the appointment is limited to a period of five years, but the appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922. The cash salary is at the rate of £350 per annum, rising by annual increments of £25 to a maximum of £450 per annum, together with full residential emoluments valued at £125 per annum.

Applications, stating age, qualifications and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the County Medical Officer, County Hall, Kingston-on-Thames, so as to be received not later than December 21st, 1938.

County Hall, DUDLEY AUKLAND,

Kingston-on-Thames. Clerk of the Council.

December 9th, 1938.

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry at the end of March, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list. Marriage Allowance is paid under the same conditions as for other Naval Officers.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1. and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1939.



Appointments for Medical Officers in the ROYAL AIR FORCE

Medical men are invited to apply for Short Service Commissions in the Royal Air Force. Candidates must be registered under the Medical Acts and be not more than 31 years of age on entry.

The period of service is 3 years—extendable to 5 years. A gratuity of £400 or £1,000 is payable at the termination of 3 or 5 years respectively. Permanent commissions are awarded in a number of cases. These offer a pensionable career with the opportunity of extra leave on full pay for specialised study. Applicants who hold—or are likely to hold—post-graduate appointments in civil hospitals may, on joining the Royal Air Force, be seconded until the termination of their appointments (for a period not exceeding one year). An antedate of commission up to twelve months is allowed for appointments held at approved hospitals.

*Fuller information can be obtained from The Director
of Medical Services, Air Ministry, Kingsway, London.*

BOROUGH OF LEYTON.

DEPUTY MEDICAL OFFICER OF HEALTH AND DEPUTY SCHOOL MEDICAL OFFICER.

Applications are invited from registered medical practitioners possessing a registered Diploma in Public Health or State Medicine for the appointment of Deputy Medical Officer of Health and Deputy School Medical Officer.

Age not to exceed 45 years.

The salary attaching to the post will be £660 per annum, rising by four annual increments of £20 and one of £10 to a maximum of £750 per annum.

Preference will be given to candidates possessing previous experience in school medical inspection, maternal and child welfare, and in the diagnosis and treatment of infectious diseases.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, or, in the event of the person appointed taking up his duties after March 31st, 1939, to the provisions of the Local Government Superannuation Act, 1937, and to the conditions set out on the form of application.

Applications must be made on the prescribed forms, which can be obtained by sending stamped addressed foolscap envelope to the undersigned.

Applications, endorsed "Deputy Medical Officer of Health," must reach the undersigned as soon as possible and not later than the first post on January 2nd, 1939. Canvassing, directly or indirectly, will be a disqualification.

Town Hall, JNO. ATKINSON,
Leyton, E. 10, Town Clerk.
December 9th, 1938.

CITY OF LEEDS.

PUBLIC HEALTH DEPARTMENT.

ST. MARY'S INFIRMARY, ARMLEY,
LEEDS, 12.

RESIDENT MEDICAL OFFICER.

A Resident Medical Officer is required for St. Mary's Infirmary, Leeds (250 beds). The hospital is a general hospital for chronic and semi-chronic cases, with a section of 25 beds devoted to Maternity.

The appointment is for twelve months, and the salary is £250 per annum inclusive, together with full residential emoluments. Any fees received must be paid into the City funds.

Candidates must have had experience in midwifery subsequent to qualifying. The duties of the officer include lecturing to the Nursing Staff and instruction of Pupil Midwives.

Applications, stating age, qualifications, etc., together with copies of three recent testimonials, to be forwarded to the undersigned not later than 10 a.m. on Saturday, December 24th, 1938.

Canvassing in any form, either directly or indirectly, will be a disqualification.

J. JOHNSTONE JERVIS,
Medical Officer of Health.

Public Health Department,
12, Market Buildings,
Vicar Lane, Leeds, 1

BOROUGH OF HOVE.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from registered medical practitioners under the age of 40, for the above whole-time appointment. The duties will be of a general nature, but special experience is necessary in Maternity and Child Welfare and Infectious Diseases, and applicants should possess the Diploma of Public Health.

The salary will be £500 per annum, rising by annual increments of £25 to £700 per annum, together with a car allowance of £50 per annum. The successful candidate will be required to pass a medical examination and to contribute to the Superannuation Fund.

Applications, on the prescribed form, to be obtained from the undersigned, together with copies of three recent testimonials, must be received not later than Friday, December 30th, 1938.

Town Hall, W. JERMYN HARRISON,
Hove, Town Clerk.
November, 1938

CITY OF BIRMINGHAM.

Dudley Road Hospital. (926 Beds.)

Applications are invited from fully qualified Medical Practitioners for whole-time appointment as JUNIOR MEDICAL OFFICER (male) at the Dudley Road Hospital, Birmingham. The appointment will be for a period of six months, but may be extended for a further period of not exceeding six months. Salary at the rate of £200 per annum, and full residential emoluments.

Further particulars may be obtained from the Medical Superintendent at Dudley Road Hospital, to whom applications, stating age, experience, and qualifications with copies of recent testimonials, should be forwarded not later than Thursday, December 24th, 1938.

COUNTY BOROUGH OF DERBY.

ASSISTANT MEDICAL OFFICER (Male).

Applications are invited for the post of Assistant Medical Officer in the Public Health and School Medical Department. Salary £500 per annum, rising by annual increments of £25 to £700 per annum.

Applicants must be duly qualified registered Medical Practitioners, and should possess the Diploma of Public Health.

The duties of the post are the medical inspection of school children, the supervision of treatment of minor ailments, the carrying out of work under the maternity and child welfare scheme, and such other duties as may be required by the Council.

The officer appointed will be required to devote his whole time to the duties of the post, to act under the supervision and control of the Medical Officer of Health, and to reside within the Borough.

The successful candidate will be required to contribute to the Council's Superannuation Fund, and for this purpose must pass the necessary medical examination. Age of applicant must not exceed 40 years.

The appointment will be held during the pleasure of the Council, and is terminable by two months' notice on either side.

Applications, stating age, qualifications, and previous experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than Wednesday, December 28th, 1938. Application forms are not provided. Envelopes must be endorsed "Assistant Medical Officer."

Canvassing, directly or indirectly, will be a disqualification.

F. C. SMITHARD,
Secretary to the Education Committee,
Education Offices,
Becket Street, Derby.

COUNTY BOROUGH OF MIDDLESBROUGH.

ST. LUKE'S MENTAL HOSPITAL,
Grove Hill, Middlesbrough.

The Committee of Visitors invite applications for the appointment of ASSISTANT MEDICAL OFFICER and DEPUTY MEDICAL SUPERINTENDENT (male) for the above-mentioned Hospital.

Candidates must be fully qualified and duly registered, and preference will be given to one who has held a resident appointment in a General Hospital.

The age of applicants, unless with previous Mental Hospital service, should not exceed 35 years.

Salary £500 per annum (no emoluments), rising by four annual increments of £25 to a maximum of £600, plus an extra payment of £50 per annum to holders of, or who may later obtain, the D.P.M. Unfurnished house on the estate provided, for which a sum of £50 per annum will be deducted from the salary to cover rent, rates and water.

The appointment is whole time and subject to the provisions of the Asylums Officers' Superannuation Act, 1909. The appointment will be terminable by two months' notice on either side. The successful candidate will be required to undergo a medical examination.

Canvassing will disqualify. Applications, accompanied by copies of three recent testimonials, should be sent to the undersigned not later than January 4th, 1939, endorsed "Assistant Medical Officer and Deputy Medical Superintendent."

PRESTON KITCHEN,
Town Clerk and Clerk to the
Town Clerk's Office, Committee of Visitors,
Middlesbrough,
December 7th, 1938.

COUNTY BOROUGH OF OLDHAM.

MUNICIPAL HOSPITAL.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the post of Resident Assistant Medical Officer. Applicants must not be over 45 years of age.

Salary £200 per annum, with board, residence, and laundry.

Candidates should be unmarried. The appointment will, in the first instance, be for a period of six months. The successful applicant, however, will be eligible for reappointment for a further period of six months.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to pass a medical examination.

The hospital comprises 375 beds, with facilities for gaining experience in medicine, surgery, midwifery, and diseases of children.

Application forms may be obtained from the Medical Officer of Health, Town Hall, Oldham, and should be returned, endorsed "Resident Assistant Medical Officer," as soon as possible, but not later than 9 a.m. on Wednesday, December 28th, 1938.

Town Hall, THOMAS ALKER,
Oldham, Town Clerk.
December 5th, 1938.

NORTHWICH RURAL DISTRICT COUNCIL. NORTHWICH URBAN DISTRICT COUNCIL. WINSFORD URBAN DISTRICT COUNCIL. MIDDLEWICH URBAN DISTRICT COUNCIL.

APPOINTMENT OF WHOLE-TIME MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified and registered Medical Practitioners, not exceeding 45 years of age, who are also registered in the Medical Register as holders of a Diploma in Sanitary Science, Public Health, or State Medicine, for the above appointment.

The appointment will be made subject to the approval of the Minister of Health, the provision of Section 110 of the Local Government Act, 1933, and the Sanitary Officers' (Outside London) Regulations, 1935.

The Officer appointed will be required to commence his duties on April 1st, 1939, and devote the whole of his time to the performance of the duties of the office, which will include the Superintendence of the Joint Isolation Hospital.

He will not be permitted to engage in private practice as a Medical Practitioner, will be required to enter into an agreement with each Authority, and to reside within the area.

He will be allowed one month's annual leave. Salary £800 per annum, rising by annual increments of £25 to a maximum of £900, together with a travelling allowance of £150 per annum.

Office accommodation and clerical staff will be provided, and the Officer appointed will be expected to attend Council and Committee Meetings of the Authorities as and when required.

Each Council will designate the position as an Established Post under the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Applications, endorsed "Medical Officer of Health," stating age, particulars of qualifications and local government experience (if any), supported by copies of not more than three recent testimonials, which will not be returned, must be delivered to the undersigned not later than December 24th, 1938.

Canvassing of members of any Authority, directly or indirectly, will be deemed a disqualification.

HAROLD GRANTHAM,
The Council House, Clerk of the Northwich
Northwich, Urban District Council.
December 6th, 1938.

HAMPSHIRE COUNTY COUNCIL.

ASSISTANT COUNTY MEDICAL OFFICER.

Applications are invited for the post of Assistant County Medical Officer. Possession of a Diploma or Degree in Public Health is essential, and previous experience in the various branches of public health, especially tuberculosis, and school medical service work is desirable.

Salary £600 a year, rising, on approved service, by increments to £750 (subject to deductions under the Local Government Superannuation Act, 1937), in addition to travelling expenses.

Applications, with copies of not more than three recent testimonials, upon a form which, with the conditions of appointment, may be obtained from the County Medical Officer, The Castle, Winchester, should be sent to him as soon as possible, and not later than December 30th, 1938. Canvassing is prohibited.

The successful candidate will not be expected to take up his duties before April 1st, 1939.

The Castle, F. V. BARBER,
Winchester, Clerk of the County Council.
December 5th, 1938.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Class D).—Salary £350-£25-£425, with board, lodging and washing.

(a) ST. GILES' HOSPITAL, St. Giles' Road, Camberwell, S.E.5.—Surgical experience desirable.

(b) ST. JAMES' HOSPITAL, Onley Road, Balham, S.W.12.—(Two positions) (1) Surgical duties. (2) Obstetric and gynaecological duties.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division 2, County Hall, Westminster Bridge, S.E.1, returnable by January 2nd.

Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited from registered medical practitioners of at least one year's standing, resident in the neighbourhood, for appointment as TEMPORARY VISITING MEDICAL OFFICER (part-time) at Earldale House, Children's Reception Home, 1, Safford Road, Wandsworth, S.W.1. Salary £150.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division 2, County Hall, Westminster Bridge, S.E.1, returnable by December 30th. Canvassing disqualifies.

SURREY COUNTY COUNCIL PUBLIC HEALTH DEPARTMENT

EPSOM COUNTY HOSPITAL (130 Beds)

RESIDENT ASSISTANT MEDICAL OFFICER (Male).

Applications are invited for the appointment, which will be vacant on February 1st, 1939, of Resident Assistant Medical Officer at the Epsom County Hospital.

Applicants must have held a previous resident hospital appointment and should preferably have had experience in maternity work and minor surgery.

The appointment is for a period of six months, renewable for a further period of six months, and the salary is at the rate of £200 per annum, together with full residential emoluments valued at £125 per annum.

Applications, stating age, qualifications, and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the Medical Superintendent, Epsom County Hospital, Dorking Road, Epsom, so as to be received not later than December 31st, 1938.

DUDLEY AUKLAND,

County Hall, Clerk of the Council
Kington-on-Thames
December 16th, 1938.

ESSEX COUNTY COUNCIL JUNIOR RESIDENT MEDICAL OFFICER.

The County Council of the Administrative County of Essex invite applications for the appointment of a Junior Resident Medical Officer at the Chelmsford County Hospital, Chelmsford.

The appointment is for a period of one year, and the salary will be at the rate of £250 per annum, together with the usual and emoluments valued at £100 per annum. The successful candidate will be required to pass a medical examination, and will be subject to the Council's rules, pay rules and regulations, a copy of which will be forwarded on application.

Applications in the prescribed form obtainable from the undersigned should be addressed to me, and delivered at the County Hall, Chelmsford, not later than 10 a.m. on Saturday, December 31st, 1938.

County Hall, L. S. HOLCROFT,
Chelmsford, Clerk of the County Council
December 13th, 1938.

COUNTY BOROUGH OF BRIGHTON SANATORIUM AND INFECTIOUS DISEASE HOSPITAL.

Applications are invited for the post of male JUNIOR RESIDENT MEDICAL OFFICER.

Salary £250 per annum, with board and lodging. The appointment is for a period of six months. The post is designated under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination before being appointed to the position.

Particulars and form of application can be had from the undersigned.

Applicants must be delivered at my office before 10 a.m. on Tuesday, January 3rd, 1939.

DUNCAN TORRES,

Medical Officer of Health.

Royal York Buildings, Brighton, 1.
December 12th, 1938.

COUNTY BOROUGH OF BRIGHTON. APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

An advertisement will appear in the next issue of this paper giving details of the appointment.

Application forms will be available on December 28th
Town Hall,
Brighton
December 13th, 1938.

J. G. DREW,

Town Clerk.

UNIVERSITY OF DURHAM.

King's College, Newcastle-upon-Tyne

ASSISTANT BACTERIOLOGIST IN PUBLIC HEALTH LABORATORY.

Applications are invited from qualified medical men or women for the above post. Postgraduate experience in the routine methods of a bacteriological laboratory is desirable. The appointment is a temporary one in the first place, but a permanent appointment will shortly be made. The person will be required to take up duty at the earliest possible date. Salary at the rate of £400 per annum. Applications should be lodged as soon as possible with the undersigned.

W. G. B. OLIVER,
Registrar.

RHONDDA URBAN DISTRICT COUNCIL. WOMAN ASSISTANT MEDICAL OFFICER

Applications are invited from unmarried or widowed women medical practitioners, not exceeding 45 years of age, for appointment as Assistant Medical Officer under the direction and supervision of the Council's Medical Officer of Health and School Medical Officer, at a salary of £300, rising by annual increments of £25 to £400 a year, the first annual increment being payable on April 1st following the completion of six calendar months' service under the Council, travelling expenses necessarily incurred in the performance of the duties will also be allowed. Candidates must have had not less than three years' professional experience subsequent to registration and must be experienced in the diseases of children and in maternity work, special experience in orthopaedic work and the possession of a Diploma in Public Health will be considered desirable additional qualifications.

The appointment, which is designated under the Local Government and Other Officers' Superannuation Act, 1922, will be subject to the passing of a medical examination and will be terminable by two calendar months' notice on either side. The officer appointed will be required to reside within the Rhondda Urban District and will not be allowed to engage in private practice.

Applications are to be made on forms obtainable from the Medical Officer of Health, Tydfil House, Llewellyn Street, Centre, Rhondda, by whom they must be received, enclosed with Assistant Medical Officer's and accompanied by copies of three recent testimonials, not later than the first post on Friday, December 24th, 1938.

D. J. JONES,
The Council Offices, Clerk of the Council
Centre, Rhondda
December 24th 1938.

THE HOSPITAL FOR SICK CHILDREN. Great Ormond Street, London, W.C1.

An OUT-PATIENT MEDICAL REGISTRAR (part-time and non-resident) is required as early as possible in January. Salary £150 per annum.

An OUT-PATIENT AURAL REGISTRAR (part-time) is required as early as possible in January. Salary £125 per annum.

These appointments are tenable in the first instance for one year, but may be held for a period of two years, subject to re-election.

Candidates must possess a legal qualification in practice, and have held a responsible resident appointment at a general hospital.

Applications must be received by noon on Monday, January 2nd, 1939, and candidates must be prepared to attend for interview by the Joint Committee at 4.45 p.m. on Wednesday, January 4th, 1939.

Full instructions and forms of application are obtainable from the undersigned.

HERBERT I. RUTHERFORD,
December, 1938. Secretary

THE ROYAL CANCER HOSPITAL (FREE) (Incorporated under Royal Charter). Lintham Road, London, S.W.3

Applications are invited for the post of ASSISTANT SURGEON to the Hospital. Candidates must be Fellows of the Royal College of Surgeons, England, or Masters of Surgery of a recognized British University.

The appointment is made subject to Rules and Conditions laid down by the Charter of Incorporation, details of which can be obtained from the Secretary.

Applications (fourteen copies), with copies of not more than three recent testimonials, should be sent to the undersigned by not later than the first post on Monday, December 19th, 1938.

CLEMENT COBBOLD, Secretary.

THE SAMARITAN FREE HOSPITAL FOR WOMEN. Marylebone Road, N.W.1

Applications are invited for the post of HOUSE SURGEON for a period of six months, commencing January 15th next. Salary at the rate of £100 per annum, with board, lodging and laundry. Previous experience as House Surgeon essential.

Applications, stating age, accompanied by copies only of testimonials, should be sent to the Secretary at the Hospital on or before Friday noon, January 6th, 1939.

G. H. HAWKINS, Secretary.

THE WEIR HOSPITAL, WEIR ROAD, Batham, S.W.12. (130 Beds.)

JUNIOR RESIDENT MEDICAL OFFICER required at the end of December (male, unmarried). Candidates must be fully qualified and duly registered. Salary £150 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, to be sent to the Secretary, from whom further information may be obtained.

HOSPITAL FOR CONSUMPTION AND DISLASIS OF THE CHEST. Brompton, S.W.3

The Committee of Management invite applications for the post of ASSISTANT PHYSICIAN, for which there are two vacancies.

Applications, with copies of testimonials, must reach the undersigned not later than Monday, January 9th, 1939. Candidates must be Members or have passed the qualification examination for the Membership of the Royal College of Physicians of London.

Applications should not be addressed to individual members of the Committee of Management. Brompton, S.W.3. T. G. ROUVRAY,
December, 1938. Secretary.

HOSPITAL OF ST JOHN & ST ELIZABETH. (6, Grove End Road, N.W.8.

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (male). The post is recognized for the purpose of M.D. London University. The appointment will be for six months from February 1st, 1939. Salary at the rate of £100 per annum, with full board.

Applications, together with copies of three testimonials should reach the undersigned by December 31st. Applicants will be required to attend a meeting of the Medical Committee at 8.10 p.m. on January 1st, 1939, at the Hospital. F. DUDLEY HOBBS, B.A.
Secretary.

THE LONDON CHEST HOSPITAL, Victoria Park, E.2 (Bus, Tram and Rly. Cambridge Heath, L. and N.E. Rly.)

SURGICAL REGISTRAR (male)
(Part-time)

Applications are invited for the above post for six months, commencing Tuesday and Friday mornings essential. Appointment is for one year. Honorarium £100 per annum.

Applications, with copies of three testimonials, should be sent to the undersigned on or before January 1st, 1939.

THOMAS BROWN, Secretary

LONDON CHEST HOSPITAL. Victoria Park, E.2 (Bus, Tram and Rly. Cambridge Heath L.N.E. Rly.)

REGISTRAR Ear, Nose and Throat Dept. (male)
(Part-time)

Applications are invited for the above post. The appointment will be for a period of one year. Honorarium £40 per annum.

Applications, with copies of three testimonials, should be sent to the undersigned on or before January 1st, 1939.

THOMAS BROWN, Secretary

METROPOLITAN HOSPITAL. Kingsland Road, London, E.8

Appointment of
SECOND AURAL SURGEON

Applications are invited for the above post. Candidates must be Fellows of the Royal College of Surgeons, England.

Applications (24 copies), with recent testimonials, must be received by January 10th, 1939, addressed to the undersigned, from whom further particulars may be obtained.

FRANK JENNINGS,

House Governor and Secretary

CONNAUGHT HOSPITAL, E.17 (115 Beds. With 4 Resident Medical Officers.)

SENIOR RESIDENT SURGICAL OFFICER (male) required. Salary £200 p.a., with residence, board, and laundry.

Appointment for six months from January 9th, 1939. Candidates must have their Primary Fellowship or be a Fellow of one of the Royal Colleges. Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, should be received on or before December 31st, 1938.

R. HALTON HARRISON,

Secretary.

CHARING CROSS HOSPITAL.

Applications are invited for the post of HONORARY CLINICAL ASSISTANT in the X-Ray and Electrotherapeutic Department. Honorarium £50 per annum.

Candidates should have by preference the qualification of D.M.R.E. Applications, together with copies of three recent testimonials, should be sent to the undersigned not later than January 2nd, 1939.

GEORGE J. JONES,
Charing Cross Hospital, W.C.2. Secretary.

BIRKENHEAD GENERAL HOSPITAL.
(156 Beds.)

Applications are invited for the following Resident (male) posts for the six months commencing April 1st, 1939.

SENIOR HOUSE SURGEON. Salary £150 per annum.

The above post is recognized by the Royal College of Surgeons of England for the six consecutive months' appointment in charge of general surgical patients required of candidates before admission to the final examination for the Fellowship.

SECOND HOUSE SURGEON Salary £100 per annum.

HOUSE PHYSICIAN. Salary £100 per annum.

CASUALTY OFFICER. Salary £100 per annum.

All with board, residence, and laundry. Applications, stating age, nationality, and qualifications, together with three recent testimonials, to reach the undersigned as soon as possible.

W. H. DANIELS, F.C.I.S.,
Secretary-Superintendent.

BUXTON CLINIC FOR RHEUMATISM AND ALLIED DISEASES.

Applications are invited for the appointment of **HOUSE PHYSICIAN.** Candidates must be fully qualified and registered, and must have had previous hospital experience. The appointment is for six months, but is renewable. Applications, accompanied by three recent testimonials, should be in the Secretary's hands as soon as possible.

The appointment is to start on February 1st, 1939. The Clinic has full facilities for physical and hydrological treatment, and has its own radiological department. Investigatory work in Biochemistry, Pathology, and Bacteriology is carried on in conjunction with the Devonshire Royal Hospital.

Salary £150-£200 per annum, with board, residence, and laundry.
Buxton Clinic Ltd.,
Buxton, Derbyshire
H. S. NEEDHAM,
Secretary

COUNTY MENTAL HOSPITAL.
Prestwich, near Manchester.

Applications are invited for the whole-time appointment of **SENIOR ASSISTANT MEDICAL OFFICER** at the above Mental Hospital. The salary is £700 per annum, an additional £50 per annum will be paid for the possession of a Diploma in Psychological Medicine.

The selected candidate must be single, and will be required to live in the Hospital and will be provided with board, lodgings, etc., for which a charge of £150 per annum is made.

The appointment will be subject to the provisions of the Asylums Officers' Superannuation Act, and the successful candidate will be required to pass a medical examination.

Applications, giving full particulars, with copies of testimonials, should be forwarded so as to reach the Medical Superintendent on or before January 4th, 1939, address as above.

COUNTY MENTAL HOSPITAL.
Prestwich, near Manchester.

LOCUM TENENS (with a possibility of permanency) male **MEDICAL OFFICER**, age not exceeding 35, required at the above Hospital, which is a Training School. Salary £7 7s. per week, with board, lodging and laundry. Copy testimonials only must be sent.

Candidates must be unmarried and registered under the Medical Act. Appointment terminable by one week's notice on either side.

Apply as soon as possible, stating age, hospital and other experience, qualifications and full particulars, to the Medical Superintendent as above.

COVENTRY AND WARWICKSHIRE HOSPITAL, COVENTRY.

Main Hospital: 307 Beds.
Convalescent Hospital: 40 Beds.

Applications are invited for the posts of **OPHTHALMIC REGISTRAR** and **OPHTHALMIC CLINICAL ASSISTANT.** Candidates must have had previous Ophthalmic experience.

Applications, to be made to the undersigned, to be received not later than the first post on Saturday, December 31st, 1938.

S. CECIL HILL,
House Governor and Secretary
December 12th, 1938.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.
(84 Beds.)

Wanted, January 16th, 1939, a **RESIDENT HOUSE PHYSICIAN** (lady). Salary £130 p.a. The appointment is for six months, but may be extended by mutual arrangement. Applicants must be fully qualified. Applications, with three testimonials, to be sent to the undersigned forthwith.

The Hospital is recognized by the Conjoint Board for the purpose of the Diploma in Child Health.

ARTHUR N. WHISTON,
25, St. Mary's Gate, Derby.
Secretary.

THE ROYAL HOSPITAL, WOLVERHAMPTON.
(Incorporated under Charter.)**RESIDENT ANAESTHETIST.**

Applications are invited for the post of Resident Anaesthetist. The appointment will be for six months, renewable, and the salary £200 per annum, with board and residence. Duties to commence January 23rd next.

The Hospital contains 300 beds, at present being enlarged to 400 beds, and is approved by the General Medical Council for part of the requisite attendance on Medical and Surgical Practice.

Applicants should provide evidence of their experience in modern anaesthetic methods; applications should be sent to the undersigned, from whom further information required about the post may be obtained.

Wolverhampton, W. H. HARPER,
December 12th, 1938 House Governor.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

Applications are invited for the following posts: (a) **HOUSE SURGEON**, vacant on February 1st, 1939.

(b) **HOUSE PHYSICIAN**, vacant on February 1st, 1939.

Each appointment is tenable for a period of six months, but is terminable at an earlier date by one month's written notice on either side.

The salary of each officer will be at the rate of £130 per annum, with board, residence and laundry.

Candidates (male), who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four testimonials, to the undersigned on or before Wednesday, December 21st, 1938.

J. A. BEARDSALL,
Secretary-Superintendent.

LEICESTER ROYAL INFIRMARY.
PART-TIME VENEREAL DISEASES OFFICER
(Female.)

Applications are invited for the position of Senior Medical Officer (woman) in charge of Women's V.D. Clinics under general administrative control of the Director of Venereal Diseases Service. Salary £350 per annum.

The appointment is for a part-time Medical Officer, who will be allowed to engage in private, but not panel, practice. It is understood that an additional part-time appointment valued at £150 per annum will be offered to the successful candidate.

Applicants must be qualified in accordance with the new regulations of the Ministry of Health.

Full details on application to the House Governor and Secretary.
November 30th, 1938.

ROYAL BERKSHIRE HOSPITAL.
Reading. (338 Beds.)

Applications are invited for the following resident appointments, which fall vacant on February 1st, 1939:

One **HOUSE SURGEON** to the **SPECIAL DEPARTMENTS** (Eye, Ear, Nose, and Throat) (male);

One **CASUALTY OFFICER** (male).
Appointments are for six months, and candidates must be fully qualified and registered.

Remuneration at the rate of £150 per annum, with board, residence, and laundry.

Applications, stating age and experience, with copies of testimonials, to be sent to the undersigned on or before January 7th, 1939.

H. E. RYAN,
Secretary and House Governor.

PRESTON ROYAL INFIRMARY.

The Board of Management invite applications from unmarried gentlemen, doubly qualified and registered, for the post of **HOUSE SURGEON**, vacant on February 1st, 1939; duties under Consulting Surgeon; six months' appointment; salary at the rate of £150 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, together with copy testimonials, to be forwarded to Mr. JOHN GIBSON, Superintendent, Royal Infirmary, Preston.

N.B.—This appointment is recognized as approved experience in connexion with the F.R.C.S. (Eng.) examination.

ROYAL EAST SUSSEX HOSPITAL.
Hastings

Applications are invited for the post of **JUNIOR HOUSE SURGEON** (female), vacant January 1st, 1939. The appointment is for a period of six months.

Salary at the rate of £150 per annum, with board and residence.

Candidates must be duly registered medical practitioners.

Applications, with copies of recent testimonials, to be addressed to the Secretary by December 23rd.

WILFRID G. KEMSLEY.

THE ROYAL INFIRMARY, SHEFFIELD.
(476 Beds.)**RESIDENT SURGICAL OFFICER.**

Applications are invited for the above post, which will become vacant on January 1st, 1939. Salary £200 per annum, with board and residence. The appointment is for a period of one year.

The duties include that of First Assistant to one of the Surgical Units. Candidates should have held previous House appointments and must be F.R.C.S. (Eng. or Edin.).

Applications, together with copies of three recent testimonials, to be sent to the undersigned on or before December 24th, 1938.

H. KINGSLEY PEARCE,

General Superintendent and Secretary,
December 10th, 1938.

THE ROYAL INFIRMARY, SHEFFIELD.

The Board of Management invite applications for the post of **OPHTHALMIC HOUSE SURGEON.**

The salary attached to the post is £120 per annum, with board and residence.

The successful applicant will be expected to take up his duties on January 1st, 1939.

The Ophthalmic Department contains 69 beds and an Out-Patient Department which is open daily.

Applications, with copies of testimonials, to be sent forthwith to the General Superintendent and Secretary.

November 11th, 1938.

THE RADCLIFFE INFIRMARY, OXFORD.

Applications are invited for the post of **ASSISTANT PHYSICIAN** in the Department of **PHYSICAL MEDICINE.** The salary will be at the rate of £400 per annum, and the Assistant Physician will have the right of charging fees in paying patients in the Department, on conditions which will be arranged with the Committee of Management. The appointment will be for a period of one year in the first instance.

Twenty copies of applications and testimonials should be sent to the undersigned not later than Monday, January 23rd, 1939.

A. G. E. SANCTUARY,
December, 1938, Administrator.

NORFOLK AND NORWICH HOSPITAL.
Norwich. (440 Beds.)

Applications are invited for the post of **CASUALTY OFFICER.**

Salary £120 per annum, with board, residence, and laundry.

Candidates (male) must be unmarried, and must possess registered qualifications.

Applications, stating age, nationality, etc., together with copies of testimonials, should reach the undersigned as soon as possible.

FRANK INCH,
House Governor and Secretary
December 16th, 1938.

THE CHESTER ROYAL INFIRMARY.
(225 Beds.)

Applications are invited for the appointment of an additional (fourth) **HONORARY ANAESTHETIST.** Applications, stating age and qualifications, and with copies of not more than three recent testimonials, should be delivered, addressed to the Chairman, Council of Management, Royal Infirmary, Chester, on or before Saturday, December 31st, 1938.

Canvassing is prohibited.
By Order of the Council of Management,
J. ROWSE MITCHELL,
December 6th, 1938, Secretary.

WORCESTER ROYAL INFIRMARY.

Applications are invited for the post of **HOUSE PHYSICIAN.** Salary at the rate of £150 per annum, including board, residence, and laundry.

Applications, stating full particulars as to age, whether married or single, qualifications, etc., and accompanied by copies of three recent testimonials, should be sent to the undersigned by December 21st, 1938.

H. J. CLOUT,
Secretary.

SWANSEA GENERAL AND EYE HOSPITAL.
(336 Beds.)

HOUSE SURGEON WANTED, gentleman, single. Salary £150 per annum, with board, residence and laundry. Appointment for six months. Duties to commence January 1st, 1939.

Applications, stating age, nationality, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWYLLS,
Secretary-Superintendent.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

| Town or District | Town or District | Town or District |
|--|--|---|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(cont'd) | CONTRACT PRACTICE—(cont'd) |
| ABERTYSSWIG MEDICAL AID SOCIETY (Medical Officer) | MID-RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer) | OAKDALE, MON. (Medical Officer for Medical Aid Association) |
| BLATNAWON MEDICAL SOCIETY (Medical Officer) | NEATH AND DISTRICT (Medical Aid Association) | PUBLIC HEALTH |
| GILFACH GOCH, GLAMORGAN (Workmen's Medical Scheme) | OGMOPE VALLEY, GLAMORGAN. (Wynham Colliery Medical Aid Society) (Workmen's Medical Scheme) | HERTFORDSHIRE COUNTY COUNCIL. (Assistant County Medical Officer) |
| LWYNHYPIA, CLADACH VALE. PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme) | | WIGTOWN COUNTY COUNCIL. (Assistant Medical Officer of Health) |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch |
|---|---|--|--|--|---|
| NEW SOUTH WALES (All Friendly Society Appointments) | The Medical Secretary, New South Wales Branch, 125, Macquarie Street, Sydney, N.S.W. | VICTORIA (All Institute or Medical Dispensaries) | The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria. | WESTERN AUSTRALIA (Contract and Lodge Practices) | The Hon. Sec. Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia. |
| QUEENSLAND (Brisbane Associate Friendly Societies Institute.) | The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17 | | | | |

December 14, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASE OF THE THROAT AND CHEST.

Wanted, an ASSISTANT MEDICAL OFFICER (male) for the Croxley Sanatorium, Delamere Forest, Cheshire (113 beds). Salary £200 per annum, with board, apartments, and laundry. Candidates must be registered. The appointment offers an opportunity for gaining experience in modern methods of treating Pulmonary Tuberculosis. Applications, stating age, with copies of testimonials, to be sent not later than December 24th to W. HUGH, Secretary, 45, Hardman Street, Manchester, 3.

ROYAL EAST SUSSEX HOSPITAL, Hastings.

Applications are invited for the post of SENIOR HOUSE SURGEON (female), vacant January 1st, 1939. The appointment is for a period of six months. Salary at the rate of £200 per annum, with board-residence. Candidates must be duly registered medical practitioners. Applications, with copies of recent testimonials, to be addressed to the Secretary, WILFRID G. KEMSLEY.

ROTHERHAM GENERAL HOSPITAL. HONORARY OPHTHALMIC SURGEON.

The Hospital Committee invite applications for the post of Honorary Ophthalmic Surgeon at the above Institution. Prompt replies to this advertisement are desirable, and full particulars can be obtained from the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE, Warrington, Manchester, 20

Applications are invited for the post of RESIDENT SURGICAL OFFICER at the above Hospital, to commence duties early in January. The appointment is for a period of six months, but will be renewable. Previous resident appointments essential. Salary at the rate of £150 per annum, plus residence, board, and laundry. Applications, with full details of previous experience, together with copies of testimonials, should be sent to the undersigned immediately. PIRCY N. GLASS, Superintendent and Secretary.

THE KIDDERMINSTER AND DISTRICT GENERAL HOSPITAL (145 Beds).

SENIOR HOUSE SURGEON (male) required Salary £150 per annum, with residence, board and laundry. JUNIOR HOUSE SURGEON (male) required Salary £100 per annum, with residence, board and laundry. Applications, together with not more than three testimonials, should be forwarded immediately to the undersigned. F. W. BARNETT, House Governor and Secretary.

FREE EYE HOSPITAL, SOUTHAMPTON.

Applications are invited for the post of ORTHOPTIC TEACHER, as from January 1st, 1939. Whole-time appointment. Commencing salary £150. Must be unmarried. Facilities given for taking private patients on terms to be arranged. Applications, giving experience and qualifications, to be sent to the undersigned. E. T. KEMP, Secretary.

WEST KENT GENERAL HOSPITAL (Incorporated, Maidstone (135 Beds))

Applications are invited for the post of HOUSE SURGEON, who must be a male, of British nationality, and unmarried. Salary at the rate of £175 per annum, with board, apartments, and laundry. Candidates must possess registered qualifications. Applications, stating qualifications and experience, together with copies of testimonials, should be sent to the undersigned not later than December 21st, 1938. The successful candidate will be required to take up residence on January 1st, 1939. EDWARD J. GREGG, House Governor and Secretary.

ANCOATS HOSPITAL, MANCHESTER. 4.

ASSISTANT PATHOLOGIST.—Lady or gentleman, whole-time appointment, no private work allowed. Salary £400 per annum live out. Luncheon and tea provided. The appointment is for twelve months and is renewable. Applications for the above post, stating age and particulars of qualifications and experience, to be forwarded to the undersigned on or before January 4th, 1939, together with copies of three recent testimonials. By Order of the Board, HERBERT J. DAFFORNE, Gen. Supt. and Secretary.

BOOTHAM PARK MENTAL HOSPITAL, York.

Wanted, JUNIOR ASSISTANT MEDICAL OFFICER (lady or gentleman). Salary £300 p.a., with the usual emoluments. Apply, with copies of testimonials, to the Medical Superintendent.

(Appointments continued on p. 47)

CHARGES for ADVERTISEMENTS

CIRCULATION OF THIS ISSUE—41,750 COPIES

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ADVERTISEMENT MANAGER, BRITISH MEDICAL JOURNAL,
B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

EUSTON 2111

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TOBACCO GOOD SMOKES at a low price, quality guaranteed. Box of 50 for 25/-, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

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THESE luxurious deliciously satisfying smokes 50's or 100 at 6/3 per 100; 58/6 per 1,000, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

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THE finest combination ever discovered of Choice Natural Tobaccos. Every pipeful an indescribable pleasure. 12/6 per 1 lb. tin, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

ROYAL FREE HOSPITAL OLD STUDENTS.

CONTRIBUTIONS invited for leaving presents to Sister Boys and Sister Annie Zunz, retiring after twenty-five years' service. Please send to MISS WILLS, Pathological Unit, Royal Free Hospital, W.C.1.

TYPEWRITING.—SPECIALISTS IN TYPING Medical and scientific papers, lectures, theses, and books. Shorthand-typists always available. Proof-reading, indexing.—MARGARET WATSON, LTD., 16, Palace Chambers, Bridge Street, S.W.1. WHITEHALL 3838.

TYPEWRITING, DUPLICATING, TRANSLATIONS.—Experts in Medical work. TESTIMONIALS, THESES, etc., accurately copied in style that commands attention.—WOBURN BUREAU, Drayton House, Gordon Street, London, W.C.1 (close B.M.A. House). EUSTON 1775.

WHEN YOU COME TO LONDON STAY AT THE HAMPTON RESIDENTIAL CLUB FOR GENTLEMEN, Hampton Street, N.W.1. Close King's Cross and Euston. 300 bedrooms. 15/- to 22/6 p.w., incl. bath, attend., and boot cleaning. All meals à la carte in dining room. Mod. tariff. Large club rms., reading rm., study for students. Illus. pros., Sec. EUSTON 2244/5.

NATIONAL ADOPTION SOCIETY, 4, BAKER STREET, W.1. Telephone: WELbeck 7211. OFFERS ASSISTANCE in the legal adoption of illegitimate and orphan babies into suitable family life. Chairman, THE LADY GWYNETH CAVENDISH.

PRINTING.—NOTEPAPER, ACCOUNT Forms, Certificates, etc. We specialize in Professional Stationery. Large range of samples sent on request. Highest quality. Lowest prices.—Ranelagh Press, 26, Woodford Avenue, Ilford.

ASSISTANCIES

WANTED AS FROM JANUARY 1st, 1939, MALE ASSISTANT, under 30 years, with University Degree, must have held hospital appointments, preferably reading for higher degrees; must be keen, temperate, able to drive a car. Good-class practice and small panel in Malvern area. Salary £350, outdoor, nil board.—Address, No. 950, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR AND Outdoor ASSISTANTS for town and country practices, with and without view to partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED IN JANUARY.—LADY DOCTOR as ASSISTANT for Sanatorium. Previous experience not necessary.—Address, No. 1030, B.M.A. House, Tavistock Square, W.C.1.

WANTED ON JANUARY 1st, 1939, OUT-door female ASSISTANT, Salary £350-£400, with free house and housekeeper. Car or car allowance.—Address, No. 1025, B.M.A. House, Tavistock Square, W.C.1.

WANTED BY PARTNERSHIP, OF TWO Guy's men in Birmingham an outdoor ASSISTANT (male or female) beginning January. Salary £500 plus bonus on maternity, capable producing £100 p.a. Salary increase £50 p.a. Partnership offered within two years. Interviews Birmingham or London.—Address, No. 1027, B.M.A. House, Tavistock Square, W.C.1.

WANTED, YOUNG KEEN MALE ASSIS-TANT, British, for general practice in coast town north-east Scotland, to start January.—Address, No. 1019, B.M.A. House, Tavistock Square, W.C.1.

WANTED, EXPERIENCED MARRIED ASSIS-TANT for Glamorgan colliery practice; £450 per year, house, and car or car allowance. Must be abstemious.—Address, No. 995, B.M.A. House, Tavistock Square W.C.1.

WANTED, YOUNG MALE OUTDOOR ASSISTANT, single, Scotch or English, for mixed practice, Staffordshire. Salary £450, and £50 car allowance; own car essential. Reference.—Address, No. 999, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN ASSISTANT WITH A VIEW to PARTNERSHIP in a large country and country town practice, east coast of England. Surgical work, etc., in local cottage hospital. Third share worth £1,000 gross. Send applications.—Address, No. 1004, B.M.A. House, Tavistock Square, W.C.1.

WANTED, PERMANENT ASSISTANT. Salary £400 and free house; increase later. Near South London. Married and active for busy mixed practice. Capable managing and developing further.—Address, No. 1011, B.M.A. House, Tavistock Square, W.C.1.

WANTED, YOUNG MALE OUTDOOR ASSISTANT, single, Scotch or English, for mixed practice near Midlands City. Salary £400 and £50 car allowance. Work light. Photograph.—Address, No. 1022, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDIAN, RECENTLY QUALI-fied, ASSISTANT (not doing any studies). Near London; indoor. Salary five guineas p.w.; car allowance extra.—Address, No. 1014, B.M.A. House, Tavistock Square, W.C.1.

WANTED, BY ELDERLY PRACTITIONER, PART-TIME ASSISTANTSHIP, morning or evening surgeries, week-ends, or short locums.—Address, No. 1024, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANTSHIP WITH EARLY VIEW by married man, aged 32 yrs. Long hospital and G.P. experience. Some capital available.—Address, No. 1012, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT WANTED FOR GENERAL practice in N. London. Salary £400 p.a. and partnership (one-third share at first) in three months' time. The income of the practice is £3,000 p.a., and there is a panel of 4,500.—Address, No. 819, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WANTED, PREFERABLY with opportunities for surgical experience, by M.B., Ch.B. Previous experience as H.S. and in G.P. Indoor preferred, with facilities for study.—Address, No. 1017, B.M.A. House, Tavistock Square, W.C.1.

COUNTRY (OR SEASIDE) TOWN, SOUTH of England, wanted ASSISTANTSHIP with view to PARTNERSHIP in one year, by St. Thomas's man, M.B., B.S.(Lond.), 27, married, ex houseman, G.P. experience.—Address, No. 1026, B.M.A. House, Tavistock Square, W.C.1.

M.B., Ch.B.(ABERDEEN), 32, EXPERI-enced and energetic, desires outdoor ASSISTANTSHIP in good-class general practice. Own car. Possible view.—Address, No. 1013, B.M.A. House, Tavistock Square, W.C.1.

M.B., EDIN., 26 YEARS, ENGLISH, 2 years' Hospital Experience, abstainer, C. of E., desires town or suburban ASSISTANTSHIP with VIEW, Yorkshire preferable. Free now.—Address, No. 1029, B.M.A. House, Tavistock Square, W.C.1.

REQUIRED, BY NEW ZEALAND graduate, age 34, with surgical and medical experience, PART-TIME ASSISTANTSHIP in London, with board and residence.—Address, No. 1006, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS

EXPERIENCED M.D. CAN UNDERTAKE LOCUM TENENCY for some weeks before and through Christmas. Good recent references.—Address, No. 1016, B.M.A. House, Tavistock Square, W.C.1.

LOCUM WORK WANTED BY G.P. Excellent testimonials and experience. Capable and well received. Lond. Hospital. Abolition. Post-discharged. Own car.—Address, No. 1035, B.M.A. House, Tavistock Square, W.C.1.

XMAS LOCUMS—EXPERIENCED ENGLISH doctor available for non-resident work in central London. If essential could live in.—Address, No. 916, B.M.A. House, Tavistock Square, W.C.1.

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WANTED, IN OR NEAR LONDON, POST in private MENTAL HOME, with consulting and all other possibilities, by highly qualified doctor, with 15 years' London and home experience. Will take full charge if necessary.—Address, No. 1025, B.M.A. House, Tavistock Square, W.C.1.

WANTED, RESIDENT MEDICAL SUPERIN- TENDENT for small mental hospital. Work light.—Address, No. 1007, B.M.A. House, Tavistock Square, W.C.1.

A COURSE OF TRAINING IN DISPENSING and Pharmacy is given at GORDON HALL SCHOOL OF PHARMACY FOR WOMEN, and Secretary-Dispensers can be supplied to Doctors. Sessions: January, April, and September.—Apply, Principals, School of Pharmacy, Drayton House, Gordon Street, W.C.1. Phone: Lutton 1910.

A LADY DISPENSER BOOKKEEPER SUP- plied immediately on request, qualified with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparations for examinations—Write, wire, or phone (Paymaster) (09/9) Secretary, 7, Westbourne Park Road, W.2.

DISPENSING CAREER FOR YOUNG LADIES FULL TRAINING for Apothecaries Hall Certificate. Enrolment every three months.—Apply, The Principal, Central School of Pharmacy, 22, Marston Street, London, S.W.1. Telephone: Victoria 1641.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeur-Dispensers, are invited to write, wire, or phone Temple Bar 2552, TIER DISPENSER'S BUREAU, 3, Lundy House, 171, Shaftesbury Avenue, London, W.C.2.

DOCTOR, M.D., F.R.C.S., RETIRED FROM Indian Colonial Service, desires LIGHT WORK, preferably in or near Edinburgh, but any proposition would be entertained.—Address, No. 1031, B.M.A. House, Tavistock Square, W.C.1.

EXPERIENCED LADY DISPENSER required for late Cheshire practice. Area, status are, experience, qualifications, and salary required, 10.—Address, No. 996, B.M.A. House, Tavistock Square, W.C.1.

EXPERIENCED LADY DISPENSER-SECRETARY desires post. Apothecaries Hall qualification. Shorthand, typewriting, book-keeping and accounts.—Address, No. 1021, B.M.A. House, Tavistock Square, W.C.1.

FREE ACCOMMODATION AND SMALL remuneration offered in post-graduate or semi-retired practitioner in RETURN for occasional NIGHT CALLS. North London. Easy access to all hospitals. Might suit Indian doctor.—Address, No. 1032, B.M.A. House, Tavistock Square, W.C.1.

PHYSICIAN AND SURGEON, 25 YEARS' varied experience home and abroad, seeks ADMINISTRATIVE or CLINICAL APPOINTMENT. Energetic. Alternatively, practice where personality important and part capital acceptable out of income.—Address, No. 793, B.M.A. House, Tavistock Square, W.C.1.

FULLY TRAINED NURSE, BUSINESS diploma and experience, desires post as SECRETARY-NURSE to doctor in London.—Address, No. 1003, B.M.A. House, Tavistock Square, W.C.1.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 25, Leighton Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

WELL-EDUCATED DOCTOR'S WIFE RE- quires post in London as RECEPTIONIST and SECRETARY to doctor or dentist. Knowledge book-keeping and typing.—Address, No. 1020, B.M.A. House, Tavistock Square, W.C.1.

YOUNG GERMAN LADY TRAINED AS children's nurse, and in curative gymnastics and massage. German and English shorthand, during licence, seeks POST as Assistant and Secretary to doctor.—Address, 2, Claven Hill Gardens, London, W.2.

PARTNERSHIPS

WANTED, PARTNERSHIP, COUNTRY DIS- trict, South England. Irish Graduate, Practising three years' experience. Keen on midwifery and medicine. Some capital available.—Address, No. 936, B.M.A. House, Tavistock Square, W.C.1.

PARTNER WANTED IN GOOD-CLASS country town and rural practice within 100 miles of London. Turn of four. Initial share approx. £1,200 after preliminary arrangement. Increase after three years, two years' purchase. Excellent home available on lease. Modern financial appointment assured. Books audited. Applicants must have done good hospital appointments.—Address, No. 912, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES

WANTED IMMEDIATELY IN LONDON, PRACTICE or PARTNERSHIP, with successful Income £1,500 to £2,000, with substantial panel. Ample capital available for sound practice. Strictly confidential.—Address, No. 917, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, PRACTICE, Cheshire, Lancashire, Midlands. Good panel. Receipts about £1,400-£2,000. Good house, garden essential. Ample capital available. Strictly confidential.—Apply R. SUMNER and Co., Ltd., 40, Hanover Street, Liverpool, 1.

WANTED, BY EXPERIENCED PRACTI- tioner, good middle-class PRACTICE in or near London. Minimum income £1,000 per annum, panel essential. Capital available. Strictly confidential.—Address, No. 101F, B.M.A. House, Tavistock Square, W.C.1.

WANTED, PRACTICE ABOUT £600 TO £1,200; good panel. N.E. or seaside preferred but not essential. Reasonable scope and modern house.—Address, No. 1010, B.M.A. House, Tavistock Square, W.C.1.

WANTED, WITHIN FIVE MILES RADIUS Beckenham, income £1,500 per annum, panel over 1,000.—Apply, Doctor, PRINCE SMITH, PRINCE Solicitors, 31, Warwick Square, London, S.W.1.

DERBYSHIRE, — STEADILY INCREASING old-established PRACTICE in flourishing Midland town. Average cash receipts over past three years £3,633 per accountant's figures, appointments average £120 p.a.; panel over 3,000. Premium £5,756. Could be run by one man and assistant. Pleasantly situated freehold house £2,200, rent £100 p.a. Consider short advantageous view to succession.—Address, No. 997, B.M.A. House, Tavistock Square, W.C.1.

A NUMBER OF SMALL PRACTICES AT LOW premiums. Excellent opportunities for practitioners wishing to get a practice with scope.—Apply, PEARCE and HADLEY, Ltd., 67/68, Chancery Place, Strand, W.C.2.

FOR SALE AT LENIENT TERMS, OLD- established medical PRACTICE in populous district of Hull, Yorkshire. Immediate possession.—PEARCE, CALVERT and WHITLOCK, 26 and 27, Park Row, Leeds, 1.

LARGE INDUSTRIAL UNIVERSITY TOWN PRACTICE, £2,400, increasing. Panel 1,700, P.M.S. £121 per annum. House and practice £5,400.—Address, No. 925, B.M.A. House, Tavistock Square, W.C.1.

LONDON, S.W.—OLD-ESTABLISHED PRA- ctice. Receipts last year £620, panel over 500. Nice house, rent £50. Premium £1,000 or near offer.—PEARCE and HADLEY, Ltd., 67/68, Chancery Place, Strand, W.C.2.

LONDON—PRACTICE FOR SALE IN NEW western suburb. Established 5 years. Receipts last year £593, panel now 747. Short hours. Midwifery refused. Small modern house with garage, rent £65 p.a. Premium 1½ years' purchase cash.—Address, No. 1007, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL PRACTICE IN RURAL DISTRICT of England for sale. Gross earnings approximately £600, house in tenement moderate price, would suit young practitioner. For further particulars apply to: CRAWFORD, HIRSON and CAMPBELL, Solicitors, 257 West George Street, Glasgow, C.2.

M.B., M.R.C.S., WISHES TO SUCCEED retiring doctor in old-established QUIET non-panel practice on agreed terms. Experienced in private, insurance and ophthalmic work. British R.C. Bachelor. War service. London or seaside preferred.—Address, No. 1022, B.M.A. House, Tavistock Square, W.C.1.

MIDLAND CITY PRACTICE FOR SALE. Takings over £2,000. Panel 2,200, clubs 1,500. Good private Partnership if desired. Urgent.—Address, No. 1016, B.M.A. House, Tavistock Square, W.C.1.

MONTE CARLO—DEATH VACANCY, OLD- established PRACTICE. Premium £1,000. Must be M.D.—Address, No. 1023, B.M.A. House, Tavistock Square, W.C.1.

NEAR HOLLOWAY, N.—OLD-ESTABLISHED PRACTICE. Receipts £500 p.a. including fair increasing panel. Nice house, rental. Vendor elderly, retiring. Premium moderate.—PEARCE and HADLEY, Ltd., 67/68, Chancery Place, Strand, W.C.2.

OLD-ESTABLISHED WORKING-CLASS panel and private PRACTICE for sale in large industrial city. Number of insured persons 1,520. Gross cash receipts for last three years average £1,840 per annum. Panel increasing. Public Assistance appointment. House, five bedrooms, etc., on lease. For further particulars apply Messrs DAY, JOHNSON and BOOT, Solicitors, 8, Park Row, Nottingham.

PRACTICE FOR SALE NEAR CITY. PANEL about 4,350. Income about £2,500. 2½ years' purchase. Capital must be available.—Address, No. 1033, B.M.A. House, Tavistock Square, W.C.1.

PRACTICE WANTED, £1,600 UPWARDS, preferably good mixed class with some panel, in Harrogate, Southport, Oxford, Reading, Bristol, or Guildford. Good house essential. Advertiser free now.—Address, No. 1015, B.M.A. House, Tavistock Square, W.C.1.

PRACTICE AND HOUSE FOR SALE IN West Country district. Golfing, fishing, cricket, schools, etc. Easily worked.—Address, No. 1001, B.M.A. House, Tavistock Square, W.C.1.

CHRISTMAS HOLIDAYS, 1938

Advertisements and Communications for our issue of:—

DECEMBER 31st should be received at B.M.A. House by Wednesday, December 21st.

CORRECTIONS for the issue of December 24th must reach us by 10.30 a.m. on Tuesday, December 20th, 1938.

Date.....

INCOME TAX

YOUR burden is OUR business.
Tax Specialists to the Medical Profession.
HARDY & HARDY
49, CHANCERY LANE, LONDON, W.C.2.
Telephone: Holborn 6659.
Write for free copy of "Advice on Income Tax."

1938 H.H.F. AUSTIN, SUN SALOON DI
luxury, not now required, for sale in
perfect condition. Originally cost £195, price now
£130. Great bargain—Dr. ROSE, 54, Gordon
Mansions, London, W.C.1

WANTED, ARTICULATED SKELETON IN
good condition. Particulars and price to
Resident Physician, Baitrock House, Bathaston,
Bath.

NEW HOME SUN (ORIGINAL HANAUI) FOR
sale. Cost 25 gns., accept 18 gns. or near
offer—Adder, No. 1014, B.M.A. House, Tavistock
Square, W.C.1.

APPOINTMENTS.—Contd.

THE ELIZABETH GARRETT ANDERSON
HOSPITAL,
Luton Road, N.W.1.

Applications are invited from qualified medical
women for the following posts—
HOUSE PHYSICIAN, FIRST, SECOND, and
THIRD HOUSE SURGEONS, OBSTETRIC
ASSISTANT.

The posts are for six months commencing
February 1st, 1939.

Remuneration at the rate of £50 per annum,
with board, residence, and laundry. Further
particulars of the posts may be obtained from
the undersigned, to whom applications should be sent,
with copies of three testimonials, not later than
Friday, December 30th, 1938.

JEAN R. MURRAY,
Secretary

THE INFANTS' HOSPITAL,
Vincent Square, Westminster.

The Committee of Management invite applications
for the post of **RESIDENT MEDICAL OFFICER**.
Candidates must have held previous resident
Hospital appointments for not less than six months,
and must have had Paediatric experience. The
appointment is for one year from March 1st with
eligibility for reappointment. Salary £300 per
annum, with board, lodging and laundry.

Candidates are expected to call upon, and send
a copy of application and testimonials to, each
member of the Honorary Medical and Surgical
Staff.

Applications, with copies of testimonials, should
be sent not later than January 30th to the under-
signed, from whom copies of the rules may be
obtained.

ARNOLD TUNSTALL.

SOUTH LONDON HOSPITAL FOR WOMEN,
Clapham Common, S.W.4

Applications are invited from medical women
for the undermentioned appointment.

SURGICAL REGISTRAR
Full-time duty for a period of one year, with
eligibility for reappointment to a maximum of
three years.

Honorarium of £200 per annum. Candidates
are requested to call on members of the Hon.
Medical Staff by Friday, December 30th, by which
date applications and copies of testimonials should
reach the Secretary at the Hospital.

LONDON HOSPITAL E.I.

There is a vacancy for the post of **FIRST**
ASSISTANT to the Ophthalmic Department.
Candidates must be fully qualified medically.
Honorarium £150 per annum.

Applications should be made to the Secretary,
from whom further particulars may be obtained,
and should arrive not later than Saturday, January
14th, 1939.

H. L. MILSON,
Secretary.

CENTRAL LONDON OPHTHALMIC
HOSPITAL,
Judd Street, London, W.C.1.

LOCUM is required for the **SENIOR HOUSE**
SURGEON for two months from February 1st.
Further particulars may be obtained from the
Secretary at the Hospital.

WEST RIDING OF YORKSHIRE MENTAL
HOSPITALS BOARD

APPOINTMENT OF AN ASSISTANT
MEDICAL OFFICER

WADSLEY MENTAL HOSPITAL.

Applications are invited for the appointment of
an Assistant Medical Officer in the Board's
service at the above Mental Hospital, at a com-
mencing salary of £150 per annum, rising by
annual increments of £25 to a maximum of £450,
together with emoluments (board, apartments and
laundry), valued at £120 per annum. The Board
will allow an extra £50 per annum to the suc-
cessful candidate who (while on this scale) holds
or obtains the Diploma in Psychological Medicine,
for which this Hospital affords special study
facilities.

It will be an advantage if candidates have had
at least one year's experience in general medicine
after qualification.

The appointment is subject to the provisions of
the Asylum Officers' Superannuation Act, 1909,
Class I.

Applications, with copies of not more than two
recent testimonials, stating age and full particulars,
to reach the undersigned not later than January 9th,
1939. There is no printed form of application.

Board Office, G. L. BANNER,
Victoria Chambers, Clerk of the Board
Wood Street, Wakefield
P.O. Box 24.

ROYAL UNITED HOSPITAL, BATH

HOUSE PHYSICIAN required for January 1st,
1939. Resident Staff of two House Physicians
and three House Surgeons.

Duties include some Casualty. Salary £150 per
annum, board, residence and laundry. The
appointment is for six months, and candidates must
be male, unmarried, and of British nationality.

Applications, with copies of three testimonials,
to be addressed to the undersigned by
December 27th.

J. LAWRENCE, M.B.,
December 13th, 1938. Secretary-Superintendent

HUNDRSFIELD ROYAL INFIRMARY
(321 Beds.)

Male **HOUSE SURGEON** required to commence
duty on January 5th, 1939.

Salary £150 per annum, with board, residence,
and laundry.

Appointment for six months, subject to renewal
at the discretion of the Board of Management.

The Hospital is officially recognised for the
surgical practice required of non-members before
admission to the Final Fellowship Examination of
the Royal College of Surgeons of England.

Applications, with copies of three recent testi-
monials, to be addressed to the undersigned
immediately.

H. J. JOHNSON,
Gen. Supt. and Secretary.

WATFORD AND DISTRICT PEACE
MEMORIAL HOSPITAL
(154 Beds.)

Applications are invited for the following post
for a period of six months, commencing
February 1st, 1939.

HOUSE PHYSICIAN (female)
Salary at the rate of £150 per annum, with
board and laundry.

Applications, stating age, nationality and qualifi-
cations, together with three testimonials, to be
forwarded to the undersigned not later than
December 31st, 1938.

T. H. FLETCHER, Secretary.

POPLAR HOSPITAL,
East India Dock Road, Poplar, E.14.

The Committee invites applications for the
appointment of **SECOND RESIDENT OFFICER**
(male) at a salary at the rate of £175 per annum,
all found. Candidates must have held appoint-
ments as House Surgeon at a Hospital.

Applications must be accompanied by a statement
of the candidate's qualifications and forwarded to
the Secretary, with three recent testimonials, not
later than Friday, December 23rd, 1938. The
appointment is for a period of six months.

THE LAWN, LINCOLN.
ASSISTANT MEDICAL OFFICER REQUIRED.

Medical woman, with mental hospital experience
or working for D.P.M. preferred. Salary £300 per
annum, with emoluments Apply, Medical Super-
intendent, The Lawn, Lincoln.

NATIONAL CHILDREN'S HOSPITAL,
Harcourt Street, Dublin.

Required, for a period of six months from
January 1st, 1939, **HOUSE PHYSICIAN**, male or
female. Salary 50 guineas per annum. Apply
Registrar.

EAST SUFFOLK AND IPSWICH HOSPITAL.
(150 Beds.) (6 Residents.)

Wanted, February 1st, 1939, **HOUSE SURGEON**
(male, British) to a General Surgeon and Assistant
General Surgeon. The Hospital is recognized by
the Royal College of Surgeons in respect of this
post. Salary at the rate of £144 per annum, with
board, apartments, and laundry.

Applications, stating age, qualifications, and ex-
perience, to be sent to the undersigned, together
with copies of three recent testimonials.

The Hospital, **ARTHUR GRIFITHS,**
Ipswich. Secretary.

December 17th, 1938

HARROGATE ROYAL BATH HOSPITAL
(A National Hospital for Rheumatic and
Allied Diseases) (150 Beds.)

Applications are invited for the post of
RESIDENT MEDICAL OFFICER (male), to com-
mence duties beginning of February, 1939. Salary
£200 per annum, with board, residence and laundry.
Exceptional facilities for research or preparation
of thesis.

Applications, stating qualifications, age, etc., with
copies of recent testimonials, to be forwarded to
the undersigned.

E. P. L. DIXON, M.A., Secretary

PROVIDENCE LIRE HOSPITAL, ST HELENS
(130 Beds.)

HOUSE SURGEON (male, single) required.
Experience in anaesthetics essential. Appointment
offers opportunity to gain good surgical experience.
Appointment is for six months, and successful
candidate is eligible for reappointment. Vacancy
January 1st, 1939. Salary £210, with board,
residence and laundry.

Applications, stating age, experience, and full
particulars, together with copies of three testi-
monials, to be in by December 27th.

Reply, Secretary, M.O.

DUNDEE MENTAL HOSPITAL WESTGROVE

Applications are invited for the post of **JUNIOR**
ASSISTANT MEDICAL OFFICER (male) to the
above Hospital. Salary £100 per annum, with
board, lodging, and laundry, subject to deductions
under the Asylum Officers' Superannuation Act.

Applications, stating age and experience, with
copies of three recent testimonials, to be forwarded
to the Medical Superintendent.

THE CENTURY INSURANCE COMPANY LTD.

7, LEADENHALL STREET,
LONDON, E.C.3.

18, CHARLOTTE SQUARE,
EDINBURGH.

ASSISTS DOCTORS TO PURCHASE A PRACTICE OR PARTNERSHIP

NO GUARANTORS REQUIRED.
REPAYMENTS ARRANGED
BY EQUAL QUARTERLY
INSTALMENTS, WHICH DO
NOT VARY WITH FLUCTUA-
TIONS IN THE BANK RATE.

PLEASE WRITE FOR
PARTICULARS, STATING
AGE NEXT BIRTHDAY.

MENTION "B.M.J."

THE MEDICAL AGENCY. Ltd.

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Telephones: Temple Bar 1034-1054.

Established in 1893 by J. A. RIASOR.

HANTS (Coast).—Old-estab. mixed G.P. Receipts over £1,000. Panel 1,200. Scope for increase. House to rent on lease. Prem. 2 years.

SURREY.—Residential locality, easy access Town. Detached house available. Receipts £700. Panel 350. Fees 3/6 up. Scope for young practitioner. Prem 1½ yrs. purchase.

MIDDLESEX.—Inner, middle- and working-class PRACT., situated growing locality. Specially built corner house. Receipts approx. £1,400. Panel nrlly. 1,200. Prem. £2,400.

LANCS.—Mixed panel and private. Receipts nrlly. £1,500. Panel 1,086. 3 APPS. House avail. at £1,600. Prem. 1½ yrs. purchase.

LONDON, N.W.—Better-class non-dispens. Cash receipts £1,800. Select panel 312. F'hold house for sale. Part can remain on mortgage. Prem. for Pract. 2 yrs. purchase.

WILTSHIRE.—Town and country PRACT. 1 share P'ship with view to 1. Receipts £4,000. Panel 3,000. Fees 3/6 up. Scope for Surgeon. Prem. 2 yrs. purchase.

LOCUMS AND ASSISTANTS ALWAYS AVAILABLE.

NORTH MIDLANDS.—Growing country PRACT. Suit. accommodation available. Receipts nrlly. £700. Small panel. Fees 5/- to 10/6. Prem. £850.

SOUTH COAST.—P'SHIP SHARE or WHOLE PRACTICE in better-class non-dispens. non-panel Practice. Receipts approx. £2,700. 5/12th share or whole at 2 yrs. purchase.

SURREY (Nr. River).—Old-estab. better-class non-dispens. PRACTICE. Residential locality. Receipts approx. £1,000 p.a. Select panel 420. Fees 3/6 up. Prem. £1,500 or near offer.

LONDON, N.W.—P'SHIP in mixed middle-class G.P., easy reach West End. Receipts £5,200. Panel 6,000. House to rent 1/4th share. 2 years' purchase.

MIDLANDS.—Old-estab. G.P. House to rent on lease or may be purchased. Receipts approx. £1,700. Panel 1,600. Prem. 2 yrs. purchase.

We have several promising NUCLEI in rapidly developing districts. Details on application.

THE WESTERN MEDICAL AGENCY

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Dr. K. H. BINNETT and Dr. W. J. PARAMORE, who give personal attention to every client.

Financial Assistance for Purchasers and all Classes of Medical Insurance arranged.

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1. S.W. COAST.—PARTNERSHIP in delightful part. Good-class, and the vendor requires a man who is well qualified with surgical and E.N.T. experience. Panel 410. Receipts £2,577. increasing. Two-fifths share (£1,030) to commence. Two years' purchase. Choice of house.
2. LONDON, S.E.—PRACTICE doing £1,400 p.a. Panel 600. 1½ years' purchase, or offer. House sale or rent.
3. MIDLANDS.—X-ray, electrical, panel and private PRACTICE. D.M.R.E. not essential. £1,700 p.a. Panel over 1,600. Premium £3,500. Good house.
4. N. WALES.—PRACTICE in country district. Welsh not necessary. Panel 665. Average £1,860 p.a. 1½ years' purchase. House sale or rent.
5. SURREY.—PRACTICE doing £1,490 p.a. Panel 828. Premium £2,500. House sale or rent.
6. LONDON, S.W.—PRACTICE doing £1,200 p.a. Panel 1,450. Premium £2,500, or near offer. House rent.
7. S. COAST.—Good-class, non-panel PRACTICE. £2,700 p.a. Hospital appointment and consultation work. Whole practice or half share. 2 years' purchase.
8. KENT.—PARTNERSHIP. Panel 1,700. Over £3,000 p.a. THIRD SHARE to commence at £2,500.
9. MIDDLESEX.—PRACTICE doing £1,500 p.a. Panel 580. Premium £2,500, or offer.
10. GLOS.—Country PRACTICE. £750 p.a. Panel 600. Premium £1,150. House £850

We have purchasers awaiting Practices in London

22, CLARE STREET, BRISTOL, 1.

Telex "Medgren. Bristol." Tel. Bristol 22689.

15, BEDFORD ST., STRAND, W.C.2.

Tel.: Temple Bar 2532

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71, TEMPLE ROW, BIRMINGHAM

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MAXIMUM 1½% 150, 1% exclusively entrusted to us

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WANTED TO PURCHASE.

1. BIRMINGHAM or within 50 miles thereof.—Good Mixed PRACTICE, with a Panel of 1,200 over, and receipts of from £1,400-£3,000. URGENTLY REQUIRED. CAPITAL AVAILABLE.

FOR DISPOSAL.

1. MIDLANDS.—Rapidly increasing mixed private and panel PRACTICE. Receipts well over £1,600 p.a. Panel 1,100 and increasing. Ample scope to increase, and good house.
2. STAFFS.—Well-established, rapidly increasing mixed private and panel PRACTICE. Receipts £1,098 p.a. Panel 1,165. Excellent house.
3. GLOUCESTERSHIRE.—Well-established middle- and working-class PRACTICE. Receipts £1,250 p.a. Panel 1,200. Good house with all services.
4. DEVONSHIRE.—Seaside Resort, PARTNERSHIP in mixed, chiefly middle- and better-class PRACTICE. Experience in E.N.T. and Surgery desirable.
5. BIRMINGHAM.—Old-established better-class mixed private and panel PRACTICE. Receipts about £2,000 p.a. Panel 350. Excellent house. Good scope for large panel if desired.
6. NORTHANTS.—Old-established unopposed country PRACTICE. Receipts well over £1,600 p.a. Panel 900. Excellent house, which may be rented.
7. MIDLANDS.—Well-established mixed, private and panel PRACTICE. Receipts £2,850 p.a. Panel 1,440. Excellent house, and scope to increase.

FINANCIAL ASSISTANCE afforded to approved applicants for the purchase of Practices or Partnerships on very reasonable terms. Full particulars on application.

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ESTABLISHED 1868.

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MEDICAL TRANSFER AGENCY,
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Assistants and Locums Provided without fee to Principals. Practices Investigated. Book-keeping, Debt Collecting, etc.

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FOR DISPOSAL.

BIRMINGHAM SUBURB.—AVERAGE £2,400 p.a. Panel 1,700. Old-established. Convenient house, 5 bedrooms, garage, garden, etc. £5,400 for goodwill and house.—1.

ESSEX SUBURB.—AVERAGE £500 p.a. Small panel, increasing. Premium £800, including drugs, etc. House with 5 bedrooms, etc., to rent at £90 p.a.—2.

LONDON, S.W. SUBURB.—AVERAGE about £3,450 p.a. Panel 1,700. Appointment £40. Fees 5/-, 7/6, etc. Premium 2 years' purchase, or near. Nice house, net rent £82 p.a., or sell.—3.

LONDON, S.E.—SUBURB. £1,450 P.A. Panel 500. Fees usually 4/- and 5/-. Prem. 1½ years' purchase or offer. Large house on lease at £130 p.a.—4.

WORCS.—COUNTRY TOWN. ABOUT £800. Panel £215. Prem. 1½ years. Large house for sale at £2,000 or offer.—5.

NORFOLK.—TOWN AND COUNTRY. £650. scope. Panel 375. Freehold house, 6 bed., etc. £850. Premium £825 cash.—6.

S. COAST RESORT.—ABOUT £2,700 p.a. High class, no panel or disp. 5/12th share now, and early succession. Good house on prominent site, to rent.—7.

MANCHESTER SUBURB.—AVERAGE £2,300 p.a. Small panel. Two houses available. PRACTICE very suitable for two PARTNERS.—8.

WITHIN 20 MILES OF LONDON.—SHARE worth £1,140, shortly increasing to £1,700. Residential area. Fees 3/6 to 10/6. Very suitable house, 5 bed., etc. Rent £100 p.a.—9.

WESTERN AUSTRALIA.—ORTHO-PÆDIC PRACTICE, averaging £3,000 p.a. Premium £2,200, £1,000 down. Excellent rooms on rental.—10.

LONDON, E.—LADY'S PRACTICE. £750 p.a. increasing. Panel, recently started, 247. Visits 3/6 up. Prem. 1½ years' purchase. House to rent £60 p.a.—11.

SALOP.—ABOUT £400 P.A. COUNTRY Town. Small panel. Appts. £90. Premium £250. Nice house available.—12.

LONDON, N.W.—AVERAGE £1,000 p.a. Select panel. Fees 7/6 to 21/-. Premium £2,000 or near. Redec. and modernised house, 5 bed., etc.—13.

SOUTH COAST.—£1,350 P.A., INCREASING. Panel 1,200. Premium £2,500. Good house, 5 bed., garden, etc. for sale.—14.

MIDLAND TOWN. WITHIN 70 MILES.—About £1,700 p.a. with some X-Ray work. Panel over 1,600. House, 5 bed., etc. Rent £130 p.a. Premium £3,500.—15.

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LANCS.—Very old-established PRACTICE in large town. Cash receipts over £1,000 p.a. No Panel, but scope for such work. Good house, with ample accommodation. Premium—Practice and house—£1,000. Vendor retiring—No. 1191.

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LANCS TOWN.—DEATH VACANCY.—Mixed Panel and Private PRACTICE. Cash receipts last year £1,058. Panel 1,200. Good house, with ample room—best offer—No. 1209.

MANCHESTER.—old-established middle- and working-class doctor interested in X-ray and electrical work. Panel 1,600. Good house, 2 reception, 5 bedrooms, 3 Professional rooms, garage and small garden. Premium—best offer—No. 1182.

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LANCS TOWN.—Very old-established mixed Panel and Private PRACTICE. Cash receipts last year £2,200. Panel 2,020. Scope. Good house, 2 reception, 6 bedrooms, 3 Professional rooms (separate entrance), garage and small garden. Rent £75 p.a. Premium—£11 years' purchase—No. 1192.

YORKSHIRE (W.R.).—Old-established mixed Panel and Private PRACTICE. Cash receipts about £1,200 p.a. Panel 900. Scope. Excellent detached house, 2 reception, 4 bedrooms, garage and garden. Premium—£11 years' purchase or near offer—No. 1125.

MANCHESTER.—PRACTICE in suburban district. Cash receipts about £1100. Panel 570. Great scope. Good house, 3 bedrooms, etc. Price £400. Premium—£1,300. No. 1197.

SIRROPSHIRE.—Unopposed Country PRACTICE. Average receipts £650 p.a. Panel 450, and transferable appointments £100 p.a. Modern house, 2 reception, 5 bedrooms, electric light, garage and garden. Rent £50 p.a. Premium—Best offer—No. 1066.

NORTH-WEST COAST.—NUCLEUS. Cash receipts £300 p.a. Panel 150. Great scope. Nice house available. Premium—£350. No. 1195.

NORTH STAFFS.—Old-established mixed Panel and Private PRACTICE. Cash receipts over £3,000 p.a. Panel 4,000. Large detached house, with good accommodation and garage, for sale. Premium—Practice—best offer—No. 1166.

NEAR MANCHESTER.—Very old-established middle- and better working-class PRACTICE. Cash receipts over £2,600 p.a. Panel 1,450. Excellent detached house, 2 reception, 6 bedrooms, garage and garden, with tennis court. Price £1,000. Premium—£11 years' purchase—No. 1108.

NORTH-WEST COAST.—Steadily increasing mixed Panel and Private PRACTICE. Cash receipts last year £1,200. Panel 1,014. Scope. Good house in excellent condition, with ample accommodation and separate surgery premises. Rent £40 p.a. Premium—£11 years' purchase—No. 1174.

YORKSHIRE (W.R.).—Old-established Panel and Private PRACTICE in large town. Cash receipts £1,600 p.a. Panel over 1,500. Good detached house, with ample accommodation; garage and small garden. For sale, or may be rented. Premium—2 years' purchase—No. 1130.

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YORKSHIRE.—Well-established PRACTICE in Country town, offering scope for increase. Cash receipts over £550 p.a. Panel 350. Good house, 2 reception, 5 bedrooms, garage and good garden. Rent £70 p.a. Premium—best offer—No. 1212.

HULL.—Very old-established mixed Panel and Private PRACTICE. Cash receipts last year £2,020. Panel about 1,900. Good house with ample living and Professional accommodation, garage and small garden. To rent on long lease. Premium—£11 years' purchase—No. 1170.

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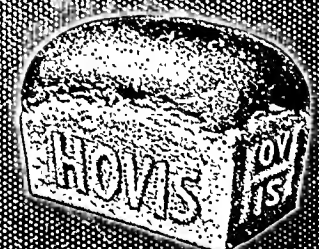
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17. **WILTSHIRE—40 MILES SOUTH OF LONDON—LARGE TOWN—PARTNERSHIP—A SHARE** producing between £1,150-£1,200 p.a. in good middle- and working-class practice. Fees 2s 6d upwards. Suitable house (5 bedrooms, garden, garage) on rental at £120 p.a. Premium 2 years' purchase. Incoming partner should be young, married, and preferably have a London qualification.
18. **WILTSHIRE—40 MILES SOUTH OF LONDON—LARGE TOWN—PARTNERSHIP—A SHARE** producing between £1,150-£1,200 p.a. in good middle- and working-class practice. Fees 2s 6d upwards. Suitable house (5 bedrooms, garden, garage) on rental at £120 p.a. Premium 2 years' purchase. Incoming partner should be young, married, and preferably have a London qualification.
19. **WILTSHIRE—40 MILES SOUTH OF LONDON—LARGE TOWN—PARTNERSHIP—A SHARE** producing between £1,150-£1,200 p.a. in good middle- and working-class practice. Fees 2s 6d upwards. Suitable house (5 bedrooms, garden, garage) on rental at £120 p.a. Premium 2 years' purchase. Incoming partner should be young, married, and preferably have a London qualification.
20. **WILTSHIRE—40 MILES SOUTH OF LONDON—LARGE TOWN—PARTNERSHIP—A SHARE** producing between £1,150-£1,200 p.a. in good middle- and working-class practice. Fees 2s 6d upwards. Suitable house (5 bedrooms, garden, garage) on rental at £120 p.a. Premium 2 years' purchase. Incoming partner should be young, married, and preferably have a London qualification.
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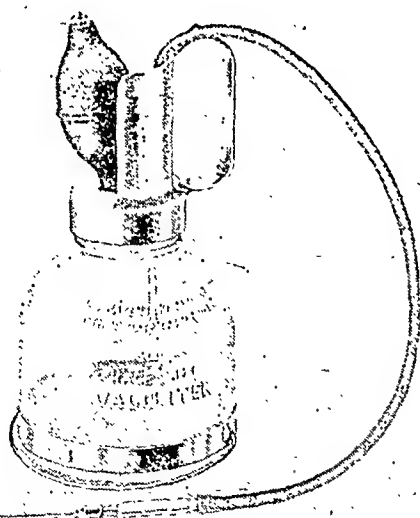
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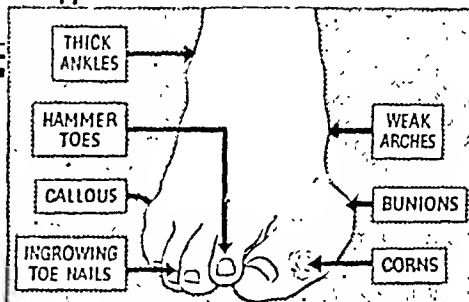
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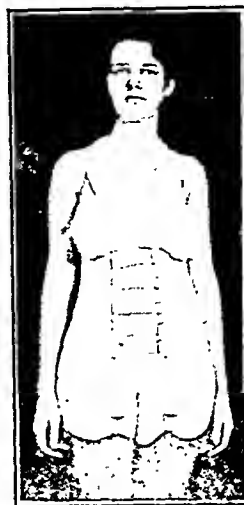
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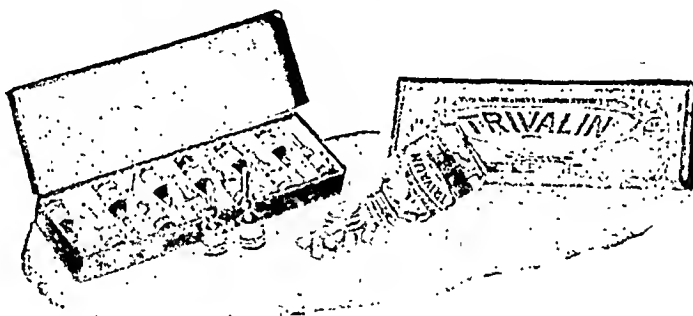
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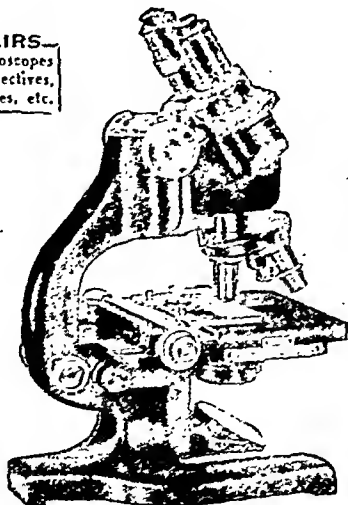
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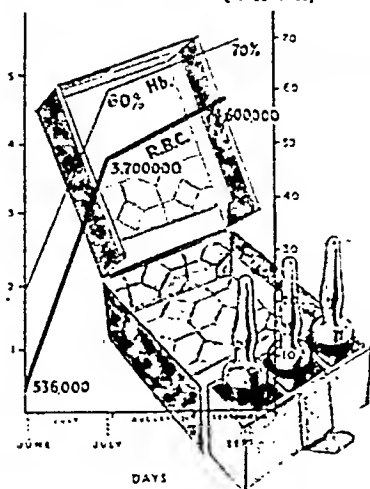
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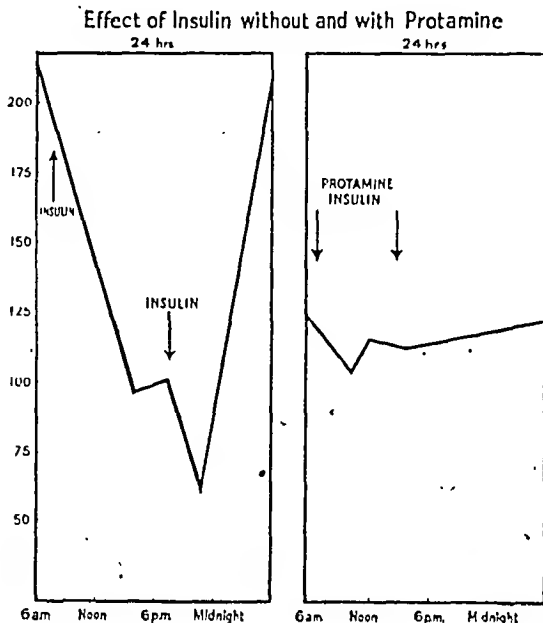
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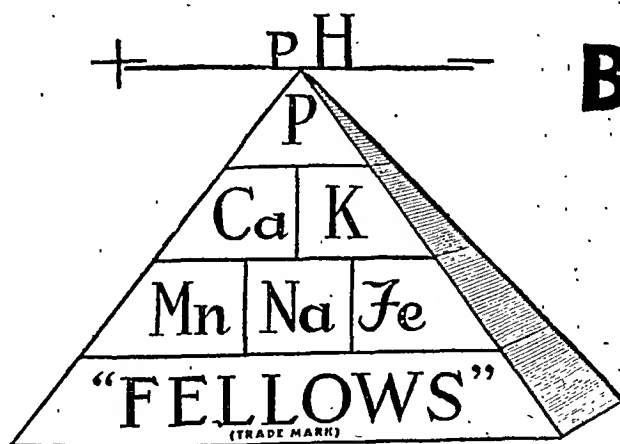
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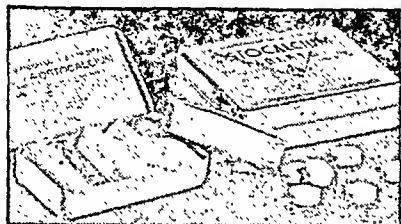
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MODERN VIEWS IN THE PREVENTION OF TUBERCULOSIS*

BY

D. M. DUNLOP, M.D., F.R.C.P.ED.

Physician, Royal Infirmary, Edinburgh

It is a commonplace that in the majority of Western European countries and in North America the mortality from tuberculosis has been declining for many years. Stated concisely, the death rate from tuberculosis in England and Scotland has fallen in the last fifty years by about 75 per cent. Moderately reliable tuberculosis mortality statistics began for the first time to be available coincidentally with Koch's discovery of the tubercle bacillus, which discovery set on foot the campaign against the disease. The decline in tuberculosis mortality thus became apparent at much the same time as the antituberculous measures were initiated, and since then the fall in the one has run parallel with the development of the other. It was natural enough, therefore, for many to believe, and to continue to believe, that this gratifying decline in tuberculosis has been almost entirely due to the noble campaign which has been waged against the disease, largely inspired in this country by Sir Robert Philip fifty years ago. There is much evidence to suggest, however, that the tuberculosis mortality had been declining for many years prior to the special measures taken to combat the disease. Indeed, it is probable that the death rate from tuberculosis had been decreasing in this country since the early part of the nineteenth century. It is, however, apparent that as we go backwards in time an increasing death rate from tuberculosis cannot have continued indefinitely; otherwise everyone would have died of tuberculosis a few hundred years ago, which we know not to have been the case. It has thus been suggested, with considerable evidence for the assumption, that we are at present at the end of a protracted epidemic of tuberculosis, and that the disease is subject to the same epidemic waves as measles, scarlet fever, and diphtheria, with this difference, that whereas the epidemic waves of these latter are relatively short, that of tuberculosis may last a hundred years or more, which is only fitting in a disease which may continue for the lifetime of an individual, in contrast to those which only affect him for a few days or weeks. Further, it is probable that during the course of such an epidemic those nations which have been particularly exposed to the infection have acquired a strong resistance to it, and that those individuals who are peculiarly susceptible to the tubercle bacillus have died at an early age, leaving relatively few descendants who may have

inherited their particular susceptibility. Lastly, the number of young people alive to-day in proportion to the number of people over 40 is relatively less than was the case in the Victorian age, and it is well known that tuberculous disease, particularly where females are concerned, reaches its most lethal peak between the ages of 25 and 35. Thus the decline in tuberculosis mortality may to a large extent be due to circumstances over which we have no control—to the fact that, being on the down grade of an epidemic curve, the seed of tuberculosis is less common than formerly, and that this seed has a proportionately smaller number of susceptible persons on which to produce its effects.

Whether or not we believe that these are potent factors in producing the fall in tuberculosis mortality, it should not lead to a fatalistic attitude in regard to the preventive aspects of the disease. There is no reason to believe that an epidemiological curve cannot be modified beneficially by human efforts. No one, for example, would suggest that the worst effects of epidemics of acute infectious diseases cannot be ameliorated by popular education, by social and public health measures, and by the private efforts of medical practitioners. The same can be said of tuberculosis. The recognition of the fact that we may not be able complacently to congratulate ourselves that the whole fall in tuberculosis mortality has been due to antituberculous measures does not justify the opposite extreme, now adopted by some—to sneer at the great efforts which have been made to combat the disease, or to deny that these have been a potent contributory factor in lowering tuberculosis mortality. We have only to look, for example, to the increase of tuberculosis in Germany during the war, to its great incidence in certain trades, to its wide occurrence in districts smitten by poverty and unemployment, and to the virtual absence of glandular and bone and joint tuberculosis in countries with a clean milk supply, to be certain that epidemiology, immunity, and natural selection are not the only factors in this great problem.

Factors Leading to Tuberculosis

The factors contributing to the spread and morbidity of tuberculosis are many, but the essential cause is, of course, contact with the infecting agent from either the human or the animal source. It therefore becomes of interest to inquire to what extent such infection can or

* Read in opening a discussion in the Section of Tuberculosis at the Annual Meeting of the British Medical Association, Plymouth, 1938.

should be avoided, and whether attempts to prevent infection should occupy an important place in antituberculosis measures. The answer to this question depends to some extent on whether adult exogenous infection occurs with significant frequency in civilized communities. I would suggest that adult tuberculosis usually occurs as a late visceral manifestation of an earlier disease, just as general paralysis is a late visceral manifestation of syphilis, and that it is exceptional for an adult to develop tuberculous disease as the result of an outside superinfection, protected as he is by tubercle bacilli acquired in childhood. As one German writer had it, adult tuberculosis is the last verse of the song, the first verse of which was sung to the infant in its cradle. Occasionally a rather high rate of tuberculous morbidity has been shown to occur among medical students and nurses as the result of professional contact with cases of open tuberculosis. Heimbeck has pointed out, however, that this excessive morbidity is found only among those probationers and students who give a negative tuberculin test on starting training, and who are thus to some extent comparable as regards susceptibility to tuberculosis to the Red Indian when first brought in contact with white men. No doubt this immunity in tuberculinized adults to exogenous tuberculous reinfection may occasionally disappear, just as it occasionally disappears in the case of the common exanthemata. No doubt also it may be temporarily in abeyance as the result of one of the acute infectious fevers like measles, or during the puerperium. At such times a massive exogenous infection may cause tuberculous disease; but such accidents are exceptional, and in the great majority of cases it is as hard to reinfect a previously tuberculinized adult as Koch found it to reinfect a tuberculous guinea-pig. How else can one explain the fact that cases of tuberculous adenitis in sanatoria are not superinfected by cases of open tuberculosis in the same ward; that those most cautious corporations—the insurance companies—do not see fit to load the premiums of tuberculosis officers; and, above all, that there is no statistical evidence to suggest that the tuberculous husband infects his healthy consort with any frequency, or vice versa?

Primary Infection in the Child

If it be true—and there will be many to deny it—that a tuberculinized adult is not usually susceptible to a secondary exogenous infection, the attempt to prevent infection in adults is not a matter of primary importance. Our efforts should rather be directed to the prevention of massive primary infection in the young child, who, like the savage, forms virgin soil for the tubercle bacillus. It is probable that some 40 per cent. of children who show a positive tuberculin reaction before the age of 2 die from acute tuberculosis before reaching the age of 5. It is highly desirable, therefore, that infection with tuberculosis should be delayed as long as possible, since it would seem that the younger the child when infection occurs the more likely it is to develop lethal disease, the result of the infection. It would seem, from the results of tuberculin tests, that in this country the tuberculinization of the community is on the average occurring at a later age than heretofore, and this is all to the good.

In the absence of sufficient proof as to the efficacy or harmlessness of the B.C.G. vaccine—and its possibilities might be explored more fully in this country than they have been—efforts to prevent massive infection in young children must continue to be directed along two main channels: their segregation from close contact with cases of open tuberculosis, and the provision of a clean milk

supply. These two measures, if effectively carried out, would go far in themselves to diminish child mortality and morbidity from tuberculosis. They would in my opinion go further: they would tend very considerably to reduce the pulmonary tuberculosis and other late visceral manifestations of the disease in adult life, since experience shows that such manifestations occur very frequently in adults who were subjected to repeated massive infections in childhood.

The segregation of young children from close and continuous contact with open cases of tuberculosis in their family is a matter of great difficulty. The chief ways in which the risk of infection from the human type of the bacillus in a child's home life can be prevented, or reduced to a minimum, are by the removal to a residential tuberculosis institution of an open case of tuberculosis among the parents or those living in the house, or by the removal of the child from the tuberculous home. The second method, or Grancher system, is practised to a considerable extent in France. It aims at bringing up the child in an institution where it will lead a healthy life, no longer exposed to the risk of massive infection. The objection to it is that it interferes with the continuity of the child's home life, and though it is practised to a limited extent in this country, it seems an impossible ideal, and one that it is perhaps undesirable to adopt universally. It is much more satisfactory to remove and treat the adult patient who is the potential source of the infection. With the limited number of beds at our disposal in tuberculosis institutions even this is at present a counsel of perfection. In many districts more beds for tuberculous patients are urgently needed, and in a few cases medical officers of health and tuberculosis officers are too ready to comply with the natural desire of the local authorities to reduce the rates at the expense of adequate accommodation. It is doubtful if any physician in the public health service does his duty adequately unless he is being a continual nuisance to his committee in this respect. No doubt, also, many beds are occupied by patients who might well be nursed at home without detriment to themselves or any risk of infecting young children. Lastly, patients are often inadequately informed of the risk of infecting their children. When this is carefully and considerably explained, it is very rare for them to refuse segregation, however painful such segregation may be.

Infection from Milk

If the segregation of the young child from massive human infection is a matter of extreme difficulty, its segregation from massive infection through milk is eminently practicable. As the result of researches by Griffith, Munro, and others, there is no doubt that bovine type tuberculosis is responsible for a considerable percentage of tuberculous morbidity among children, particularly in Scotland; and though the bovine type of disease is mostly to be found in glandular, lupoid, abdominal, bone and joint, and meningeal lesions, yet it may on occasion cause any type of tuberculosis—not even excluding the pulmonary variety. Having regard to the great prevalence of tuberculosis among the dairy herds of this country, and the absence of a national plan for dealing with it, it is clear that, if conditions are allowed to remain as they are, large numbers of children are doomed to die of bovine tuberculosis or to become crippled by it. In several countries of the world, notably America and New Zealand, bovine tuberculosis has been largely eradicated, owing to the measures adopted to ensure a clean milk supply; but large quantities of tuber-

culous milk are still consumed in this country. As Griffith says, "It is hardly too much to say that if bovine tuberculosis in the human was as distinct clinically from tuberculosis caused by human bacilli as, say, diphtheria is from tonsillitis, public opinion would long ago have insisted on the eradication of tuberculosis in the bovine animal—a perfectly feasible proposition given the necessary dictatorial powers." It is common to hear the remark that a child is all the better for being immunized by a small dose of bovine bacilli. Unfortunately one cannot regulate the dose, and no one would be so bold as to suggest that it is good for a child to drink a teaspoonful of tuberculous pus in its milk.

The provision of a clean milk supply would involve extensive legislative measures and considerable expense. The effort and expense involved, however, would be a fraction of that being at present very necessarily undertaken in rearmament, and would be a productive rather than an unproductive expenditure. It is perhaps not too much to hope that when men have learnt to beat their swords into ploughshares this problem will be seriously tackled.

To those obsessed by the difficulties of the problem of providing a clean milk supply the following postulates, which are accurate enough for all practical purposes, may be put forward for their consideration; any cow giving tuberculous milk to-day will be dead within a year; any cow affected with tuberculosis to-day will be dead in five years; almost every cow which will be giving milk in 1944 is either yet unborn or will be still free from tuberculosis.

Until the ideal of a national clean milk supply is achieved it seems only common sense that all milk given to young children should be pasteurized. It is true that this method is not 100 per cent. efficient in preventing the occasional occurrence of tubercle bacilli in milk, and that in the process certain insignificant losses occur in the milk in respect of its vitamin and mineral content. No one, however, with any knowledge of the subject can believe that these drawbacks do not pale into utter insignificance in comparison with the great risks which are run by children in consuming unpasteurized milk from herds that have not been tuberculin-tested.

Having, by segregation and by the provision of a safe milk supply, taken measures against the massive contamination of virgin soil, the factors that conduce to tuberculous disease must be looked for, not so much among the seed as in the soil in which the seed is sown. That is, infection is almost certain to take place—ideally in small and infrequent doses—and thereafter all our efforts should be directed not so much to the prevention of infection as to raising the resistance of the infected individual, particularly the young adult, against the infection becoming a disease.

Raising the Resistance

Apart from the question of race and breeding, over which we have no control, the resistance of an individual to his tuberculous infection will depend very largely on certain environmental conditions: housing, nutrition, habits, and intercurrent infections.

One has only to glance at the innumerable statistics produced from all over the world to see that tuberculosis and overcrowding go hand in hand—the death rate in many cases running almost exactly parallel to the extent of the overcrowding. The aetiological relation of overcrowding to tuberculosis has, however, been somewhat difficult to resolve into its component parts. On the one

hand, tuberculosis may have a profoundly deleterious effect on the earning capacity of an individual household, causing an excess of tuberculous families to live in poverty-stricken circumstances; on the other, overcrowding itself, with its concomitant inferior nutrition, may act by favouring contact infection and by reducing the resistance of the individual to the disease. As the result, however, of the Tyneside inquiry, recently undertaken by Bradbury at the instigation of the National Association for the Prevention of Tuberculosis, it would seem quite definite that overcrowding *per se* is an extremely important causal factor in tuberculosis, though its relative importance will depend to some extent on the nature of the other adverse conditions present. Overcrowding is a factor which is capable of elimination in the course of time, and the problem is being steadily tackled in this country. There is every reason to believe that the better housing of the future will cause a marked diminution in the incidence of the disease.

Undernourishment as a Factor

If, on the other hand, good environmental conditions as regards housing are only obtained at the expense of increased rents, and therefore cause reduction of the family's food-purchasing power, the advantages which accrue from good housing may be considerably outweighed by nutritional depreciation. This was shown quite clearly in some well-controlled observations by McGonigle in Stockton-on-Tees, where the death rate from tuberculosis actually rose in a new housing area. The increased rate could be definitely correlated with a diminished expenditure on food as the result of increased rents. Again, from Bradbury's Tyneside inquiry, and from numerous other well-controlled observations, a definite statistical association can be traced between tuberculosis and undernourishment. It appears that tuberculous families, while eating more bread, consume less meat, less butter, and particularly less milk than non-tuberculous families. Up till now the principles of good nutrition and the subject of dietetics have been largely neglected in the medical curriculum, and while every doctor can prescribe bottles of medicine comparatively few can prescribe detailed diet sheets. It is not surprising, if ignorance, or lack of enthusiasm, on the subject of nutrition is common in the medical profession, that it should be even more common in the general population; and it is almost certain that a great educational campaign on the subject of nutrition, particularly among girls and young women, would be far more conducive to national physical fitness than the less prosaic campaign now being waged on the subject of playing-fields. At the same time there is nothing more annoying than to hear well-fed people arguing that the deficient diets of the poor are entirely due to their ignorance of what are the best foods to buy. As Sir John Orr has shown, it would tax the skill of the most competent dietician to provide entirely adequate diets in respect of first-class protein, vitamins, and minerals on the income of many of our working-class families. Still, progress is being made in this field also, and the population as a whole has probably never been so well fed as it is to-day. This progress is likely to be expedited when money becomes available for the saving of life rather than for its destruction. One of the most important pieces of public health legislation of recent years took place when milk was made more generally available for school children. The Minister responsible for that measure was then only the Minister for Agriculture; now that he has become Minister of Health even greater things may be expected.

Training in Tuberculosis

It is apparent that preventive measures taken against tuberculosis can never hope to be entirely successful without the active and intelligent co-operation of all those engaged in the practice of medicine. It may be questioned whether in many medical schools the doctors of the future are being adequately trained in the broader aspects of tuberculosis and in its clinical manifestations. Now that tuberculous cases have been almost entirely removed from the general teaching hospitals and relegated to special institutions, the training of the average medical undergraduate in tuberculosis is too often limited to an occasional visit to a chest clinic or a chest hospital. Here he is given the opportunity of examining a few patients suffering from advanced fibroid disease who are usually called "good teaching cases," and of listening to the sighing of amphoric breath sounds to the accompaniment of consonating crepitations and crack-pot notes—archaic physical signs of little vital clinical importance. It would be just as sensible to teach syphilis only by the demonstration of cases whose knee-jerks were absent and whose pupils had long since failed to react to light. Over-emphasis is laid on physical signs in the chest, which are often difficult or impossible to elicit in early pulmonary tuberculosis, whereas too little instruction is given on the general signs of tuberculous intoxication, common to all forms of the disease, which are often apparent to the patient's relatives and friends but overlooked by the doctor obsessed by his hunt for crepitations in the lungs. Again, the significance of history-taking in the diagnosis of tuberculosis is often insufficiently stressed; and yet the vast majority of patients repeat with variations the same history with the regularity of a theme in a symphony. In many medical schools, in short, the student is not educated in the natural history of tuberculosis, and he graduates with the idea that a slight knowledge of percussion and auscultation is sufficient equipment to enable him to grapple with the disease.

It is not surprising under these conditions that most cases are far advanced before they are diagnosed, and that meanwhile the patients may have grossly infected the youthful members of their family; that patients in need of complete rest, and perhaps collapse therapy, are simply advised to take a holiday in the country, or to change their occupation—from a sedentary one like that of a clerk to a strenuous one like that of a chicken farmer; and that the segregation of young children from open cases of tuberculosis is too often neglected even in circumstances where it is perfectly practicable.

I am only too conscious that there is nothing new in the foregoing remarks. Their object has been to focus discussion on some of the more important questions confronting those working for the prevention of tuberculosis. Owing to lack of time, certain subjects have not even been touched upon. It is generally recognized, for instance, that the open-air school is invaluable in raising the resistance of the delicate child to the disease, and it might be questioned why his more healthy brother should not share in its advantages. Again, the prevention of certain diseases which strongly predispose towards tuberculosis, such as silicosis, might be discussed. Lastly, the thorny problem of contact examination will doubtless find strong protagonists on either side. On the one hand its difficulties and impracticability may be stressed; on the other it may be claimed that contact examination, in its widest sense, is among the most important functions of the dispensary in the prevention of tuberculosis. With the latter view I cannot too strongly agree.

FOUR CASES OF WEIL'S DISEASE INFECTED FROM THE SAME STREAM

BY

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Weil's disease is still rare enough in this country to make its diagnosis difficult unless the clinical manifestations are familiar and its possibility is borne in mind. It is a disease that is admittedly serious, and must threaten life whenever it appears. Different writers have recorded a mortality varying from 10 to 50 per cent. of all cases.

Specific treatment in the form of antiserum is available, and may be of great value, especially if administered in large doses and early in the disease. Davidson and Campbell (1934), in reporting a series of cases from Aberdeen, came to this conclusion: "Hence it appears to us that the clinical diagnosis in the early stage, before jaundice occurs, presents almost insuperable difficulties. Accordingly, the full benefit of serum treatment is unlikely to be realized."

During the past two years it has been my good fortune to have seen and treated four cases of leptospirosis. In addition to these I have had under my care, and have investigated, three other possible but unproved cases. The experience gained by the study of each individual case, as it has appeared, has made possible the early diagnosis and treatment of the later cases, with, I maintain, the most satisfactory results.

The diagnosis should escape no one when jaundice, associated with nephritis and nitrogen retention, has followed upon an acute febrile illness in which headache, severe muscular pain, and scattered haemorrhages have been well marked. But all writers are agreed that at least 50 per cent. of these cases never do become jaundiced, while to wait for a laboratory diagnosis before starting serum treatment is to endanger the patient's life.

I feel, however, that in the very earliest stages the clinical picture is suggestive enough to make justifiable the use of serum before the diagnosis can be proved. Sudden onset of a severe illness, with headache, and quite frequently meningeal signs, high fever, severe pain, and great tenderness in the limb muscles; haemorrhages from the nose and the gastro-intestinal and urinary tracts; and a most characteristic watery suffusion of the conjunctivae such as I personally have never seen in any other condition—these well-marked and very characteristic features should make it possible for the condition to be suspected. If in the presence of these symptoms and signs there is the history of a possible source of infection to which the patient has recently been subjected, as indeed there was in each of the proved cases here described, serum treatment should be instituted at once, without waiting for the laboratory to confirm the diagnosis. The very fact that all these cases—so far as I can discover the only cases of this particular infection that have been reported from South Hampshire—should have come under the eye of one practitioner would suggest that cases are occurring and are not being recognized, and that a fuller and wider knowledge of the infection and of its manifestations would bring to light other cases with, one would hope, a shortening of illness and even a saving of life. It is with this end in view that these cases are here reported in full.

Case I

A healthy boy aged 15 complained of headache on the morning of Saturday, July 18, 1936. His temperature was 101°. Throughout the day his condition deteriorated: headache became more severe, and he vomited. By evening his temperature was 103°. During the night he became violently delirious. On Sunday morning Dr. G. B. Wainwright asked me to see him. His temperature was 104° and pulse 94. Restless and complaining of severe headache, he had all the appearances of being seriously ill. It was noticed that his conjunctivae were suffused, and the possibility of a measles infection had been considered. The only other physical signs were those of severe meningeal irritation, a strongly positive Kernig's sign, and neck rigidity. Lumbar puncture was carried out at once, and the fluid, which was under pressure, appeared clear, and was in fact found to be perfectly normal. The boy's headache, which had been relieved by lumbar puncture, returned later in the day, and his meningeal signs tended to increase, so that a further specimen of cerebrospinal fluid was obtained in the evening, but with precisely the same findings.

He was seen on Monday evening by Dr. Gordon Holmes, by which time his meningism had disappeared, and the only findings were a temperature of 103° and absent deep reflexes. In considering the possible diagnosis Dr. Holmes suggested a deep-seated pneumonia, but mentioned that some cases of Weil's disease had been described which had an onset such as had been noted in this case.

For the next three days the patient remained very ill, with raised temperature, headache, and now very severe pain in the muscles of his legs and forearms. There had also been several small epistaxes.

On Thursday evening—the fifth day of his illness—slight conjunctival icterus was noted, while his urine was found to contain bile and albumin. He was seen by Dr. Hamilton Fairley next day, by which time his jaundice had deepened. The diagnosis of Weil's disease was confirmed on clinical grounds, and 40 c.cm. of anti-leptospiral serum was injected intravenously. Dr. Fairley took blood and urine with him to London, and later reported the following findings: "Van den Bergh—positive direct reaction, biphasic, 22 units; blood urea—106 mg. per 100 c.cm.; blood count—white cells, 10,300 (91 per cent. polymorphonuclears). The blood serum gave a positive agglutination reaction, 1 in 3,000 dilution; the urine contained albumin, granular casts, bile salts, and bile pigments."

Twenty c.cm. of serum was injected into muscle on each of the next three days, during which time, though the jaundice deepened, the patient's general condition improved steadily; his temperature was normal by the tenth day. Details of the changes in his blood chemistry are given in Table I.

TABLE I.—Changes in the Blood Chemistry in Case I

| Date | Van den Bergh | | Blood Urea |
|---------|---------------|----------|------------|
| | Direct | Indirect | |
| 24/7/36 | Biphasic | 22 units | 106 mg. |
| 27/7/36 | " | 56 | 88 mg. |
| 3/8/36 | Delayed | 7.5 | 29 mg. |

During the third week of his illness there was a rise of temperature up to 101°, and this was accompanied by swelling and extreme tenderness of the right parotid gland. So severe did this condition become that the gland was incised under nitrous oxide, and, though no pus was obtained, tension was relieved and the condition rapidly subsided. The boy remained jaundiced for about five weeks, and after a long and rather tedious convalescence made a complete recovery.

This patient, a keen swimmer, had been bathing throughout June and July in a swimming-pool through which runs the River Ichen. It was known that from time to time rats gained access to this pool.

Case II

Some twelve months or so later another healthy boy of 14 became ill. This boy had also often swum in the same bathing-pool as had Case I, but on account of a fractured metacarpal bone he had not done so for ten days preceding the onset of his illness. He was seen on Monday morning, July 26, 1937, by Dr. Wainwright, who found him then in perfect health and pronounced his hand as healed. He was taken suddenly ill the same evening with fever, headache, and epistaxis. His temperature rose to 103°, and on the next day he complained of abdominal pain, which was followed by a melaena stool. I was asked to see him on the evening of July 27, when I found this condition: temperature 102.8°, pulse 96, well-marked conjunctival suffusion, dried blood about the nose and mouth, and signs of meningeal irritation. His headache was relieved by lumbar puncture, when a pathological fluid was obtained. The various laboratory findings are given in Table II.

TABLE II.—The Laboratory Findings in Case II

| Date | Day | V.C.B. | C.S.F. | | | Urine | B.U. | White Count | Serum Reaction |
|---------|-----|----------|--------|------|-------|--------------------------|------|-------------------|--------------------------------|
| | | | Pa | Cl | Cells | | | | |
| 26/7/37 | 1 | Negative | 20 | 6.0 | 6 | Alb. + Casts + Red cells | 95 | 5,100 70% poly | |
| 31/7/37 | 5 | " | 35 | 6.0 | 116 | " | 60 | 8,150 74% poly | +1:10 blood |
| 1/8/37 | 6 | " | 40 | 6.0 | 226 | " | 61 | | |
| 3/8/37 | 8 | " | | | | | | | +1:1,000 blood |
| 6/8/37 | 11 | " | 30 | 6.0 | 6 | " | 36 | | +1:3,000 blood +1:20 C.S.F. |
| 10/8/37 | 15 | | 30 | 7.20 | 4 | Trace alb. only | 55 | | |
| 17/8/37 | 22 | | | | | Trace alb. | 26 | | |

The provisional diagnosis of Weil's disease was made, and serum treatment was begun as soon as the material could be obtained. He had his first dose of serum on Wednesday morning, exactly thirty-six hours after the onset of his illness. He was given 20 c.cm. of serum intramuscularly on Wednesday, Thursday, Friday, and Saturday. During this time, as will be seen from the table, his meningeal condition was deteriorating, while his van den Bergh reaction remained negative. I was not then aware that jaundice was not an essential part of the picture, and I felt obliged to reconsider the diagnosis.

On Monday, August 2, Dr. Hamilton Fairley again came down in consultation, and confirmed the provisional diagnosis upon which treatment had been based. The next day I received a report from Major Brown that this patient's blood serum gave a weakly positive agglutination reaction. This blood had been obtained on the fifth day of his illness.

The boy was given a further 40 c.cm. of serum, and, except for a slight secondary rise in temperature during the third week, made an unusually rapid recovery.

Case III

On Saturday, June 25, 1938, a young man aged 20 was taken ill. He shivered, complained of retrosternal pain, and vomited. The next day he felt better, but was less well again on Monday. I first saw him at 11 a.m. on Monday, about forty hours after his first symptom.

His temperature was 103°, and his only physical signs were an injected throat and suffused eyes. Upon inquiry it was elicited that he had been bathing daily in another swimming-pool through which the River Ichen runs. He was admitted to hospital immediately, and treatment was started as soon as serum could be obtained. His blood chemistry, etc., are shown in Table III. During the next three days he developed extreme tenderness in the muscles of his calves and forearms, while his headache increased. There were several small

haemorrhages from his nose. Serum was given as follows: on June 28, 40 c.cm.; June 29, 40 c.cm.; June 30, 20 c.cm.; July 1, 40 c.cm. The whole of this serum was injected into muscle. His general condition began to improve after the second dose, and on July 2 his temperature was normal.

TABLE III.—*The Laboratory Findings in Case III*

| Date | Day | V.d.B. | C.S.F. | | | Urine | B.U. | White Count | Serum Reaction | Serum Given |
|---------|-----|--------|--------|---------|-------|-------------------------------|--------|---------------------|------------------------|-------------|
| | | | Pn. | Cl | Cells | | | | | |
| 27/6/38 | 3 | — | mg. 30 | mg. 690 | 4 | Alb. ++ Casts Red cells | mg. 50 | 11,600 79% polys | Blood, killed S-pig | c.cm. |
| 28/6/38 | 4 | | | | | | | | Negative 1:20 | 40 |
| 29/6/38 | 5 | + | | | | " | 121 | 7,300 72% polys | | 40 |
| 30/6/38 | 6 | | 30 | 690 | 4 | | | | Positive 1:3,000 | 20 |
| 1/7/38 | 7 | + | | | | Trace alb. | 100 | | | 40 |
| 29/7/38 | 35 | | | | | " | 30 | | | |

Except for conjunctival icterus, which was noted on June 29, there was no clinical jaundice. He was discharged from hospital on July 9—the fourteenth day of illness—being quite free from symptoms. On July 21 he complained of pain in the neck and headache, and his temperature rose to 102°. In forty-eight hours this had subsided, and he was in bed for only three days. Since then he has remained well.

Case IV

This patient, a man aged 29, who was employed as a worker in watercress beds some seven miles up the River Itchen, was admitted to hospital on March 7, 1937, with the following history.

On February 27 he had been taken ill, with high temperature, headache, vomiting, and pain in the back. The diagnosis of influenza had been made, and with treatment his temperature had fallen to normal. On March 3 he was noticed to be jaundiced, and this became rapidly more marked. Epistaxis occurred several times, and his urinary excretion became greatly diminished. He was sent into hospital by Dr. Kent with the tentative diagnosis of leptospirosis.

On admission he was apyrexial, had a pulse rate of 90, was deeply jaundiced, and had a very parched dry tongue and old blood about his nose and mouth. Herpes were well marked. The liver was enlarged and there was a purpuric eruption over the trunk. He was quite rational and was able to give a clear account of his illness. He stated that he had passed very little urine for the last three days. A catheter was inserted, and 6 oz. of deeply coloured urine was withdrawn. This contained albumin, casts, and red cells. The white cell count showed a leucocytosis of 15,300, with 85 per cent. polymorphs. The van den Bergh reaction was strongly positive, while his blood urea was recorded as 572 mg. per 100 c.cm. Blood taken on the day of admission—the ninth day of illness—gave a completely negative result to the agglutination test in all dilutions. Serum treatment had been started at once, and 20 c.cm. was injected intramuscularly on March 8, 9, 10, and 11.

Every effort was made to restart his urinary secretion, and he was given continuous intravenous saline, with hypertonic glucose every four hours. Hot packs, an electric cradle, and hot colonic lavage all proved of no avail, and he died on March 12—the fourteenth day of his illness.

The urine was repeatedly examined for leptospirae, but these were never demonstrated. Blood taken the day before his death gave a positive agglutination reaction at a dilution of 1 in 100. Post-mortem examination revealed an enlarged liver in which leptospirae were demonstrated, and small haemorrhages distributed throughout the viscera. A very striking feature of this case had been that, in spite of the

extraordinary figures recorded when the blood urea estimation was carried out, the patient remained able to talk intelligently to within twenty-four hours of his death. His blood chemistry is shown in Table IV.

TABLE IV.—*The Laboratory Findings in Case IV*

| Date | Day | Urine | C.S.F. | | | Blood Count | B.U. | Serum Reaction |
|----------|-----------|--|--------|-----|-------|---------------------|---------|-------------------|
| | | | Pn. | Cl | Cells | | | |
| 7/3/37 | 9 | 6 oz. Bile, alb., casts, red cells, no leptospirae | mg. | mg. | | 15,300 85% polys | mg. 572 | Negative |
| 10/3/37 | 12 | 2 oz. | | | | | 865 | |
| 11/3/37* | 13 | 4 oz. | 45 | 759 | 4 | | 685 | Positive 1:100 |
| 12/3/37 | 14 (died) | | | | | | | |

* On examination at this date the cerebrospinal fluid was found to contain 660 mg. of urea per 100 c.cm.

The three remaining cases were investigated when the possibility of Weil's disease was considered, but in none of them was the diagnosis confirmed in the laboratory.

Case V

A woman aged 55 was admitted to hospital at the end of August, 1937, very deeply jaundiced and with no other physical signs. The jaundice had been present a week, and had been preceded by abdominal pain, vomiting, and a temperature of 102°.

While in hospital she ran a little irregular fever up to 100°. Her urine contained albumin but no casts. Her van den Bergh reaction was strongly positive, while her blood revealed a massive leucocytosis—45,400 white cells (95 per cent. polymorphs). Her blood urea was 554 mg. per 100 c.cm. on admission and rose to 581 mg. on the day before death, four days later. Her serum was completely negative to the agglutination reaction. Post-mortem examination revealed an enlarged liver and scattered haemorrhages, but unfortunately no attempt to demonstrate leptospirae was made. In this case no suggestion of a possible exposure to infection was obtained.

Case VI

A woman aged 25, a telephonist, in whom no history of likely infection could be obtained, was admitted to hospital on May 26, 1938. She had been taken ill ten days before with fever and pain in the back. The fever persisted for four days, and then gave way to vomiting. Jaundice was noticed on the seventh day of her illness. On admission she was very jaundiced and there was a small purpuric eruption over the trunk. No history of other bleeding could be elicited. The liver edge was palpable, but there were no other physical signs. The urine contained albumin, casts, and red cells, together with tyrosine crystals. A blood count showed 9,600 white cells, 74 per cent. being polymorphs. The blood urea was 49 mg. per 100 c.cm. The van den Bergh reaction was positive. The serum reaction was positive in 1 in 30 dilution. The serum reaction was repeated twice at intervals of one week, in the hope of obtaining a rising titre, but it remained completely negative at all dilutions. This patient was never seriously ill, and improved rapidly. Jaundice disappeared in three weeks from the onset. Urine became normal and the blood urea fell. No serum was administered.

Case VII

A boy aged 7 was admitted to hospital in July, 1938. He was slightly jaundiced, and had been ill with fever up to 102° for eight days. His urine contained albumin, casts, and red cells, while his blood urea was slightly raised. His agglutination reaction was negative and blood count normal. His illness was slight, and he made an uneventful recovery. No serum was given. The boy, we were told, had frequently "paddled" in the River Itchen.

Commentary

It will have been noticed that in each of the proved cases an obvious source of infection was recorded. All three boys who recovered were keen swimmers, and had been bathing frequently in water which certainly might have been infected by rats. An unsuccessful attempt was made by the local health authorities to demonstrate infection in rats caught at these places, but it may be significant that, following an attempt to eliminate rats from the first bathing-pool, no further cases have come to light which could possibly have been infected there, while this summer's case occurred as the result of bathing in another pool in the same river. The fatal case, which is chronologically second on the list, but has been described last for convenience, was that of a man who by reason of his employment must often have been exposed to the risk of infection.

The striking difference in outcome and in length of illness which has been estimated in Cases II and III, where diagnosis was made early and serum given at once, as compared with Cases I and IV, where serum was not given until jaundice had appeared, cannot, I think, be regarded as a coincidence. Both the former cases appeared to have a severe infection, as judged by a well-marked meningitis in Case II and the early jaundice in Case III. Indeed, in the latter case it would seem fair to assume that the jaundice was aborted by serum given at once.

Each of the patients I was able to see at the onset of illness had that typical appearance of the eyes which has to be seen to be understood. Once seen it will always be recognized. In Case III one literally made the diagnosis "from the door," so striking was it. The whole of the bulbar conjunctiva appears inflamed, but there is less "anger" than in an inflammatory conjunctivitis and the injection seen in measles, while the slight conjunctival oedema imparts to the whole a watery look. The coloration is more pink than red. This appearance, when present, is evident within twenty-four hours of the onset, and may persist until the jaundice shows. It has been suggested that it may possibly indicate the site of infection in some cases. Schüffner (1934) describes a case in which a laboratory worker was infected by blood accidentally squirted into the eyes. Davidson and Smith (1936) found this appearance in 57 per cent. of their cases. In every case the blood urea was raised to figures that might well be disturbing, while those recorded in the fatal case, No. IV, are higher than I have seen noted elsewhere. Davidson, Campbell, Rae, and Smith (1934) report a blood urea of 349 mg., with death, and Swan and McKean (1935) record blood ureas of 387/600 mg. and 567 mg., both patients dying, while a case in which the blood urea was 285 mg. recovered. In the jaundiced cases the jaundice itself was suggestive, and was a bright yellow, almost orange-yellow. In fact, it was the colour of the jaundice in Case V, which first made me suspect that that patient might be suffering from Weil's disease. Swan and McKean also noted this characteristic of the jaundice, and in describing their cases speak of "intense orange," "bright golden," etc.

The secondary rise of temperature so often described—Schüffner (1934), Davidson and Smith (1936), etc.—appeared in each of the three cases which recovered. Davidson and Smith state that 50 per cent. of their cases showed this feature.

The unusual complication of parotitis which was a feature of Case I must, I think, be associated with the

infection, coming as it did at the time of the secondary rise. Willoughby and Shera (1934) describe this as appearing on the tenth day in their case. J. D. Lendrum (1936) noted the abolition of the deep reflexes in his case; it will be remembered that this was found in Case I. During his convalescence Case III complained bitterly that he was losing his hair. This has frequently been recorded in the past (Fairley, 1934; Lendrum, 1936; etc.).

Leucocytosis with a shift to the left is so often found as to be a valuable point in differential diagnosis from catarrhal jaundice, in which this finding is absent. It was absent in Case II and was not at all well marked in Case III. Maxwell's (1935) case had only 6,600 white cells and a normal differential count.

Case III complained of retrosternal pain at the onset of the attack. This is of interest in that Jeghers, Houghton, and Foley (1935), in the report of the post-mortem examination of their case, record acute oesophagitis.

In Weil's disease the physician looks to the pathologist for proof of diagnosis. That being so, real doubt must be cast upon any diagnosis which does not carry with it confirmation from the laboratory. In order to receive the maximum help from the pathologist we must remember that leptospirae can be demonstrated in the blood stream during the first five or six days of the illness. In Case III blood taken on the third day of illness and injected intraperitoneally into a guinea-pig killed the animal after seven days. Leptospirae were demonstrated in the animal's liver.

The agglutination reaction does not become positive until the fifth or sixth day. In Case II it was weakly positive on the fifth day, while in Case III, negative on the fourth day, it was strongly positive by the sixth.

After the tenth day leptospirae may be demonstrated in the urine. From this it can be seen that laboratory diagnosis is unlikely before the seventh or eighth day of disease, while to withhold serum until this time may well mean disaster.

The agglutination reactions, which were all most generously carried out by Major H. C. Brown, show certain points of interest. The negative result as late as the ninth day in Case IV is unusual. This reaction was positive four days later, and the delay may have indicated an overwhelming infection. In this connexion it seems not unreasonable to suppose that in Case V the negative reaction obtained was not sufficient to exclude Weil's infection. The sudden appearance of a strongly positive reaction in Case III on the sixth day, after a completely negative finding forty-eight hours earlier, might be thought to be due to the large doses of serum given in the interim. In a personal communication Major Brown assures me that this is not the case, and he is supported by Professor Schüffner (1934), speaking of cases treated with serum and later proved not to be suffering from leptospirosis. In these cases the reaction remained negative. None of the cases in the present series gave a positive reaction in dilutions greater than 1 in 3,000, whereas reactions at 1 in 30,000 are often recorded in untreated cases which recover. This is probably due to the use of serum, which, though curative, appears to depress the formation of active immunity in the body (Schüffner, 1934).

The diagnostic value of a positive reaction has been established. Davidson and Smith (1936) carried out the test on some 400 different sera and were unable to detect a single positive result, except in their clinical cases. This should be considered in connexion with Case VI, the serum of which gave a positive result at 1 in 30, which was later not confirmed. Major Brown was unable to

TABLE V.—*The Principal Features of the Four Proved Cases*

| Case and Age | Mode of Infection | Day of Jaundice | Leucocytosis | Blood Urea | Albumin | C.S.F. | Agglutination | Leptospirae | Day of First Dose of Serum | Total Dose | Length of Illness |
|---------------|-------------------|------------------|--------------|------------|---------|-----------------|----------------------------------|---------------|----------------------------|------------|-------------------|
| Male (15) | Bathing | 5th, severe | + | mg. 106 | + | Normal | 1:3,000 7th day | — | 6th | c.cm. 100 | 12 wks. |
| II Male (14) | | None | — | 95 | + | Pleocytosis 226 | 1:3,000 11th day 1:10 5th day | — | 2nd | 120 | 5 " |
| III Male (20) | " | 4th, slight | ± | 121 | + | Normal | 1:3,000 6th day | Blood 3rd day | 3rd | 140 | 4 " |
| IV Male (29) | Watereress work | 5th, very severe | + | 865 | + | Normal | 1:3,000 13th day — 9th day | Liver P.M. | 9th | 80 | (Death) |

explain this finding, and stated that it was unique in his experience. He was inclined to doubt the diagnosis of Weil's disease in this case, though clinically the patient's condition was most suggestive of it. The dosage of serum to be given and the route of administration have never been laid down. From these cases it would appear that, so long as it is given early and in a dose of at least 40 c.cm. a day, it is as effective when injected into muscle as it is when put into the blood stream. It will be seen that the ultimate result and the length of illness are in direct proportion to the day of disease on which the serum is given—four and five weeks of illness in Cases II and III, compared with twelve weeks and death in Cases I and IV respectively. Serum was never used during the secondary rise of temperature, and this always settled without specific treatment.

In addition to specific treatment, which has already been described, it is important to maintain the urinary secretion. With this end in view all cases were treated with a high-carbohydrate protein-free fluid diet. The urine was maintained alkaline with potassium citrate, and, when necessary, glucose saline was given intravenously. The bowels, which tended to be constipated, were kept open with enemata. In Table V the four proved cases have been compared. The salient and important features of their illness have been recorded and the value of early serum treatment has, I think, been demonstrated.

Summary

Four proved cases of Weil's disease are here recorded. Three of these occurred as the result of bathing in one river, while the fourth patient was infected from the same river, in which he worked. The possibility of early diagnosis is stressed, while the need for early specific treatment is demonstrated. Three other clinically suggestive but unconfirmed cases are reported. Certain points of unusual interest about the different cases are discussed.

It gives me great pleasure to record my indebtedness to Major H. C. Brown, who carried out all the agglutination tests in these cases and gave me much invaluable help. I am indebted also to Dr. Hamilton Fairley, whose opinion in Cases I and II was of the utmost value. The remaining laboratory investigations were carried out for me by Drs. Athole Ross and Charles Wrigley, honorary pathologists to the Royal Hampshire County Hospital: my thanks are due to them. I am very grateful to my partner, Dr. G. B. Wainwright, for his introduction to Cases I and II.

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MASTOID OPERATIONS

A FURTHER SURVEY

BY

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In November, 1937, we published in this *Journal* (p. 954) the results of a series of cases operated on for chronic otorrhoea. This series did not include the cases cured by nasal or pharyngeal treatment, but only those requiring mastoid operations. We classified the operations used as Schwartz's, conservative, modified radical, and radical mastoid operations, and gave our definition of these methods. In reviewing these cases we were able to draw certain conclusions and to suggest indications for and contraindications to the various operations. During the past year we have applied these indications to our cases, and it may be of interest to publish the results.

There is such a slight division between acute mastoiditis and early chronic otorrhoea that can be cured by a Schwartz's operation that we will exclude this class of case from our analysis and confine ourselves to cases of well-established chronic otorrhoea. We have operated on eighty ears in seventy-nine patients, the one bilateral case having had two modified radicals. Of these, twelve had conservative mastoid, forty-five had modified radical, and twenty-three had radical mastoid operations.

The Conservative Mastoid Operation

The conservative mastoid operation when successful gives such satisfactory results that one is apt to attempt it even when contraindications are present, and in three of our cases we adopted this method in spite of finding cholesteatomatous material in the antrum. One of these has since been converted into a radical, and another requires re-operation. The third developed a post-auricular abscess, which was drained, and eight months after operation the ear became dry, and has now been dry for a month, but it is doubtful if it will remain so. Including these three cases, of the twelve conservative operations, eight resulted in dry ears, of which two broke down again and one has been re-operated upon; four have never dried up, and one of these has been operated on again.

The six successful cases had central perforations, except one which had a low posterior marginal perforation with granulations growing from the tympanic ring external to the tympanic membrane. This patient has

had a dry ear with good hearing for ten months, and it is the occurrence of a case like this that makes it difficult to choose cases for this operation. The factor which made us think it was worth trying in this instance was the presence of greenish glairy fluid in the mastoid antrum and air cells, and the absence of any cholesteatoma or granulations in the antrum and attic. All the five cases with central perforations had cellular mastoids with glairy fluid in the cells. This seems to be the best indication for a conservative operation, and, as is seen, six of our cases with this condition were successful and three of the five which did not result in dry ears had a similar mastoid condition. These three patients were aged 9, 24, and 25 years, and the only factor common to them was the long duration of the otorrhoea before operation. We thus see that the cases in this year's series bear out the conclusions we came to last year, and the main reason why our figures are not better is that we did not invariably follow our own indications, as the temptation to try the operation in the first instance is very great. If now we examine this series and exclude from it the cases we should have excluded if we had followed our own indications strictly, we find that eight would have had this operation: five of the eight have dry ears, and the other three are well and have only a mucous discharge from the middle ear. Of the remaining four cases, one has a dry ear, two have again been operated on, and the fourth is suffering from giddiness and has been recommended for further operation.

Our indications for the conservative mastoid operation can now be revised and stated. We consider that it should be confined to those cases in which:

1. The chronic otorrhoea cannot be cured by conservative treatment or surgical treatment to the nasopharynx.
2. The perforation is not in the attic, in Shrapnell's membrane, or in the high posterior region.
3. The mastoid is cellular with glairy fluid in the cells.
4. Granulation or cholesteatoma is absent in the antrum or attic.

The Modified Radical

We have performed forty-five modified radical operations during the year. This operation can be briefly described as a classical radical mastoid operation with this modification: that the tympanic membrane and malleus are not removed and the middle ear is therefore not unduly disturbed.

Of the forty-five patients, twenty-one have dry ears; in eighteen the ears remain moist, but are satisfactory in that there is no indication for any further surgery and it seems probable that the majority will become dry in the course of time. No recent information can be obtained from the remaining six cases as they live too far away. In no case is there any indication for further operation.

Of these cases twelve had cholesteatoma in the attic and antrum and fourteen had polypi or granulations in the external auditory meatus; eight had had previous mastoid operations, either Schwartze or conservative; and twelve had high posterior marginal perforations. The cases which do not come into these categories had central perforations and were not suitable for a conservative operation because of the presence of granulations in the antrum or attic. The type of case with the large reniform perforation forms many of those which are moist but satisfactory: it is often difficult to get the middle ear dry after operation.

On the whole we are satisfied with these operations and see no reason to alter the indications given in our previous paper. There is one modification in operative technique which we have adopted with success in four cases. In the past, cases which were otherwise suitable for a modified radical have had a radical mastoid performed because there was a cholesteatoma in the attic that could not be cleared without removing the malleus. In these four cases the head of the malleus was excised, the neck being cut through just above the short process, and the attic was cleared, leaving the tympanic membrane intact.

The indications for a modified radical operation are thus:

1. Cases which need a mastoid operation and are not suitable for a conservative mastoid.
2. Cases in which there is enough tympanic membrane left to make it worth preserving.

The Radical Mastoid

We have performed a radical mastoid operation in twenty-three cases, of which six are dry and sixteen are moist but satisfactory. We expect many of the latter to be dry in the course of time. Of the six that are dry, the average time taken was three and a half months. In all the cases the middle ear was very seriously disorganized, and seven had had previous mastoid operations—three the Schwartze, two the conservative, and two the radical mastoid. It may seem somewhat unsatisfactory that only six of the ears are absolutely dry, but it is not easy to see what alteration in technique would improve the results. The figures are probably misleading, as all these cases have been operated on in the last twelve months, and those described as "almost dry" and "very satisfactory, moist," when last seen soon after operation and some months ago, are not included with the dry ears.

Among these cases there is only one which seems likely to need further operation, and this is a case in which the meatus has become extremely narrowed so that it is difficult to treat the cavity.

Conclusion

In our previous paper we stated that the objects of any mastoid operation were: (1) to make the patient safe with regard to intracranial complications; (2) to preserve the hearing; (3) to cure the suppuration and so produce a dry ear; and (4) to avoid prolonged after-treatment. The conservative operation is the only one to achieve all these objects when successful, but when the ear remains moist it fails to fulfil, in our opinion, the most important essential—that is, make the patient safe. This, we believe, is literally of vital importance, and that is why only twelve patients of the seventy-nine have had this operation. The modified radical operation fulfils object No. 1, sometimes No. 2, often No. 3, and never No. 4. The classical radical fulfils object No. 1, rarely No. 2, occasionally No. 3, and never No. 4.

Thus the method of choice is the conservative operation, in the rare cases where it is not contraindicated; it is applicable to only 10 per cent. of the cases attending the clinic. If that operation is contraindicated, the modified radical operation is performed in about 60 per cent. of cases. The remainder, some 30 per cent., require a radical operation because the complete disorganization of the middle ear contraindicates any other method.

The degree of destruction of the middle ear does not appear to depend on the duration of the infection, for

the average age of the patients in the various groups is, somewhat to our surprise, almost identical: conservative mastoids, 23 years old; modified radicals, 25½ years; radicals, 24 years.

Summary

A survey is given of cases operated on for chronic otorrhoea during the past year.

The results of the various operations are examined.

Indications for the choice of each method are discussed.

ASSOCIATION OF STAMMERING AND THE ALLERGIC DIATHESIS

BY

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The mechanism of speech is a complicated process in which the diaphragm, the muscles controlling the vocal cords, and those of articulation, as in the palate, tongue, and lips (with the teeth), are mainly concerned. Further, these structures are under the control of the central nervous system, and ideas therein originated are given expression in speech through association fibres, the speech centres, and the centres controlling these peripheral muscles. The uninterrupted flow of speech depends upon the proper functioning and co-ordination of all these structures, central and peripheral. Stammering does not depend upon any gross anatomical defect, but is due, apparently, to some disturbance of this essential co-ordination between the various factors responsible for the production of speech. But what is the underlying cause of this disturbance?

Although usually described as a disorder of speech, stammering is really something more, and certain traits of character may be observed in the stammering child. He is often "nervous" and excitable—sometimes with a tendency to suppressed anxiety—and this mental tension often produces physical tension. A general tendency to excitability and nervousness has been noted in family histories and also a tendency for stammering to run in families, but, notwithstanding a rather unstable and nervous temperament, the stammerer is usually intelligent and has a good brain.

One morning, some months ago, three asthmatics happened to present themselves at this medical unit for interview, one shortly after the other. There would have been nothing remarkable in this but for the extraordinary coincidence that each proved to be a stammerer. The thought immediately occurred to one of us (A. M. K.) of the possible association of stammering with asthma and, having regard to the allergic aetiology of the latter, other allergic manifestations. Recalling some resemblance in certain features of allergic individuals and stammerers, it appeared that an inquiry into the presence or absence of allergic manifestations in the personal history of the stammerer and his family might yield results of some note. Accordingly arrangements were made to examine a con-

secutive series of 100 children who suffered from stammer.

Through the kind offices of Dr. Greenwood Wilson and Dr. Colston Williams (medical officers of health and school medical officers) of the city of Cardiff and county of Glamorgan respectively, we were enabled to examine 100 school children selected by head teachers because they were stammerers. These were children, 5 to 14 years of age, who were attending elementary schools in Cardiff and the neighbouring towns of Penarth, Caerphilly, and Bargoed, and were representative of town, suburban, and industrial areas. The parents or guardians were invited to bring them for special examination. Some children, however, came unaccompanied and, as it was thus impossible to obtain any family or other history, they were discarded. Likewise two adopted children, whose foster parents knew nothing of their family history, were also discarded. Again, in certain cases the speech defect proved to be dependent upon some anatomical fault, such as cleft-palate or hare-lip, and in others the children were mentally retarded and the power of speech was immature. Some exhibited nasal speech or were mere "lispers." None of these was a stammerer, and so all were excluded from the investigation. No other selection was made, and the remainder were examined in rotation until 100 true stammerers had been seen.

Each child was examined personally and the parent or guardian cross-questioned. Careful inquiry was made for any personal or family history of allergy or allergic inheritance, and questions were asked in regard to such allergic manifestations as asthma, eczema, hay-fever, migraine, and urticaria. Caution was often necessary in framing the questions relative to family history, for some parents were inclined to boast that theirs "was always a healthy family" or that "there never was any trouble or disease in our family." Some seemed to think that questions, particularly in regard to skin eruptions—eczema and urticaria—cast rather a reflection on them, whereas most quite freely admitted if there was any incidence of asthma in the family. With tact and patience, however, the family history usually came out clearly and the parent became quite interested. With regard to migraine we accepted as evidence headaches, periodically recurring and severe, principally unilateral or over the temple and throbbing in character, often accompanied by visual disturbances and vomiting, and all against a background of good health.

It was not unusual in such cases to get a history of stomach trouble, sickness, vomiting, or "bilious attacks," without any mention of associated headaches until direct questions were asked. Apart from the question of migraine note was taken of any aversion to or gastro-intestinal upsets following particular foods, or "fastidiousness" regarding food generally, exhibited by the child and suggestive of food allergy. The family history on both paternal and maternal sides was carefully sifted, and at the same time the opportunity was taken of noting whether there was any family history of stammering and whether the child was right- or left-handed.

Of the 100 children examined eighty-one were boys and nineteen girls; eighty-nine proved to be right-handed and eleven left-handed; and a family history of stammer was present in sixty-five cases and absent in thirty-five.

Incidence and Nature of Allergy Present

1.—CHILDREN WITH A PERSONAL HISTORY OF ALLERGY (52 CASES)

(a) Fifty-two children gave a personal history of allergic manifestations, as shown in the following table:

Discussion

While hypersensitiveness in the human subject may occasionally be acquired, the importance of the hereditary factor in allergic conditions is now generally accepted. In a few cases the particular type of allergy appears to be inherited; more often, however, specific sensitivity is not inherited, but the tendency to become sensitive is transmitted from one generation to another. It is not necessarily the disease, such as asthma or urticaria, which is inherited, but the constitutional make-up or allergic diathesis which predisposes descendants to the development of sensitiveness. They do not of necessity suffer from the same type of allergic manifestation as their forebears, but they may become sensitive to any allergic agent with which they come into adequate contact at any time from birth onwards. The allergic individual is one who is constitutionally susceptible.

The predisposition is localized, as a rule, in some particular group of cells in special tissues or organs of the body, but an allergic reaction does not occur until the specific allergen to which the patient is sensitive comes into adequate contact with them. The variability of the allergic symptoms is due to the fact that the location of the groups of potentially sensitive cells is not constant.

Vasomotor reactions in the tissues, transitory and reversible, are the principal local features of the allergic response in the human being—first vascular spasm, then capillary dilatation and increased permeability resulting in an exudation of oedematous fluid and cellular infiltration, chiefly eosinophils—and so it has been suggested that allergic individuals inherit an unstable vasomotor system. But vasomotor irritability—seen particularly in urticaria and angioneurotic oedema—is probably part of the constitutional “make-up” of allergic subjects, and is an accompaniment, but not the primary cause, of the allergic state. Vasomotor instability occurs in other conditions, but when it is present in individuals with the allergic diathesis or inherited predisposition to become sensitive to allergens it probably plays some part in the production of symptoms.

As previously noted, a general tendency to excitability and nervousness often runs in the families of stammerers. The stammerer himself is apt to be “nervous” and excitable, and his mental tension—suppressed anxiety—often causes physical tension. Fear, anxiety, and other emotions generally cause an aggravation of his stammer. Nervous, emotional, or psychical stimuli have also considerable influence in allergic conditions; and in asthma, for example, it has been suggested that psychological factors, such as fear, anxiety, anger, and similar emotions, may precipitate an attack. It would appear, however, that such agents are of little importance in the absence of the allergic predisposition, but in individuals already so predisposed emotional disturbances may act as aggravating factors and possibly precipitate a reaction.

Nervous and emotional disturbances are not the cause of the allergic state, but may accompany or result from it, and consequently allergic individuals may be specially alert and active mentally. Stammerers also, it may be recalled, are usually intelligent and have good brains, notwithstanding their rather unstable and nervous temperaments. The close connexion of the nervous and vascular systems (Forbes and Cobb, 1938) provides the path through which the latter may be influenced by fear, anxiety, anger, and other emotional and nervous disturbances.

In allergic migraine the hereditary factor is particularly strong, and the exciting factor is usually a food allergen. Here it may be recalled that sixty-five of the 100 stammering children investigated gave a *family* history of migraine and thirty-two a *personal* history of it. Incidentally, forty-five had a *personal* history of “fastidiousness” in regard to food generally, refusals or dislikes of, or upsets after, certain foods. The particular type of cerebral disturbance responsible for the headaches and other manifestations is thought to be a local allergic reaction producing temporary oedema of the meninges, cortex, or other parts of the brain, with, possibly, vascular spasm. Goltman's (1936) study of a typical case of allergic migraine in which he had the opportunity of making direct observations through an opening in the skull strongly supports this view. Such a mechanism could explain the various transient phenomena of typical migraine, such as visual disturbances, giddiness, paraesthesias, disturbances of speech, twitchings, and local paresis. The sickness and vomiting might also have a similar central origin. The transient disturbance of speech, at times amounting almost to aphasia, which is occasionally an accompaniment of the migrainous seizure, is of special significance in view of the findings in the present investigation into stammering. The observations of Foster Kennedy (1926) on focal cerebral oedema as a cause of cerebral symptoms in angioneurotic oedema also lend support to this view. Reference to the figures given above show that a *personal* history of urticarial attacks was obtained in twenty of the 100 stammering children investigated. In fact, either migraine or urticaria, alone or in combination, and with or without some other allergic manifestation, was present in the *family* histories of seventy children and in the *personal* histories of forty-three.

In view of the close and practically constant association of stammering and allergic manifestations in the personal and family histories of the stammerer; as revealed by the present investigation, it is difficult not to conclude that there is something more in it than a mere casual relationship between stammering and the allergic diathesis. It is not suggested that stammering is the direct result of an allergic reaction; but, considering the high incidence of allergic manifestations in our series of stammerers and accepting the view that the local tissue response in allergy is a vascular one—spasm followed by capillary dilatation and oedematous exudation, transitory and reversible—we may assume the existence of a cerebral cortex which is hypersensitive to any transient vasomotor disturbance brought about not by a specific allergen but by the effort of speech. In any case the findings are suggestive that an attempt to influence the sensitive constitution of the stammerer might at least be worth a trial. The frequency of migraine and “fastidiousness” in regard to food generally which we encountered, and the fact that a food allergen is usually the exciting factor in migraine, suggest that a beginning might be made with special allergic or elimination diets. Even ephedrine might have a place in treatment. But all this is a matter for further study.

Summary and Conclusions

A consecutive series of 100 children who suffered from stammer was examined with a view to discovering the association, if any, between stammering and the allergic diathesis. The personal and family histories of each child were carefully sifted for any evidence of allergic manifestations.

In all cases, except one, positive evidence of allergy was found in the personal or family history. Fifty-two

gave a positive personal history, and forty-eight of these also had a positive family history. Forty-eight gave no personal history, but a positive family history was obtained in all of them except one.

The various allergic manifestations in the personal and family histories have been tabulated and the closeness of the allergic inheritance noted.

A family history of stammer was obtained in sixty-five of the 100 cases, and the closeness of the stammering inheritance has been noted.

Stammering tends to run in families. The hereditary factor plays an important part also in the allergic diathesis—the constitutional "make-up" which is apt to become sensitive being transmitted from one generation to another. A general tendency to excitability and nervousness frequently runs in the families of stammerers, who themselves are often "nervous" and excitable and whose mental tension—suppressed anxiety—often causes physical tension; such emotions generally aggravate the stammer. Nervous, emotional, and psychical stimuli have also an influence in allergic conditions, and it has been suggested that, in asthma, certain emotions—fear, anxiety, etc.—may precipitate an attack. These, however, appear to be mere aggravating factors, and are of importance only in the presence of the allergic predisposition of which they are a frequent accompaniment or a result. The vascular system through its close connexion with the nervous system may be influenced by fear, anxiety, anger, and other emotions, in stammer and also in allergy.

Notwithstanding their nervous and rather unstable temperament, stammerers are usually intelligent and have good brains. Allergic individuals also—for example, sufferers from migraine—are often very alert and active mentally.

In allergic migraine the hereditary factor is particularly strong and the exciting factor usually a food allergen. Sixty-five of the 100 stammering children gave a family history of migraine and thirty-two a personal history of it. Forty-five had a personal history of "fastidiousness" towards food generally or upsets after particular foods.

The close and practically constant association of stammering and allergic manifestations in the personal and family histories of the stammerer, as revealed by the present investigation, rather favours the view that there is something more than a mere casual relationship between stammering and the allergic diathesis.

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R. Cento (*Minerva med.*, 1938, 29, 235) records his observations on ten patients with ulcerative tuberculous lesions and purulent sputum containing a large number of bacilli who were treated for thirty consecutive days by intravenous injections of 2 c.cm. of beeswax dissolved in 5 per cent. of olive oil and 10 per cent. of cod-liver oil, combined with calcium by mouth or intravenously. In all the patients after the first ten injections there was a diminution in the quantity of sputum, which subsequently became less purulent; finally there was only a little morning expectoration. In all the ten cases after the first ten to fifteen injections there was a diminution in the number of tubercle bacilli, which assumed a granular appearance and became no longer acid-fast. At the end of treatment four patients became sputum-negative, and in two others it was possible to find only a few acid-fast bacillary forms on examination of the gastric juice. Inoculation of numerous specimens of this sputum on Petraghani tubes produced a macroscopic growth in only two cases.

THREE CASES OF INTUSSUSCEPTION IN THE ADULT

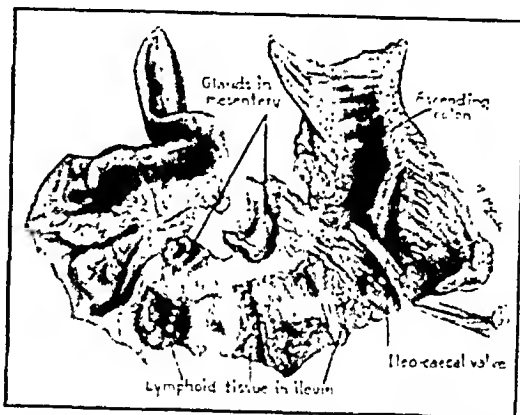
WITH REFERENCE TO AETIOLOGY

BY

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Acute intussusception in the adult is rare, and then usually occurs in connexion with "tumours" of the intestinal wall (Fiske, 1937; Goodall, 1910); but this is not an essential factor (Bryan, 1937), for in Case III, so far as could be found, no initial cause was present. Several cases have been reported in which the causal tumour was discovered only at subsequent operations (Oughterson and Cheever, 1929). In infants so-called primary intussusception is said to arise in connexion with inflammatory changes in the lymphoid tissue in the mucosa of the lower end of the small intestine (Perrin and Lindsay, 1921). This lymphoid tissue swells, and forms as it were a "tumour." The accompanying illustration shows this



Specimen taken from a fatal case of intussusception in an infant. The caecum and lower few inches of ileum have been opened from behind, and a sessile tumour-like mass of lymphoid tissue is seen about three inches from the ileo-caecal valve. This formed the apex of the intussusception.

"tumour" formation very well. At operation in infants almost invariably the lymph glands in the mesentery are also enlarged, a change not found in these three cases. That so-called primary intussusception does not occur so commonly in the adult is said to be due to the fact that lymphoid tissue becomes reduced with age, as is well seen in the pharyngeal and palatine tonsil areas, and also because the lumen of the intestine is relatively larger in the adult.

Intussusception differs from other forms of intestinal obstruction in the fact that the patient usually passes stool, as is well shown here. In infants the stool often contains blood and mucus, but in these cases no blood was noticed.

Case I

In December, 1937, a woman aged 47 was admitted to hospital complaining of ten days' intermittent abdominal pain. Her history contained nothing of note save an attack of abdominal colic one year previously that lasted a few hours only.

Ten days before admission there was an onset of mild generalized abdominal pain not associated with vomiting. Seven days before admission the pains became more severe, and were

associated with vomiting. She volunteered the statement that they were like labour pains, lasting two minutes every ten minutes. The pain was localized to an area to the right of the umbilicus, and persisted most of the day. Five days before admission she was almost free from pain, but as her bowels had not been opened since the onset of the pains she took senna. Four days before admission her bowels were open, but the pains became more severe and she vomited many times. Two days before admission she again took senna, with the same result: the pains became very severe and there was much vomiting. On the day of admission her bowels were open. (On no occasion did she pass blood.) The pains and the vomiting continued.

Examination.—Her temperature was 98° and pulse 80. She was seen to have a typical attack of abdominal colic. On inspection a mass was observed in the abdomen, to the right of and below the umbilicus; it was dull to percussion, and was tender but not fixed. Her private doctor had pointed out that the mass became harder during an attack of colic. On rectal examination no abnormality was found, and no blood. In spite of the low pulse and temperature, a diagnosis was made of appendix abscess, with involvement of gut causing intestinal obstruction.

Operation (by C. L. H., under general anaesthesia).—An intussusception was present, the apex of which was in the transverse colon. On reduction it was found that a sessile tumour, 2 cm. in diameter, situated in the small intestine three inches above the ileo-caecal valve, had formed the apex of the intussusception. Reduction of the intussusception was easy up to the ileo-caecal valve; the last part—that is, reduction of the tumour and the ileum out of the colon—gave some difficulty. To remove the tumour it was necessary to open the gut, which was closed in two layers. No other tumours were found in the limited part of ileum examined.

When seen in May, 1938, the woman was very well.

I am indebted to Dr. Gilmour of the Bernhard Baron Institute of Pathology of the London Hospital for the following report and observations on the tumour.

PATHOLOGICAL REPORT

The specimen was a nodule 2 cm. in diameter received in 4 per cent. formaldehyde. The greater part was round, smooth, and brown, but one surface, 1.5 cm. in diameter—the cut surface of removal—was flat and showed rough white muscularis. On section the round part showed an outer zone, up to 1.5 mm. deep, of firm brownish or yellowish-white thickened mucosa which was ill defined inferiorly. Beneath this was a firm yellowish-white mass in the submucosa which infiltrated the muscularis. The muscularis was hypertrophied up to 4 mm. thick.

Microscopically the growth shows polygonal and columnar cells arranged in branching and anastomosing trabeculae, many of which contain alveolar spaces. The trabeculae are often two cells wide, but many are much wider. The cells at the borders of the trabeculae and surrounding alveolar spaces are palisaded and usually columnar. The remaining cells are polygonal. The cytoplasm in the basal parts of the columnar cells and in the smaller polygonal cells is dense, but in the larger polygonal cells is slightly rarefied. The denser cells are stained deep red or purple, and appear indistinctly granular in haematoxylin and eosin. The granularity is most marked in the bases of the columnar cells. The less dense cells are deeply stained and show distinct pink or purple granules. A few cells contain small vacuoles. In some places where the cells are separated slightly they are seen to be connected by intercellular protoplasmic bridges not unlike the prickles of squamous epithelium. By Fontan's silver impregnation the basal cytoplasm of the columnar cells, and to a much less extent the cytoplasm of other cells, shows numerous finely particulate argentaffin granules. The borders of the trabeculae are consequently outlined sharply by this method. Sections of tissue fixed for six weeks in formaldehyde, transferred to Müller's fluid for one week and embedded in paraffin, showed the chromaffin reaction. The chromaffin reaction was also obtained by placing for four days in Müller's fluid paraffin

sections of formalin-fixed tissue. The reaction is seen as a bright lemon-yellow diffuse coloration of the parts of the cells that show abundant argentaffin granules. The chromaffin reaction differs from that given by the adrenal medulla in its colour and by the fact that it is given by tissue fixed in formaldehyde for a considerable time. Other argentaffinomas examined by me have shown these peculiarities in the chromaffin reaction. Only a very few cells contain a scanty amount of cholesterol esters yielding liquid crystals on heating. The nuclei are uniform, small, and round, with prominent nuclear membranes, pale nucleoplasm, a scanty net of delicate chromatin threads, several small nodes, and one to three small nucleoli. The alveolar spaces are small, and contain a lightly stained vacuolated coagulum. The stroma of the growth is scanty, and consists of collagenous and smooth muscle fibres and a few vessels. Some of its spindle cells contain a little granular fat.

The mucosa has lost its superficial epithelium, is inflamed, and is extensively infiltrated by growth; intestinal tubules are very scanty. The muscularis mucosae is slightly thickened and gives extensions into the stroma of the growth beneath. The small amount of muscularis present in the section is infiltrated by trabeculae of the growth.

The tumour is an argentaffinoma, locally malignant in that it is growing by infiltration.

Case II

In March, 1936, a woman aged 66 came to hospital complaining of severe abdominal pain. She had been admitted on two previous occasions on account of attacks of abdominal colic, but on investigation no cause was found.

On the day before admission she had severe colicky abdominal pain, most marked to the right of the umbilicus, but radiating to the left side and to the back, though not to the shoulders. The pain was associated with much vomiting and diarrhoea: no blood was seen in the stools.

Examination.—Her temperature was 99° and pulse 120. The notes state that examination of the abdomen revealed rigidity of an area to the right of the umbilicus, deep to which there was a rounded tumour "which suddenly disappears." No abnormality was found on rectal examination. A diagnosis of intestinal obstruction due to a gall-stone was made in view of the previous history of colic.

Operation (by Mr. Alan Perry, under spinal anaesthesia).—An intussusception, ileo-ileal, was present, which was about two feet in length from point of entry to apex. Reduction was not difficult, and at the apex was found a sessile tumour (a lipoma) 3 by 1.5 cm. in diameter. To remove the tumour it was necessary to open the gut, which was closed in two layers. The gall-bladder contained one large stone about an inch in diameter. Convalescence was satisfactory.

The pathological report stated that there was venous engorgement and acute inflammation of a subserous intramuscular lipoma of the ileum, with ulceration of overlying mucosa.

The patient was well when seen in January, 1938. She complained of flatulence, but had had no other attacks of colic since the operation.

Case III

In May, 1935, a man aged 27 was admitted to hospital complaining of eight hours' abdominal pain. He had had an attack four and a half years previously. Pain started in the region of the umbilicus, and later shifted to the right iliac fossa. Since then, every one or two months, he has had at night attacks of abdominal pain which lasted a few hours. The pain usually remained in the region of the umbilicus.

Eight hours before admission he had severe colicky abdominal pain which made him "double up." The pain was associated with vomiting. The bowels had been open once since the onset of the pain.

Examination.—The temperature was 98.8° and pulse 78. The abdomen was tender and rigid on the right side, but no abnormal lumps were felt. Rectal examination revealed

nothing abnormal. A diagnosis of acute appendicitis was made.

Operation (by Mr. Hirschfeld, under general anaesthesia).—An intussusception was present. The apex of the intussusception was in the transverse colon, and on reduction it was found to be the ileo-caecal valve. No tumour or other cause was discovered. The appendix was removed. Convalescence was satisfactory.

The pathological report stated that there was venous engorgement of the appendix.

One month after operation the patient was well, having had no more attacks of pain since. He has answered subsequent inquiries, and wrote in March, 1938, that he had been very well.

Summary

The rarity of cases of acute intussusception in the adult, and the aetiology of the condition, are discussed.

The history of three recent cases is given. In two of these the causative factor was a neoplasm.

I am indebted to Mr. H. S. Souttar and Mr. Alan Perry for permission to publish the notes of the three cases, which were under their care in the London Hospital.

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CONGENITAL DEFORMITIES OF LEGS

BY

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On December 1, 1936, a girl aged 16 was brought to me as she was said to have been "horn without any legs." She came into my consulting-room walking on her hands, using the base of her trunk as a middle support. She was a most curious sight when I first saw her: one had the impression of a rather large dog coming into the room, an impression made stronger when she leaped from the floor to an ordinary chair and squatted on her haunches with a rather pleased smile at her trick. Her speed when "walking" was amazing; she could cross the room as fast as an ordinary adult, and when she wished to sit on a chair she leaped into it and sat like an ordinary human being. The change from the ambulatory position on the floor, where she looked like a domestic animal, to that on a chair, where she took on the appearance of an ordinary individual, was dramatic. She stood with most of her weight on her left lower limb, and the two curious teat-like projections from the right lower limb enabled her to balance herself on her two "legs" with the aid of one hand. She wore a large sock to cover the right stump, and a boot—much deformed—on the left foot.

On examining her more closely one found that through constantly walking on the palms of her hands with the wrists dorsiflexed she had developed a greatly thickened palmar skin, comparable in character to that of the sole of the foot and studded with "hoofs." Apart from the acquired thickening of the palmar skin and the congenital deformities of the legs the girl was normal. The "legs" themselves were very interesting, and are well shown in Fig. 1. The right one was about 6 inches long, as

measured from the great trochanter; it was a large fat stump ending in two teat-like projections, presumably abortive toes, and looked for all the world like a cow's udder. One could feel bones inside the left "leg," which was about a foot long, and had a femur, a tibia, and three inner toes; the fibula and two outer toes were missing, and the dimple over the tibia so characteristic of the con-

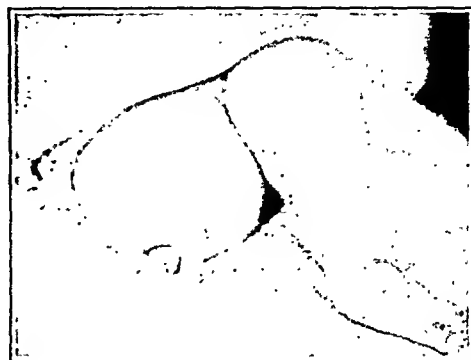


FIG. 1.

genitally absent fibula was present. X-ray photographs revealed that both hips were dislocated, and that there was an abortive femur with condyles in the right stump and an immature femur and tibia in the left stump.

The girl herself, content for many years, was now reaching womanhood, and wanted to be the same height as others and to walk like others. Was it possible? My first thought was to straighten the left knee and to put the left foot into full equinus in order to make the left lower limb as long as possible. Afterwards the limb would have been fitted into the socket of an artificial limb which had a knee-joint at the usual level. I have done this before in a similar unilateral case with success. I thought we might fit a tilting-table leg to the right stump. Her bodily development was good, and there was no doubt she would be able to use a tilting-table leg satisfactorily.

Those responsible for the girl were not in favour of an amputation of the right stump, as they were afraid that, if the attempt to make the girl walk failed, the operation might have ruined any return to her original method of progression. I wished for a further opinion, and sent her to my friend the late Dr. H. R. Moxon, at Queen Mary's Hospital, Roehampton, making use of the Ministry of Pensions scheme whereby civilians have the advantage of advice from expert military limb-fitting surgeons.

Dr. Moxon's Report on the Case

"The fitting of artificial limbs in this case, though presenting difficulties common to all such cases of deformity, nevertheless does not present insuperable difficulties—in fact, I think there is a reasonable chance of obtaining quite a successful result. This is enhanced by one very important asset—namely, the girl's obvious wish to be fitted and look like a normal girl in height and appearance, by which her willing co-operation is assured. Also youth and strength are on her side, and thus the physical and mental aspects are favourable.

"*Right Side.*—This should be fitted with a metal tilting-table leg made as light as possible, with the body weight taken accurately on the tuber ischii. The stump, however, is at present much too long, measuring about 6 inches. Shortening by at least 3 inches is necessary, the aim being to give a snugly fitting socket without too much prominence in front, which would be unsightly under the skirt and would at the same time make balancing more difficult and get in the way of the instrument on the left side.

"*Left Side.*—Operation is not recommended. It is suggested that an apparatus should be fitted by which her body weight is taken on the tuber and the foot is supported on a platform partly enclosed in an artificial knee with an artificial shin and foot below. Then it seems fairly certain that by means of a double knee-cap and various straps the knee and foot can be gradually pulled into position. This result would improve as time went on, and need not be a painful process in any way in a properly adjusted instrument.

"This being the general outline of the case, the stages recommended are as follows:

"1. Shortening of the Right Stump.—When this is ready for fitting, which should not be before three months from the date of operation, she should be sent as an in-patient to Roehampton, prepared to stay at least two months. This is very necessary, as she has never walked and has to be taught to do so and get her balance, etc., just like an infant. Regarding her present method of locomotion, this would not be interfered with by shortening the stump if she fails to manage with artificial limbs, as she would still have the buttock; and it is noted that when she gets about on the floor she takes the weight on the left leg and hands chiefly.

"2. On admission a start would be made with the left side in order to get the necessary height, the height of the tilting table being gauged therefrom and increased by graduated blocks. It will be noted that, in view of the double dislocation, the weight on each side will be taken on the tuber ischii and not on the axillae.

"In conclusion, I think that there is a very good chance of success in this case, difficult as it is, and that the girl will be able to walk in comfort with fairly normal gait.

"X-ray appearance (copied from x-ray report submitted).—The pelvis: Well developed, but of the android type. Hips: Congenital dislocation on both sides, and on the right side the head of the femur is separate from the shaft. The legs: On the right side the femur is very imperfectly developed, with a very short and thin diaphysis and the head developed separately from it; the parts below the knee-joint are all very rudimentary. The left shows a fairly well developed femur and tibia, but absent fibula."

I was rather surprised to see that Dr. Moxon suggested gradual straightening of the left limb. I felt that as the girl was to have an operation it would be better to straighten the left leg operatively, as it would be quicker and less tiresome for the patient. However, after discussing the matter we decided to do as the limb-fitting surgeon suggested. The limb-fitting was Dr. Moxon's work, and his arguments were as follows:

"It is not the intention to fit the girl's left leg into the socket of an ordinary artificial limb, as this could not be recommended as a practical procedure. Therefore, the preliminary straightening of the left leg for that purpose does not arise.

"The type of apparatus recommended for the left leg is in reality a combination of surgical instrument above, with the knee, shin, and foot of an artificial limb below. The principle of such an apparatus is illustrated on page 58 of 'Solvitur Ambulando,' but each individual set-up must differ in detail according to the requirements of the particular case of deformity under consideration. In this case it is felt that an instrument on this principle can be fitted to the girl's left leg with reasonable prospect of success without any preliminary straightening operation, open or otherwise. Preservation of her present mode of progression is in my opinion of prime importance.

"When not wearing the legs, or if the fitting of them should unfortunately be unsuccessful, she can still get about as before, which she certainly would not be able to do again if the left leg were previously straightened by operation."

Accordingly, on June 15, 1937, I removed about four inches of femur from the right stump together with a large amount of skin and subcutaneous fat and the two teats,

using a posterior flap. The resulting stump was very satisfactory, being a much better shape and size for the fitting of a tilting-table leg (Fig. 2).

After three or four months she went to Roehampton, where she remained an in-patient for five months. The following is taken from a letter I received from Messrs. Hanger and Co., who supplied the patient's artificial legs:

"When Miss R. came to us, apart from a wheeled chair her only means of locomotion for seventeen years had been on her hands and haunches. It was found that the moment she was placed in an erect position on any form of temporary pro-



FIG. 2.



FIG. 3.

thesis, even a few inches from the ground, a sense of balance was entirely lacking and she became giddy. We gradually accustomed her to being off the ground at progressively increased heights, until eventually she was able to retain her balance when raised to her normal height of 5 ft. 1 in.

"For the deformity on the right side we provided her with a prosthesis of the normal type for an amputation involving disarticulation of the hip-joint, similar to that illustrated on pages 49 and 50 of our brochure 'Solvitur Ambulando.'

"For the left leg—a special appliance was devised, comprising a thigh socket and surgical boot rigidly mounted to a ball-bearing knee-joint (embodying an automatic knee-lock) connected to a light metal shin-piece with an articulated foot and toe-piece.

"In designing these prostheses light weight combined with ample strength and practical efficiency were the essentials required for a successful result. It was found, however, that when she was first fitted she had not the slightest idea of how to walk; but she proved a very apt pupil, and in a short time had learnt the movements required.

"From this time she made rapid progress, and when she left our hands was walking distances of half a mile with perfect confidence and without undue fatigue, using two walking-sticks. She can walk with one stick, but at present it is inadvisable that she should do so. We think, however, that when she has become quite accustomed to these prostheses she will find only one stick necessary."

When I saw the girl in May, 1938, she was able to walk quite well on the level with the aid of one stick. She climbed by herself up a short staircase with complete self-assurance. Fig. 3 shows the girl and her new legs. When fully dressed she is to all intents and purposes an ordinary individual. Her whole outlook is changed, and

she is now a self-reliant girl with a place in life instead of being a circus curiosity.

She has an electric chair for taking her from one building to another, but, having arrived, she can now walk like other people and take a normal part in the work of the day. In her own words she says (July 5, 1938): "I can nearly do everything now, and do not ache so."

Since sending this article for publication I have heard (November, 1938) from the girl's doctor that she is now progressing with increasing freedom and is beginning to learn to dance.

I am very grateful to many who have helped me to bring about this result: my own staff, that of the Ministry of Pensions, Messrs. Hanger and Co. (the artificial-limb makers), and one whom I mention by name, the late Dr. H. R. (George) Moxon, who unfortunately did not live to see such a happy result of his advice.

Clinical Memoranda

Carcinogenicity of the Tar-Creosote Mixture used by Fishermen

This tar-creosote mixture was submitted for investigation by Dr. C. C. McKenzie of Campbelltown, who suspected it of being responsible for cases of cancer of the lip in the local fishermen. The carcinogenicity of the mixture was tested by painting the skin of thirty stock mice, in the interscapular region, three times a week. After the second application epilation of the whole painted area occurred. A severe dermatitis, resulting in ulceration, followed, the ulcers penetrating so deeply that scars were produced.

Twenty-one mice survived for longer than three months. The first papilloma occurred after 106 days. In his pathological report Dr. L. Woodhouse Price stated: "This is a keratinizing squamous epithelial papilloma, showing very early malignant change." Eleven papillomata developed in these mice from the 106th to the 249th day. By this time all mice had either died or had to be killed because of the extensive ulceration. The papillomata developed on the edges of the ulcerations, except in one case, in which the papilloma occurred within the ulcerated area. In the sections of the more recently examined tumours cell-nest formation and a good deal of deep infiltration are to be seen. Their histology is that of well-differentiated squamous carcinoma; however, the panniculus carnosus does not appear to be infiltrated with the tumour, which therefore is termed a papilloma malignum. In mouse No. 599 the lung showed macroscopically a definite tumour, and histologically the structure of anaplastic new growth, probably a lung adenoma, 197 days after the start of painting. It is known that the application of tar to the skin of mice increases the number of lung adenomata, as compared with controls.

There is no doubt that this tar-creosote mixture, which comes in contact with the lips of the fishermen, is carcinogenic. This source of occupational cancer can and should be eliminated. It is necessary either to produce a suitable non-carcinogenic tar, possibly by distillation at lower temperature than at present, or to educate the fishermen to abandon the habit of putting the bone or wooden needle, threaded with tarred twine, between their lips while mending their nets.

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Reviews

GUIDANCE IN OBSTETRICS

Midwifery. By Ten Teachers. Under the direction of Clifford White, M.D., B.S., F.R.C.P., F.R.C.S., F.C.O.G. Edited by Sir Comyns Berkeley, Clifford White, and Frank Cook. Sixth edition. (Pp. 676; 262 figures, 9 plates. 18s. net.) London: Edward Arnold and Co. 1938.

The new edition of this textbook follows closely on the reprinted fifth edition published last year. Since then there have been extensive changes in the personnel of the "Ten Teachers" and minor changes in the book. The editor has reduced its size by discarding obsolete material contained in the previous edition. Further improvement is possible when two pages are devoted to each of such rarities as locked twins and pseudocyesis, and several pages contain an unconvincing attempt to differentiate between albuminuria of pregnancy and pre-eclampsia.

The illustrations throughout are excellent, and include four colour plates and five radiographs. One of these must be criticized for suggesting that dilatation of the renal tract is evidence of pyelitis of pregnancy. Students should have little difficulty in remembering the positions in face presentation, since the illustrations on page 304 rather suggest a Dictator extricating himself from a difficult situation. Those with more "left" tendencies will find solace in the clenched fist on page 327.

Cervical polypi are not included as a cause of bleeding in pregnancy; transfusion is not mentioned in treatment of severe cases of obstetrical shock, melaena neonatorum, or familial jaundice; nor is vomiting included in the list of danger signs during the later ante-natal period. The dosage of ergometrine advised for post-partum haemorrhage is small and its action is incorrectly stated to be slow. Many obstetricians will disagree with the statement that it is quite unnecessary to displace the foetal head during manual rotation from a posterior position. Omission of the preliminary step of disimpaction is a frequent cause of failure to accomplish the operation, and is the indirect cause of many difficult and dangerous face-to-pubis extractions. Conservative opinion will regret that a breech with extended legs in a primigravida—even in twin pregnancy—is now a "rational indication" for Caesarean section, and that this rule should not be broken unless the infant is premature. So much by way of criticism.

This book is a well-established favourite with students, and the new edition is certain to be as popular as its predecessors and perhaps even more helpful.

MODERN SURGERY

The Essentials of Modern Surgery. Edited by R. M. Handfield-Jones, M.S., F.R.C.S., and A. E. Porritt, M.A., M.Ch., F.R.C.S. (Pp. 1,126; illustrated. 30s.; postage 10d., abroad 2s. 3d.) Edinburgh: E. and S. Livingstone. 1938.

This is a single volume, the composite work of fifteen authors, six of whom, including the two editors, are on the staff of St. Mary's Hospital, while with one exception (Mr. Walter Mercer of Edinburgh, who writes on deformities) the others are also London surgeons. Its scope is comprehensive: chapters on physiotherapy and radiotherapy, venereal diseases, diseases of the skin, diseases of the female genital organs, the ear, and the affections of the nose and accessory sinuses are included in addition to those on general surgery, which for the most part is dealt with on a regional basis. The format is attractive, the text clear, and the print large and easily

readable, while the illustrations, which include photographs of patients, apparatus, and pathological specimens as well as x-ray prints and line diagrams, are interspersed with the text and the whole is produced on art paper.

The editors tell us in their preface that their object has been to provide students and practitioners with the essentials of modern surgery in as concise a form as possible, and also to produce a book which will be of use to students studying for higher examinations. In large measure they may be said to have achieved these objects, though in common with all works of multiple authorship this book necessarily lacks the consistent style of the text of a single author or of those famous old dual authorship works such as Rose and Carless and Thomson and Miles. While certain sections are models of what concise accounts should be for a student, the same cannot be said of all. It is rather disappointing to find included in such a limited work illustrations and accounts of surgical curiosities or rarities, since the student tends to gain a wrong perspective therefrom and to regard these as of everyday occurrence: as examples may be cited a picture of an enormous adventitious bursa over the left shoulder, while photographs of a dislocated shoulder or of a lipoma in this region are missing. The statement (p. 324) in reference to thyrotoxicosis that "in every case a routine examination will search for focal sepsis and appropriate treatment be directed to any such lesion" might be qualified, since patients have succumbed to tonsillectomy performed in this condition instead of an attack being made on the thyroid in the first instance.

We regard the chapters on the ear and on the brain and its coverings as some of the best in the book, and the latter section is particularly well illustrated. The inclusion of prescriptions such as those which appear on pages 200 and 201 is pleasing, and past and present students of St. Mary's will be interested in Fig. 68 (p. 206) and its legend, which reads: "Rhynchophyma. A man known to many generations of students of St. Mary's Hospital." Considered as a whole this book has much to recommend it, and it should take its place as one of the students' standard textbooks of surgery.

HAEMORRHOIDS AND THEIR TREATMENT

Haemorrhoids. By Marion C. Pruitt, M.D., F.R.C.S.Ed., F.A.C.S. (Pp. 170; 73 figures, including 7 in colour. 18s. net.) London: Henry Kimpton. 1938.

Dr. Pruitt has succeeded in writing a simple and clear treatise on the subject of haemorrhoids. A good classification of types of haemorrhoids is given, and it is rightly pointed out that as there are several types no one method of treatment is suitable for them all. Spinal anaesthesia used as routine for operative treatment is thought undesirable and local anaesthesia is favoured. It is surprising to note that oedema is considered the reason for irreducibility of a haemorrhoid and that suturing of the subcutaneous tissues may be carried out after excision of an external haemorrhoid. The author recommends urgent haemorrhoidectomy for uncomplicated irreducible internal haemorrhoids when there is a risk of strangulation, etc.; but this must be quite unnecessary when simple and effective methods are available. The chapter on injection treatment pays too little attention to the minute details of the technique and too much to the history of the injection method. A trained assistant is hardly necessary for so simple a procedure. In dealing with the submucous method of injection, injection above the haemorrhoid is not mentioned, neither is the combination of this method with injection into the pile mass considered. The author

states that the result of injection in third degree haemorrhoids is almost as good as operation, and places the number of cures of haemorrhoids by the injection method at 80 to 90 per cent. This is indeed optimistic! The section on operative methods includes a description of Whitehead's operation and the clamp and cautery methods, neither of which has a place in the modern surgery of haemorrhoids.

This book, though containing much in the way of repetition, will be of use to the general practitioner because of its easy and clear style.

INFECTIVE BULBAR PARALYSIS

La Maladie d'Aujeszky. By P. Remlinger and J. Bailly. (Pp. 202. 45 fr.) Paris: Masson et Cie. 1938.

Infective bulbar paralysis or pseudo-rabies was not recognized as distinct from rabies until 1903, when Aladar Aujeszky established its virus nature as distinct from that of rabies. It occurs among dogs, cats, cattle, pigs, sheep, and horses in nature, but man appears to be very resistant. The authors of this, the only existing monograph on the disease, have collected a few cases of infection, almost all very slight and abortive, in laboratory workers. This veterinary disease has an incubation period of from thirty hours to eight days, a short fatal course of three days, with a brief paralytic phase before death, which usually occurs during the night. An outstanding manifestation is pruritus, which in North America has earned for the disease the name of "the mad itch." In one of the human cases there was pruritus for two days; there does not appear to have been any fatal case in man. The authors of this monograph, who are in charge of the Pasteur Institute at Tangier, have contributed a pleasantly appreciative memoir of Aladar Aujeszky (1869-1933), a medical man and a veterinarian, author of 528 publications, professor of bacteriology, and director of the Bacteriological Institute of Hungary.

CARDIORADIOLOGY

Orthodiascopy. By Chester M. Kurtz, M.D., F.A.C.P. (Pp. 247; 67 figures; 31 tables. 15s. net.) London: The Macmillan Company. 1937.

With the development of cardioradiology to a point where it can be regarded as equal in importance to clinical and electrocardiographic methods many monographs dealing with this aspect alone are appearing. The subject is now a very large one, and an expert knowledge of the form of the heart in health and disease can hardly be attained except by those who limit themselves to this department of radiology. In his monograph based on 1,700 orthodiascopic examinations Dr. Kurtz first describes the techniques used, and includes a method for projecting the cardiac outline on the anterior chest wall, which, as he admits, may be omitted with little loss. The opportunity which such a projection gives the observer for checking his percussion findings will be welcomed only by those who still retain their belief in this clinical method.

In a chapter on heart size, comparison of the frontal cardiac area with the predicted normal, based on height, weight, and age, is preferred as the most reliable of the various methods of measurement, though it is pointed out that in border-line cases the method can only indicate the probable presence of abnormality or otherwise. The changes in rheumatic heart disease are well described, though the projection on the left border below the pulmonary artery commonly seen in mitral stenosis is referred to as the left auricular salient, while post-mortem observations show that this is usually formed by the conus of

the right ventricle. The section on aortic syphilis deals too briefly with the earlier lesions; in contrast to the great stress laid on cardiac measurement there is no reference to aortic measurement, which is admittedly difficult. In the final chapters coronary and hypertensive and congenital heart disease are very briefly considered. The aortic changes in hypertension appear to be regarded as predominantly due to dilatation, whereas the usual view is that an uncoiling of the arch is the important factor.

In this country, while radioscopy of the heart is being more and more widely used, the tendency is to use tele-radiographs rather than orthodiagrams when a permanent record is required, and the few radiographs reproduced in this book show their superiority to orthodiagrams. The monograph is suitable for those seeking an introduction to the subject, provided they shift the emphasis placed by the author on measurement of cardiac area to changes in form.

PUBERTY, NORMAL AND ABNORMAL

La Puberté: Etude Clinique et Physiopathologique. Edited by Guy Laroche. (Pp. 349; illustrated, 65 fr.) Paris: Masson et Cie, 1938.

This is a composite volume edited by Dr. Laroche, who contributes a chapter on normal puberty and its deviations from the normal time of arrival. Next is a chapter on sexual hormones and then one on pubertal intersexuality, the author of which concludes that there is normally an intersexual phase in boys but not in girls. This phase in boys may be characterized by certain physical characteristics, by a frank homosexuality, or by an indifference to the sexual object. From this phase originates almost all future sexual inhibition. In girls there is never anything but an indifferent phase which may accidentally produce homosexuality. He thinks the cause is almost exclusively endocrine. Then follow chapters on vasomotor and cardiovascular disorders, in relation to which it is necessary to distinguish between the rheumatic heart and the benign irritability of the adolescent's heart. Digestive disorders, tuberculosis, and goitres are dealt with, and then infantilism in the male and menstrual disorders in the female. The difficult subject of obesity at puberty is dealt with clearly, and the conclusion is that while many cases are due to a nutritive factor there is a group, often very difficult to treat, due to pituitary disorder, though chromophobic tumours are rare. The chapter on psychoneurosis is somewhat sketchy, and the author blames the instability of the environment, especially of recent years, as the chief causal factor. There are chapters on cellulitis, diseases of bones and ligaments, eye trouble, and skin reactions at puberty, and finally nutrition, physical exercise, and physiotherapy are discussed.

A book such as this may lack something of coherence, since it ranges over so many subjects. Nevertheless many doctors will find it a useful volume to have on their shelves, since it contains much useful information (which may be difficult to find in more orthodox textbooks) on subjects that must constantly crop up in day-to-day practice.

Notes on Books

Hearing: its Psychology and Physiology, by Drs. STANLEY SMITH STEVENS and HALLOWELL DAVIS, is published in London by Chapman and Hall at 22s. 6d. There have been greater contributions to knowledge concerning hearing in the last fifteen years than in the preceding fifty.

This book gives a valuable account of the present position in this field, which is on the borderline between physics and physiology. It is to be hoped that in the next decade it may prove possible to apply some of the new knowledge to elucidate the problems of deafness.

Dr. J. W. THORNTON, lecturer in pharmacology, Bristol University, has prepared imperial and metric conversion scales, constructed logarithmically from tables in the *British Pharmaceutical Codex*. Their purpose is to minimize the inconvenience caused to scientific workers by the simultaneous operation of the two systems of weights and measures. Quantities given in either system may be read at a glance in the other without need of tables or calculations. The seven scales on this one wall card cover all the everyday needs of doctor, dispenser, or research worker. It is published by John Wright and Sons Ltd., Bristol, price 6s., postage 6d.

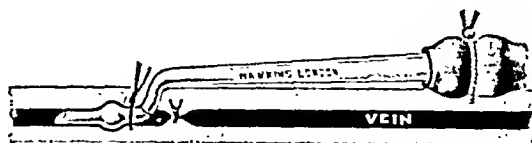
Series XXXIII of *The Harvey Lectures* delivered under the auspices of the Harvey Society of New York is published at Baltimore by the Williams and Wilkins Company and in London by Baillière, Tindall and Cox, price 18s. The eight lectures in this series cover a wide field in physiology and allied subjects. Thus Selig Hecht, professor of biophysics, Columbia University, discusses the nature of visual processes, Einar Lundsgaard, professor of physiology at the University of Copenhagen, considers the Paster-Meyerhof reaction in muscular metabolism, and Dr. W. M. Stanley writes on the isolation and properties of tobacco mosaic and other virus proteins. Of more direct interest medically are Professor Goldblatt's account of experimental hypertension induced by renal ischaemia and Professor F. C. Koch's lecture on the chemistry and biology of the male sex hormones.

Preparations and Appliances

NEW INTRAVENOUS CANNULA

Mr. C. J. C. SIGGERS (Resident Surgical Officer, St. Mark's Hospital for Diseases of the Rectum) writes:

The cannula about to be described is a modification of that devised by Marriott and Kekwick. Their cannula was a great advance on previous designs, but the expanded tip was so large that it was very difficult to introduce into any but the largest veins. To facilitate the entry of the cannula into the smaller veins I had one made for me with a narrow extension beyond the bulb (see Fig.). This narrow bevelled extremity can be introduced into very small veins quite easily,



and once the tip is in the bulb will slip in without difficulty and the ligature can be tied behind it. A theoretical objection is that as the terminal opening is oblique it may be more easily occluded by the wall of the vein than if it were cut off square. Actually, this does not seem to happen in practice, owing probably to the fact that one is able to fix the cannula so that it lies in the correct alignment in the vein with the tip free. The diameter of the cannula at the tip is 2 mm. and at the widest part of the shaft 4 mm.; the length of those supplied has been just under 7 cm. Other sizes could be made to order, but this size will be found convenient in most cases. A larger size is not really necessary, and a smaller size should only be needed for babies and very small children. The cannula was made for me by A. L. Hawkins and Co., Ltd., of 15, New Cavendish Street, London, W.1.

MEDICAL ADVANCES IN SOVIET RUSSIA

At a meeting arranged by the Society for Cultural Relations with the Union of Soviet Socialist Republics, held at the Royal Society of Arts, London, on December 8, Major-General Sir CUTHBERT SPRAWSON, who paid a visit to Soviet Russia in the summer of this year, gave an account of his experiences there, particularly with reference to medical education and to the campaign against tuberculosis. He spoke as one who had been interested for many years in medical education in India, where he had been President of the Medical Council, and he found certain analogies between these two great, mainly agricultural, countries, both of which had been backward, though India, he said, was advancing slowly and Russia making rapid progress.

Medical Education

Sir Cuthbert Sprawson said that he was surprised to find one thing in common between Russia and India, in that both had a dual standard for medical education. In addition to the fully qualified graduates, both countries had a class of practitioners with lower qualifications, known in India as "licentiates." The origin of this class of lower status dated from the old army days, when most regiments going out on service did not have a fully qualified medical officer. The system was gradually abolished in the rest of Europe, but was retained in Russia, and up to the time of the European war this class of practitioner outnumbered the fully qualified in the proportion of three to two. The position now was reversed, and an endeavour had been made to abolish the inferior class altogether, but the shortage of practitioners was too acute to allow of this.

He went on to speak of the provision for medical students in Leningrad. In the institute which he visited in that city there were 3,000 students, more than half of them women. The institute had an attached hospital of 1,200 beds, and access to another nearly as large, but this provision did not seem enough for the teaching of 3,000 students. For the laboratory work the students were divided into batches, and four shared a single microscope. The position with regard to midwifery was easier, because every woman went to hospital for her confinement, and each student was expected to take ten cases before qualification. In the Soviet Union there were seventy-two institutes for medical undergraduates, not, of course, all as big as those in Leningrad and Moscow.

The Curriculum and Specialties

The time spent on the curriculum was shortened by earlier specialization in public health and hygiene, and the student taking these subjects was sent to a special institute for the purpose. During the first three years of the curriculum all the students did the same work; then they selected their special branch—general medicine, paediatrics, or public health—in which they continued for two years. But those who took public health continued at their special institute to receive instruction in general medicine also, though they did less clinical work than those who undertook the general medicine course. Of 25,000 medical students in the Union this year, 4,000 had chosen paediatrics, 3,200 public health, and the remainder general medicine. Students could, however, practise general medicine even if they had chosen one of the special fields, and the whole arrangement was in a state of experiment. The authorities admitted the disadvantages due to the present overcrowding, but it was hoped this might be remedied later and a six-year course (instead of the five-year course for full medical undergraduates) be instituted. The chief concern at the moment was to increase the number of qualified practitioners. In 1914 there were 25,000 graduate doctors; now there were 107,000, but these

in a population of 170 millions gave only one doctor to rather fewer than 1,600 people. The Government was aiming at one doctor per 1,000 of population.

In Russia there was only here and there any private practice; on the whole it was a State service. During his first year every doctor had to go where he or she was sent, and the best students were sent to the most out-of-the-way places, on the supposition that these people would be the most self-reliant. At the end of the year they could go, within limits, where they pleased, and there was no difficulty in getting them to go to the rural areas, for in the less desirable places the pay was higher, they had more holidays and privileges, and they were allowed to keep a car—and also a cow. There was excellent postgraduate training, and every doctor was supposed to have a refresher course of from three to six months every three years; how it was managed administratively he did not know. There were ten special hospitals in the Union for postgraduate courses.

Russia's Anti-tuberculosis Campaign

Sir Cuthbert Sprawson then gave some particulars of the "drive" against tuberculosis. The remarkable thing was that a notable decline in tuberculosis mortality had coincided with an increased industrialization and urbanization. The population of Moscow before the war was 1½ millions; it was now 3½ millions. In 1913 the tuberculosis mortality in Moscow was 22.6 per 10,000; it was now between 10 and 12. In Leningrad in 1913 it was 28.6, and now had been reduced to 12.0. In Kharkov in the Ukraine in 1923; when the campaign started, it was 17 per 10,000, and in 1937 had fallen to 12.0. As part of their third five-year plan the Soviet Government had set itself the stupendous task of halving the mortality of a chronic disease, but such surprising success had been made of it so far that one could not say it was impossible. The number of physicians employed in the sanatoria and tuberculosis dispensaries was 27,000, which meant that one doctor in every four in Russia was a tuberculosis specialist. Special tuberculosis teaching was given to all undergraduates, and postgraduate courses in the subject were given to 500 practitioners every year.

The institutional provision included central and regional tuberculosis institutes, sanatoria, special hospitals and special wards in general hospitals, labour prophylactoria (analogous to Papworth), and special schools for children. The sanatoria on the whole were like sanatoria anywhere else, and situated in attractive country. An interesting institution was the night sanatorium for patients who had had the disease and were back at work, but slept at the institution. The dispensaries were the front line of the attack, and there were 800 of these altogether in the Union. Their chief function was to detect early cases. The central and regional institutes directed the campaign, carried out research, collected statistics, published literature, and generally advised the units. Research was going forward with a view to finding out how much work a tuberculous patient could do. A good deal of use was made of B.C.G. as an immunizing agent, and some of the success of the campaign was attributed to that. In certain cities vaccination was compulsory for children likely to be exposed to infection. Altogether, Sir Cuthbert Sprawson left an impression upon his audience of an intensive campaign proceeding on many fronts, and one which, having regard to the vastness of the country and its recent backwardness, was being attended with astonishing success.

The nineteenth Salon des Médecins for the exhibition of works of art by doctors, veterinary surgeons, dentists, and pharmaceutical chemists will be held at 21, Faubourg Saint-Honoré, Paris, from February 19 to March 5. Further information can be obtained from the general secretary, Dr. Pierre-Bernard Mallet, 67, Avenue Pierre-Larousse, Paris.

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ARTERIOSCLEROSIS

Since diseases of the heart and blood vessels now head the list of causes of death, chiefly because of the increased expectation of life brought about by improved hygiene, a new study of the biology of arteriosclerosis¹ is worthy of attention. The authors, who are members of the department of pathology of Yale University School of Medicine, have brought together an account of original work on the blood vessels and their diseases, when their structure is elucidated by the use of clearing agents of variable chemical composition. The dehydrating effect of glycerin, the defatting action of alcohols, ether, and benzene, and the decalcifying capacity of acids may be used either separately or combined. Injection may be carried out before clearing, and in this way the minute details of the vasa vasorum may be demonstrated. Investigation of the extent of these vasa vasorum in the past has given no clear indication of their relation to the nutrition of the vessel wall, either in health or in disease, extremes of opinion holding that they supply only the outer coats of the vessel walls, or, on the other hand, that they are responsible for the nourishment of all of the coats, including the intima. Apart from syphilis there appears to be no distinct cause for changes in the vessel wall, and the inability to reproduce the morbid process experimentally has led to the anatomical attack on the problem. Winternitz, Thomas, and LeCompte found that, using fresh material from the necropsy table, evidence was soon obtained that the diseased vessel wall is quite vascular. Minute haemorrhages and small capillary networks in the region of arteriosclerotic plaques were easily demonstrated by the use of injection and clearing methods on the aorta, the vessels of the extremities, the cerebral vessels, and the coronary arteries. Similar methods applied to the blood vessels of young people who had succumbed to injuries or diseases unrelated to the cardiovascular system showed the vasa vasorum to be by no means so readily demonstrable as in the diseased vessels. An extensive vascular network has been found by these workers in the normal blood vessels of a number of animal species, and

in the veins of human young people the vasa are exceedingly numerous. The origin of these anastomosing mural vessels has been traced from three separate sources—the adventitia, the region of orifices of branches, and directly from the lumen of the vessel. Blood capillaries are found running through all the coats of otherwise unchanged human vessels. The regularity of their pattern and arrangement points to their having at least a potential function in the walls of normal arteries. Loss of elasticity with age and the arteriosclerotic process are independent.

The cause of arteriosclerosis is unknown and is probably not to be found in one single factor. But an approach to the problem which is based on recognition of the artery as a vascular or potentially vascular organ, and therefore subject to the same pathological processes to which other tissues are subject, is the thesis which Winternitz, Thomas, and LeCompte have attempted to set up. Recognition of the existence of vascular channels in the wall of the blood vessel alters the conception of the reactions of this tissue to injurious agents. The response to injury is through the capillary bed and is manifested by two more or less distinct and variably proportioned reactions: exudation and proliferation. Exudation may include serum and cellular elements, and be further complicated by the precipitation of fibrin. Proliferation consists of new formation of blood vessels and connective tissue elements, including fibroblasts and many varieties of mononuclear cells. Evidence of mild exudation in the intima is not infrequent. These exudates are of little significance unless they are massive and cannot be removed promptly. Haemorrhage is but an exaggerated form of exudation and is readily recognized in the cleared tissue, because of the colour. It is common in the artery wall and is found in those places which are the site of predilection of arteriosclerotic lesions. It has been pointed out that the normal site of vasa vasorum and the network of capillaries which can be injected is at the origin of branches. This association of haemorrhage, vascularity, and arteriosclerosis cannot but be significant. The authors hope that their study will bring the subject out of the limbo of degenerations into the region of known biological phenomena. In the blood vessel wall, as in so many other areas where the inflammatory process manifests itself, the different elements of both the exudative and proliferative processes vary greatly, and the basis for the separate pictures must be dependent in part upon the specific chemical substances that are active. These agents may be limited in amount or may act as catalysts. They may be derived from exogenous agents, including parasites of various

¹ *The Biology of Arteriosclerosis*. By M. C. Winternitz, M.D., R. M. Thomas, M.D., and P. M. LeCompte, M.D. Baltimore: Charles C. Thomas, (4 dollars.)

kinds, or they may be endogenous—the product of cell disintegration or organ function. Such an endogenous agent or agents must be responsible for the closure of the ductus arteriosus; the similarity of this to the arteriosclerotic process is pointed out by the authors.

The problem of thrombosis is closely associated with that of disease of the artery wall. The various exudative and proliferative phenomena may take place in the vessel wall under an intima that is intact. Such diseases may be extensive enough to cause narrowing of the lumen, and fibrin may be deposited either within or on the surface of the intima. Careful study of the thrombi encountered indicated that the vast majority occur at the site of recognizable pathological change. Haemorrhage alone or associated with other change in the vessel wall is a common finding. The thrombus often arises as the result of injury to the intima, probably where the branch penetrates the aorta. Organization of the clot in the lumen of the vessel occurs, and it is suggested that the circulation may be restored, partially at least, by canalization of the clot with new vessels or by dilatation of the pre-formed vasa vasorum bringing about a collateral circulation in the wall of the affected vessel itself. The authors have produced a most interesting and suggestive monograph, and their demand that a revised attitude towards disease of the vessel wall should be adopted is likely to lead to much clearer definition of the problems of the biology of arteriosclerosis.

LIGHTING IN FACTORIES

The fourth report of the Departmental (Home Office) Committee on Lighting in Factories¹ is a thoroughly good document; and one that, if the recommendations contained therein are followed, will secure for workers and for employers real advantages. The report begins with a short historical survey. At the beginning of the present century, it says, very little was known about technique or measurement of illumination. That statement forgets the initial work done by school doctors; but so far as factories are concerned it is true. Credit is given to the initial work of Mr. A. P. Trotter of the Board of Trade, and Mr. Leon Gaster, the founder of the Illuminating Engineering Society. The report shows that industrial lighting conditions have improved on the whole and are still improving (especially with the readier access to gas and electricity in rural areas), but in spite of the facilities available many factories are still very badly lit.

Adequate lighting of industrial premises has been compulsory for many years in several countries, but in Great Britain for a few trades only of an especially hazardous nature. Vision depends first on light. But there are many other factors involved: the size and detail of the object, the duration of observation, the degree of contrast, colour, and the amount of light available. Modern lighting with its brilliant lamps has introduced a new difficulty. It develops contrast greatly, and an excess of this will cause the unsatisfactory conditions usually termed "glare." Bad lighting by daylight may be due to old and unsuitable buildings, obstructions of other buildings, dirty windows and dirty walls of the workshops. Bad lighting by artificial methods means too few or too weak sources of light, antiquated equipment such as naked fishtail gas-burners, dirty fittings, and absence of proper screens or reflectors. Statistical investigations by the committee have shown that accidents of certain types occur more frequently in winter months when daylight hours are fewer and when bad conditions of lighting prevail. Permanent damage to eyesight and to health can result from working in ill-lit places. Dark cooking places mean insanitary production. Good lighting has been shown to cause substantial improvement in discipline and moral behaviour. Lastly, the effect of bad lighting upon both quality and quantity of the work is extremely pronounced, and numerous scientific investigations have shown the relation between output and standards of lighting.

The recommendations of the committee are thoroughly sound and quite practicable. There is no place where they cannot be carried out effectively. Perhaps the most important, in view of the increased use of lamps of high specific intensity, are these: "(iv) Where any light source in a factory is less than sixteen feet above floor level, no part of the source or fitting having a brightness greater than ten candles per square inch shall be visible to any person whilst normally employed within 100 feet of the source, unless the angle of elevation from the eye to the source exceeds 20 degrees. (v) All local light sources in a factory shall be provided with suitable shades of opaque material or other effective means by which they shall be completely screened from the eyes of every person employed at a normal working place." It is to be hoped that the recommendations of this report will be carried out; the Home Secretary has the necessary power in the Factories Act, 1937, Section 5, which declares: "The Secretary of State may, by regulations, prescribe a standard of sufficient and suitable lighting for factories or for any class or description of factory or parts thereof, or for any process."

¹ H.M. Stationery Office. 1s.

PRISONS AND PRISONERS

The report of the Commissioners of Prisons and Directors of Convict Prisons for 1937¹ shows only a slight change in the number of receptions into prison. The total receptions of men were just over 42,000 and of women just over 5,000; the men showed a slight increase as against 1936 and the women a slight decrease. Only 19 per cent. of men and 10 per cent. of women were sentenced to imprisonment for more than three months. Most of the short-sentence prisoners had already been convicted, and the report is not a good advertisement for the constructive value of the prison system. The effect of the Criminal Justice Bill, when it becomes law, remains to be seen, and it will be decidedly interesting to compare the reports of a few years hence with this one. The new Borstal colony at Hollesley Bay in Suffolk came to life on May 2, when the first party of lads arrived, and the numbers are being increased as rapidly as possible, consistently with the need to build up a proper discipline and tradition. The main activity of the colony is fruit-growing, but it also has a large mixed farm. It has the advantages of being well away from any large centre of population and of providing much heavy and useful outdoor work. It is very big, and the Commissioners will be able to make the experiment of dividing the lads into five separate houses, each containing not more than sixty. The houses will be some distance apart and the lads will only go to the central building for purposes such as education and bathing. The New Hall camp attached to Wakefield prison now has about eighty resident prisoners, and parties of twenty are taken there every day. The men now breed pigs on the hut principle, keep poultry, and cultivate soft fruit. The report points with pride to the small figure for reconvicted prisoners since 1931—18 per cent. The figures for corporal punishment for prison offences show a progressive decline since the beginning of the century. In 1937 only two prisoners were so punished in convict prisons and none in local prisons. Under the extensive reorganization which is proposed the women prisoners will be removed from Holloway and the Borstal girls from Aylesbury. It is proposed to build colonies, preferably adjoining though completely separated, for these prisoners somewhere in the country near London. The aim is to provide institutions with opportunities for healthy outdoor work and exercise for as many inmates as possible. They will be housed in small groups, allowing better classification and greater individualization. The environment will be more open, and the Commissioners are confident of developing still further the ideas of training and reformation which have been devotedly pursued by the staff under the handicap of old and unsuitable buildings. The report contains an account by Dr. Mannheim and Mr. Dryden Donkin of their research into the records of Borstal institutions: this deals with causes of juvenile delinquency, and especially stresses the bad effect of fines, birchings, and short-term imprisonment. They

cannot confirm the popular belief that delinquency is caused to any appreciable extent by films, gambling, crime stories, or a number of other causes ascribed by popular belief. The report mentions with regret the retirement of Dr. W. Norwood East, the Medical Commissioner, who joined the prison service in 1899. Under his direction prison hospitals have been modernized, extended, and rebuilt. He fully recognized the growing importance of the psychological aspect of medical work in prisons, and under his wise guidance considerable advances have been made in recent years. He is even now preparing, with Dr. W. H. Hubert, a report on the results of the four-year programme of investigation and treatment for selected prisoners which he instituted at Wormwood Scrubs. He has been succeeded by Dr. J. C. W. Methven.

MEASLES VIRUS

The virus of measles is one of the most important of those agents causing disease in man, yet it is one about which comparatively little is known. Some authorities would even hesitate to place it in the group of filterable viruses, though that does not mean that there is any serious belief nowadays in the aetiological importance of the coecus of Tunncliffe or the micro-organism of Caronia. This hesitation is merely due to a lack of positive evidence, the direct result of not possessing a suitable experimental animal for measles research. And although Blake and Trask in 1921 left little doubt of the susceptibility of the rhesus monkey, the cost of these animals and the variability in their response to measles virus have proved a deterrent to their use in research. Had it been possible to grow measles virus in tissue culture with the production of some recognizable histological change, this might have compensated to some extent for the lack of a suitable experimental animal, and when, after the lead given by Goodpasture, use was made of the chorio-allantoic membrane of the developing hen's egg for the cultivation and study of viruses hope arose that this method might prove suitable for research into measles. This hope found some encouragement in the report by Wenckebach and Kunert¹ last year that measles virus could be grown in this way. So far, however, no confirmation of this work has been forthcoming. Plotz² now reports that he has succeeded in growing measles virus in a medium consisting of minced chick embryo tissue in Tyrode's solution with the addition of monkey serum: 5 c.cm. of minced embryo in Tyrode's solution and 1 c.cm. of monkey serum were placed in a 50-c.cm. Ehrlemeyer flask; 1 c.cm. of defibrinated measles blood and a few drops of hen plasma were then added, and the flask was closed with a rubber cork. Cultivation was at 37° C. with subcultivation every three days, 1 c.cm. of the ground-up culture being used to seed a fresh flask of medium. With the tenth subculture, which represented a dilution of 7⁻¹⁰ of the original blood, a rhesus monkey

¹ *Disch. med. Wschr.*, 1937, 63, 1006.

² *Bull. Acad. Méd.*, Paris, 1938, 110, 598.

¹ Cmd. 5868, H.M. Stationery Office, 1938. (2s.)

was inoculated subcutaneously, the dose injected being 5 c.cm. Ten days later the animal appeared ill, and there was an extensive maculo-papular rash which persisted for three days. The total white cell count, which had risen rapidly to over 30,000 after the inoculation, fell to 7,500 on the eighth day and persisted at this low level, the differential count showing a lymphocytosis; there was little pyrexia. Dr. Plotz believes that the monkey suffered from an attack of measles, and as the possibility of this being due to a residual virus is ruled out in view of the dilution of the original blood in the process of subcultivation, he is of the opinion that the measles virus had multiplied. The evidence in support of this conclusion is meagre, but Dr. Plotz is no doubt pursuing this line of work, and the results of a more extended series of experiments will be awaited with interest.

CARCINOGENIC HYDROCARBONS

There are three landmarks in the study of pure carcinogenic substances of known chemical structure—namely, the original demonstration of moderate carcinogenic activity in the pure hydrocarbon 1:2:5:6-dibenzanthracene, the identification of 3:4-benzpyrene as the carcinogenic agent in coal tar and, finally, the synthesis of the highly carcinogenic methylcholanthrene from bile acids. It is not proved that methylcholanthrene can be produced in the human body, but there is an evident possibility that if natural constituents of the body can provide starting-points for the laboratory synthesis of carcinogenic substances they might be transformed within the body into the same or similar substances capable of producing cancers of diverse kinds. These investigations initiated in London at the Royal Cancer Hospital are being vigorously pursued throughout the world, and recent reviews by Cook and Kennaway¹ and by Fieser² show how much has been, and how much remains to be, accomplished. Pure carcinogenic hydrocarbons, especially the three already mentioned, are in widespread use for the investigation of many aspects of carcinogenesis and open the way to more precise and quantitative experiments. The specialized chemical investigations are inappropriate for detailed analysis here, but some aspects deserve mention in general terms. A large number of hydrocarbons of related structure have been prepared and tested, and important progress has been made in the elucidation of the fine details of chemical structure which determine carcinogenic activity. It is now evident, however, that while most of the active substances so far examined are derivatives of 1:2-benzanthracene, this type of structure is not essential; compounds of widely different structure are carcinogenic. It is possible that carcinogenic power, though not dependent on a specific chemical structure, is determined by a particular kind of chemical reactivity shared by compounds of dissimilar structure. Early studies of the chemical properties of the carcinogenic hydrocarbons yielded no more clues to their mode of

action than did their chemical structures. Fieser records the beginnings of a more promising attack on this problem. It is known that the compounds undergo rapid change in the body; the chemical change, which may be small, apparently exhausts most of the carcinogenic substance long before tumours begin to appear, and may represent the first step in a complicated chain of events leading eventually to malignant growth. Fieser and his colleagues at Harvard found that the most potent carcinogens belonged to a small group of chemical compounds with unique chemical properties and surpassing all other known aromatic hydrocarbons in chemical reactivity of a special kind, notably a high degree of susceptibility to substitutions of a special type and to oxidation with lead tetra-acetate. Fieser suggests that the first reaction which occurs in a carcinogenic substance in the animal body might be one of hydroxylation or of the substitution of some related group, and that the introduction of an active functional group might provide a mechanism for the conjugation of the carcinogenic substance with substances present in the organism. As Fieser concludes, whether or not these speculations are valid, they suggest various lines of investigation which seem natural and worthy of trial.

RECREATIVE PHYSICAL TRAINING

The third annual report of the Central Council of Recreative Physical Training covers the period September 1, 1937, to August 31, 1938, and with excellent illustrations as well as in its text reveals the great efforts made by this organization to improve the physical and mental health of the community through physical recreation. Careful and systematic preparations were started to explore the possibilities of elaborating practical and comprehensive schemes in various parts of Great Britain which shall include all physical activities, both outdoor and indoor, and the requisite principles and details are now being formulated. Training courses for leaders have been organized and conducted, while some already in being have been stimulated and assisted, and grants amounting to £6,000 have been allocated to this council by the National Fitness Council. Pending the creation of more full-time salaried posts, the council has had to concentrate on the provision of short courses, mainly in the evenings or at week-ends or during the vacations. While forty of these were held in the year ending August 31, 1937, no fewer than 125 were held in the succeeding twelve months, and they were attended by between six and seven thousand men and women. Courses lasting three months were held at Anstey Physical Training College and Loughborough College for those who had already some knowledge of physical recreative activities. Some of these students have now returned to their home towns as organizers, while others are holding part-time posts. Men's training camps have continued to be a feature of the programme of the Central Council. Many demonstrations and lectures have been given, with follow-up work afterwards, so that enthusiasm may

¹ *Amer. J. Cancer*, 1938, 33, 50.

² *Ibid.*, 1938, 34, 37.

bear practical fruit. The report warns against the danger that demonstrations designed to stimulate "crowd emotion" may seriously mar the integrity of physical training as a means of recreation of brain and body, and as part of the general education of the adolescent and adult. Play leadership is regarded by the council as a logical and essential forerunner of the development of games for adolescents and adults, and four training courses and sixteen demonstrations were arranged during the year under review—for instance, one by 2,000 children was held in Regent's Park, London. The use of fields and spaces for recreation has to be associated with instructed leadership in the games and physical activities, and the Central Council sent representatives all over the country to examine possibilities and to advise. There is an obvious need for a larger and better central source of information on technical matters relative to physical education, and the staff of the Central Council are being kept very busy answering inquiries from all over the British Isles. The report (obtainable from the offices of the Central Council for Recreative Physical Training, Abbey House, Victoria Street, S.W.1) ends with a survey of what has been done in the various counties in Scotland and Ireland and the Isle of Man.

ACUTE INFECTIVE POLYNEURITIS

Widespread inflammatory and degenerative lesions of the peripheral nerves have usually been grouped together under the convenient term "polyneuritis." But apart from the polyneuritis caused by exogenous toxins little or nothing is known of the pathogenesis of most of the other conditions included under this designation. In a recent study of cases of polyneuritis called by French clinicians the syndrome of Guillain and Barré, or *polyradiculo-névrite avec dissociation albumino-cytologique*, several workers¹ describe the clinical features in detail, point out its possible epidemic occurrence, and discuss its pathogenesis and the differential diagnosis from poliomyelitis. In the cerebrospinal fluid there is always an increase of protein without any corresponding increase of cells. The almost uniformly favourable prognosis explains the absence of post-mortem observations. These cases have usually been included by English clinicians under the general classification of acute infective polyneuritis; some show a high cell count in the cerebrospinal fluid as well as increased protein, are relapsing in character, and often end fatally. Whether there is any pathological difference between this type and the syndrome of Guillain and Barré it is impossible to say in our complete ignorance of the pathogenesis. The present view is that they are all most likely the result of a virus infection. If so, it would seem that there may be different viruses or strains of virus having affinity for the peripheral nerves, and in that event the French are probably justified in regarding the syndrome of Guillain and Barré as a clinical entity. Several attempts to transmit a virus from these cases to animals have so far failed. There is need for further detailed pathological observa-

tions of all types of "acute infective polyneuritis." This has not yet been done, and the microscopical study of cases of peripheral neuritis has so far been much neglected. Such a study might reveal differences between the cases with dissociation of albumin and cells in the cerebrospinal fluid and those with abundant cells. Or it may be found that these variations are the result of different reactions of the host to the same virus. It may be noted that the administration of vitamin B has no effect in this group of cases and does not appear even to accelerate recovery. The observation by E. N. Rowlands and J. F. Wilkinson² that the values for the vitamin B content of the blood were normal in three instances of acute infective polyneuritis supports the view that deficiency in this vitamin is not an aetiological factor in these cases.

INDUSTRIAL PSYCHOLOGY

The eighteenth annual report of the National Institute of Industrial Psychology (Aldwych House, Aldwych, W.C.2) is a record of the many ways in which industrial psychologists can be of service to education, and it provides many examples of the practical value of this applied science. Serious financial difficulties were encountered during the year 1937-8, due to the rapid development of the work, much of which has to be financed from donations. Though at one time there was a danger that the work would have to be drastically curtailed, if not entirely stopped, these difficulties have been largely overcome, and the continuation of the Institute's activities is now assured. Advice on the choice of a career was given to some 1,400 young people, and a number of courses of training in the Institute's methods were held. The increasing use of intelligence tests in education is reflected in references to work carried out for education authorities in devising such tests. The studies made by the Institute on the heating, ventilation, and lighting of school buildings have developed steadily, and investigations were made for a number of authorities in different parts of the country. An inquiry into radiant electric heating yielded such interesting results that the manufacturers of the equipment asked the Institute to continue the work and to test new experimental types of apparatus. The result was that a new unit was evolved giving improved results and at the same time effecting a saving of more than 20 per cent. in current consumption. Research on vocational guidance, on the requirements of different occupations, and on the devising of new tests for special abilities was continued, and several extensive surveys of leisure occupations were carried out.

His Majesty has been graciously pleased to command that the British College of Obstetricians and Gynaecologists shall be known as the "Royal College of Obstetricians and Gynaecologists."

¹ *J. belge Neurol. Psychiat.*, 1938, 38, 151, 243.

² *British Medical Journal*, 1938, 2, 878.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation.

TRUSSES AND BELTS

BY

RALPH COYTE, M.B., B.S., F.R.C.S.

Taking first the subject of trusses, there are certain general principles which I think are of importance.

Type of Truss

The pad must be large enough to cover the opening through which the hernia protrudes, and it must be made from a material that is durable but not too hard, these qualities being most conveniently supplied by a form of cork. The spring must be of sufficient strength to keep the pad in position and prevent the hernia from protruding beneath it when any extra pressure (such as from a hard cough) is applied. To provide for the above contingency a steel spring is necessary, and, except in very special circumstances, I do not therefore prescribe any elastic or webbing truss. The spring must be covered by a material which is durable and comfortable, such as a soft kind of leather, the patient getting used to the pressure and no injury being done to the skin.

Truss for Inguinal Hernia

It is usually fairly easy to control this type of hernia by means of a truss, except when the protrusion is of considerable size. The pad of an inguinal truss fits snugly over the hernia, and when the hip is flexed the pad is forced more securely on to the exterior of the inguinal canal—a point of considerable importance, as we shall see later.

The plain pad of the inguinal truss will control any hernia that does not protrude beyond the external abdominal ring. In cases in which the inguinal hernia passes down into the scrotum or labia it is almost certain that a larger pad will be needed, and this is known as the rat-tail. The rat-tail is a prolongation downwards and inwards of the ordinary pad, ending in a thin strap which passes across the perineum up over the buttocks of the same side and fastens to a buckle fixed on the belt immediately behind the anterior superior spine. This type of pad will hold in place a hernia of considerable size, but when the protrusion passes down beneath it, it usually does so on the inner side, and the pad will then need building up on its internal aspect. This addition has led to a third type of pad which is known as a forked-tongue. The forked-tongue pad will hold in place the majority of herniae, but in some neglected cases and in old people with feeble muscles even this variety fails. To meet these circumstances several additions to the forked-tongue pad have been devised.

First, the pad, instead of being flat on the surface applied to the skin, is made into what is known as a prominent pad, and the surface then becomes cone-shaped, the apex of the cone fitting in the opening of the sac into the peritoneal cavity, in this way giving extra pressure with more hope of keeping the rupture in position. As a further measure, the placing of a steel spring in the pad, with its free end acting direct on to the hernia, provides still greater pressure. This addition is known as the concealed spring, and is the last hope of control by a truss except by making the actual spring of the

truss more powerful. When all these efforts have failed the only other instrumental help to be got is from a bag and braces. This appliance merely consists of a large bag, shaped to the hernia when the patient is in the upright position, the weight being taken over the shoulders by a pair of braces; the bag has an opening fixed at the level of the penis for purposes of micturition. It will take time for the patient to get accustomed to any of these forms of inguinal truss, and the wearer's grumbles during the first two or three weeks should not be taken too seriously. Certain precautions, however, should be taken: the patient should be watched for points of skin pressure, which will be shown by the appearance of sores. These are most likely to occur in thin patients, and the most commonly affected parts are over the spinal column and at the level of the anterior superior spine. Pressure over the spinal column can usually be relieved by fitting two back pads made of thick felt on to the inner side of the belt—one on each side of the spine. Pressure over the anterior superior spine usually means either that the truss is not of the correct size or that the outline of the patient is abnormal; in the latter case the spring, which should be made of a malleable steel, will need to be specially shaped to the patient. These difficulties, of pressure do not occur with trusses (usually proprietary) made with elastic belts, but my objection to these belts is that they do not provide enough pressure, except in the case of very small herniae, and even then the elastic so rapidly "gives" that the pressure very soon becomes inadequate.

In taking the measurement for an inguinal truss the tape-measure should fall into the hollow of the lumbar spine at the back and come round immediately below the anterior superior spine on each side, the ends meeting just above the symphysis pubis. In the case of children the truss should be rubber-covered to allow of easy cleaning, and very careful attention should be paid to the skin, with the aid of spirit and dusting powder. As there seems to be some confusion concerning the chance of cure of an inguinal hernia by wearing a truss I should like to say that it is almost non-existent after the age of 4; before that it is a very small chance, and depends on one very important point. This point, which must be rigidly observed if there is to be any possible opportunity of a cure, is that once a truss has been placed over an inguinal hernia no further protrusion of the rupture must be allowed until the truss is finally discarded, which may not be for several years. This means that if ever the truss is taken off a hand must immediately be placed over the hernia so that nothing is allowed to come down, and in addition the patient must sleep in a truss—conditions which make life very difficult. I have no hesitation in saying that a truss is not in any way a suitable method of treatment for an inguinal hernia unless there is a definite contraindication to operation. Most of us know how crippling a hernia can become in old age, sometimes making life a burden; consequently it is my practice to operate even up to quite a late age.

Truss for Femoral Hernia

In this type of hernia the question of easy control is not nearly so simple as with the inguinal variety, and for two reasons. First, a femoral hernia sac is frequently

surrounded by a very definite lipoma, formed from extra-peritoneal fatty tissue, and this prevents pressure being exerted direct on to the sac and gives rise to pain. Secondly, when the thigh is flexed, as in sitting down, instead of the pad of the truss being forced more securely on to the hernia it tends, owing to its anatomical position, to be lifted off the sac and therefore allows the contents to protrude. In this case the action of flexion will be seen to be exactly the opposite to that in the inguinal case. The type of spring should be the same here as in the inguinal truss; the pad is different only in that its direction is now much more downwards than in the case of the inguinal pad. In cases where an extraperitoneal lipoma is present a slightly cupped pad can be fitted so that the irreducible fatty tissue lies in this hollow and is therefore, so far as possible, not subjected to direct

Truss for Umbilical Hernia

This variety is very common, and is usually congenital in origin. The type of truss used for its control is again a steel spring, which at one end is beaten out into a thin plate. The whole truss is covered with a soft leather material and is buckled round the body at the level of the hernia, the fastening being placed on the external surface of the plate covering the sac. The truss as a rule controls the hernia with ease and is comfortable to wear. The difficulty arises when the hernia is irreducible, a not uncommon complication in long-standing cases; but here the steel plate can be cut away to allow the irreducible portion of the hernia to fit in the hollow thus formed, the pad then becoming a rim covered with material and shaped to the varying size of the rupture.



A.—Right inguinal



C.—Left forked-tongue.



B.—Right rat-tail.



D.—Right femoral.

pressure. This type of pad, which is known as the femoral hollow pad, prevents a considerable amount of pain, but is not altogether satisfactory.

In some instances a femoral hernia attains a considerable size, but it usually remains quite small even in old age. When the sac is a large one the pad will have to be increased to a size necessary to cover the opening in the cribriform fascia through which the hernia is protruding into the subcutaneous tissue. In order to keep this larger pad in position a leather belt, encircling the thigh from the pad and buckling back again to it, is usually fitted; it does not, however, add to the patient's comfort. The method of measurement for a femoral truss is exactly the same as that described for the inguinal variety.

Since the femoral sac is never seen in young children the problem here is entirely an adult one. The chances of a cure by the wearing of a truss can be said to be *nil*.

It will be gathered that in my opinion a truss is not a satisfactory treatment for a femoral hernia unless there is some very definite contraindication to operation.

If, as often happens, the umbilical hernia occurs in a patient who is also obese and requires an abdominal belt for general support, then the umbilical pad can be incorporated in the abdominal belt. The measurement for an umbilical truss is made straight round the body at the level of the umbilicus.

The chances of cure by the wearing of a truss in these cases is very small, although from time to time it does happen in infants. It is a curious fact that umbilical hernia is very common in newborn infants among the black races in South Africa, and although the condition is seldom treated in any way these herniae tend to disappear in the majority of cases; yet in this country, despite being kept in place by trusses, they have a great tendency to persist.

Abdominal Belts

What are the conditions for which abdominal belts are worn? First, there is obesity; secondly, very lax abdominal walls; and, thirdly, visceroptosis.

Obesity gives rise to abdominal pain owing to the weight of the overloaded omentum, and a belt designed

for this purpose will therefore need to lift upwards to some extent but at the same time must cover the whole abdomen, otherwise the fatty tissues are liable to bulge over the edges. The belt should be made of a strong durable material, with vertical bone supports incorporated; these must be well covered, or they will tend to stick into the patient. The belt should be quite tight at its lower border and somewhat looser above, as by this means the more pendulous lower parts are lifted and are fitted into the looser upper half of the belt. The measurements required by the instrument-maker for this belt are, first, straight round the body at the level of the lower border of the xiphisternum; secondly, a similar measurement at the level of the umbilicus; thirdly, one half-way between the umbilicus and the symphysis pubis; and, lastly, measurement at the level of the symphysis. The depth of the belt is taken from the tip of the xiphisternum to the symphysis pubis; the depth at the back should be about one-half of that in the mid-line in front. Fastening is done by a series of buckles, which in my opinion are more satisfactory if placed at one or other side than if in the mid-line in front. For extra strength a strap can be brought round from the mid-line at the back on each side and buckled to a right and left flap fastened to the mid-line in front; this is usually known as a yoke.

The belt provided for the *lax abdomen* is of the same kind as that just described, but as the condition is usually a result of multiple pregnancies and not necessarily a case of obesity, the effect is not so good as in cases of obesity alone, and in many such patients a repair operation is of much greater benefit.

With regard to *visceroptosis* one point of the utmost importance is that the diagnosis must first be clearly established by x-ray evidence. I see a large number of cases in which patients are sent up for a *visceroptosis* belt and in which the diagnosis has not been established, the real condition being something quite different. In cases of *visceroptosis* the aim is to give support to the lower half of the abdomen in an upward direction and thus hold up the sagging viscera. The support is usually provided by a suitably covered steel plate, which fills the whole space of the anterior abdominal wall below the umbilicus and is kept in place by two springs passing round to the back and fitting on to each buttock. For the fitting of any abdominal belt, most particularly that for *visceroptosis*, it is of great importance that the patient should be lying down, and if possible the head should be at a lower level than the pelvis. In this way the contents of the abdomen fall back into their normal or even into over-corrected positions, and if the belt is then fixed they are thus kept up. If, on the other hand, the belt is fixed when the viscera are already sagging, then the trouble is not only not remedied but tends to be exaggerated and the pain made worse.

Nutrition and Local Government—What Your Local Authority Can Do is a threepenny pamphlet published by the Children's Minimum Council (72, Horseferry Road, London, S.W.1). The problem of securing proper nutrition for every person in the country, and especially for the children, is now very much in the foreground. It has been extensively studied by the League of Nations, and the Government is concerning itself about the subject in various ways. It is less widely realized, perhaps, than it should be that even under the existing laws a good deal can be done to alleviate malnutrition, especially among mothers and children. This pamphlet sets out clearly what each local authority can do in its own area to help to solve the problem of malnutrition.

Nova et Vetera

THE MEDICINE OF OUR ANCESTORS

Some Old MSS.

Two rather quaint old medical manuscripts were sold at Messrs. Sothebys in Bond Street on December 14. One consisted of a bound volume of treatises in various languages (English, French, Latin) and by different hands: the first and longest of the collection is a treatise on surgery, which runs to 161 pages, plus an appendix on the compounding of remedies. Chapter I is headed "Of a Phlegmon," and begins:

"A Phlegmon or inflammation is a very sensible swelling of some part with a redness, heat and pain of ye same, and often is accompanyd with a fever, all which is caused by an extravasation of the blood. The causes are a thick and sometimes a rarefyd violent mould and fermentative blood which meeting with some resistance in ye smaller vessels or being more thickened or rarefyd in some places than others it stops in ye blood vessels and so hinders yt that follows to circulate which distending the membrans of ye arteries or veins at last burst 'em and overflows betwixt ye fibres or membrans of some fleshy part which it distends and elevates and is called a phlegmon. A phlegmon is produced also by any external or internal pungent irritation inasmuch as it produces a violent influx of ye spirits which contracting ye fibres of ye part chokes up ye passage of ye blood, or it may cause a phlegmon by rarefying ye blood more than ordinary, as smoke for example causes an inflammation of the eye. A coagulated lymph of the arteries and veins may cause a phleg: or any external cause pressing on ye extremity. . . . As for the cure, let ye patient be blooded as soon as can be by which the growth of ye swelling will be hinderd and the fever deminish'd."

The author further advises free purgation, though he adds that some authorities are very much against it. It seems a legitimate deduction that the writer knew and freely accepted Harvey's teachings on the circulation; so the date of the manuscript is probably of the seventeenth century. The handwriting is very similar to that of a later MS. in the series which is dated 1682, though it is hardly possible to say they are certainly by the same hand. Following a treatise in French on poetry, one comes to what would appear to be a copy of a letter to a patient about some affection of the breast—perhaps a malignant growth.

"The oppresion of your breast and extenuation of your body seems to proceed from the acrimony or sharpness of your blood which passing through the louns that are of a very delicate contexture corrodes or irritates the parts thereof: wherefore the chief thing one shoud aime at in the curreccion is to sweeten the blood and give it a natural consistence and more proper to nurish the body. For these ends I think fit she shoud make use of the insuing remedies. First 't will not be amiss to let out a small quantity of blood, both because the remedies so will have more roome to operate their effects as also to hinder any vain or blood vessel may be in danger to be opened in the lungs or in any other place. Secondly to evacuate in some manner ye acrimonious humours in the blood 't will be fitting to take some very mild and gentle purge, for example a little mann in broth or with a pectoral decoction as follows. . . . A day after this she may make use of these pectoral pills for ten days" [liquorice, hyssop, prune, prescribed for pills]. "After this I think 't woud be fit she shoud purge herself as she did before and a day after use ye following broth composed of crayfish of the river which are very much in use in all maladyes coming from ye sharpness of the blood."

The MS. goes on to advise a milk diet for a month and a half, with oatmeal, etc.

"Charmes" Against Sickness

The other old medical manuscript is of date approximately 1475 and consists of fourteen leaves of medical and domestic recipes in English, with a list of "charmcs" to ward off sickness, some of them in Latin. The handwriting

is much like black letter print, and is beautifully done. A transcript was sold with the original, prefixed to which is a charm, also of 1475, for a lying-in woman. "For woman that travelyth of chylde bynd this wyte to her Thye," followed by a Latin prayer or adjuration to St. Elizabeth and other personages. Another is "flor to staunche the flux take hoot mylke as yt comyth fro the cowe and put in a veselle and tak as moche 7 of myntes and put in a nother vessell and tha put a pype in 7 be yt self and drink up at onys both lyeours wt the pyper. Use this in tymys, and he shall be hoole." Next is "flor worms in a manys wombe take iii days fasting a drawth of swet mylke as yt comyth fro the cowe and at the iiii daye yewe hym to drynk parlyk and stamp yt wt wyneure lowke warme. Also drynk coole seed or achse seed. . . ." Others of the headings are "A good Charme to staunche blood," "A Charme of Sent Sovera," "A Charme for wyked wyts."

SECTIONS OF A MUMMY

The Histology of Har-Mosë

About the end of the fifteenth century before Christ there died in Thebes a great architect, Sen-Mût, who had carried out much of the magnificent buildings for the warrior queen, Hatshepsût, and in particular the famous temple at Deir el Bahri in the Valley of the Tombs of the Kings. While Sen-Mût's rock tomb was being dug and while his body was undergoing the first and most costly method of embalming, it happened that a poor old singer named Har-Mosë died; he bore some relationship to the great architect, but whether he was in his service or that of a relative is not known. There was no family tomb to receive him, and so after a simple embalming his coffin was placed in a gully near his patron's tomb, his lute was laid by his side, and his entrails, which had been soaked in salt, were wrapped in linen and placed in an ordinary household box, roughly converted to a Canopic chest. In 1935 Mr. Lansing and Mr. Hayes came upon this mummy when excavating at Sheikh Abd el Kurnah, and they sent it to the professor of anatomy at Cairo, Dr. Derry, who found the skeleton in poor condition. But the entrails appeared unusually well preserved, and were dispatched to Professor A. F. Bernard Shaw, who has recently given an account of his observations.¹ The founder of palaeopathology, Sir Armand Ruffer,² has given numerous accounts of pathological lesions found in mummies, but the histological methods which he employed were limited, and he had considerable difficulty in cutting sections until the material had been softened in sodium carbonate. In the case of Har-Mosë Professor Shaw had no difficulty in cutting sections embedded in paraffin in the ordinary way, and applied the full armament of modern microtomy. His results are truly remarkable. All the organs could be readily recognized and their pathology studied. It is true that all nuclear material had disappeared and much of the cytoplasm, yet the acellular stroma—the collagen, elastica, and in particular the reticulin network—showed no detectable change, and it was this that enabled an accurate study to be made. Professor Shaw concludes that Har-Mosë was a fat man who suffered from emphysema and probably died from a severe bronchopneumonia with pleurisy. It would appear that the air of ancient Egypt was not so pure and balmy as we have been led to believe, for there was much anthracosis in the old singer's lungs. The most striking feature is the perfect preservation of the minute reticulin fibrils; their mode of formation and chemical nature are still in doubt. They cannot be demonstrated with ordinary aniline dyes, but must be impregnated with silver to render them visible—and this was possible after over three thousand years.

¹ *J. Path. Bact.*, 1938, 47, 115.

² *Studies in the Palaeopathology of Egypt*, University of Chicago Press, 1921.

MEDICINE AND THE LAW

LORD DAWSON'S SPEECH

The annual dinner of the Medico-Legal Society was held at the Connaught Rooms, London, on December 16, with Mr. JUSTICE HUMPHREYS, president of the society, in the chair. The company was representative in about equal parts of law and medicine, and the usual toast of the two professions was given in a witty speech by Sir ROBERT H. PICKARD, Vice-Chancellor of the University of London. He suggested certain analogies and contrasts between the two professions, as, for example, that the wise man went to medicine quickly and to law slowly.

The Shackles of Law upon Medicine

VICOUNT DAWSON OF PENN, in responding for "Medicine," said that the law had been built up, like a happy synthesis, by a succession of individual judges, and thus, in the curious English way, from time to time there crystallized out rules and principles which acted as guiding posts for years to come. The law in this country was dynamic, it was sensitive to prevailing standards of conduct and progress of knowledge. "A striking example of that, as I see it, is afforded by a study of the pronouncements on the law relating to abortion extending over the last seventy years. They have gone on step by step, always a little behind, as is proper for the law, because medicine in its advance, I must admit, has a frayed edge, and the law cannot afford to have a frayed edge, it must have a sharp outline. But we have lately had a pronouncement which I venture to think is epoch-making [Lord Dawson was evidently referring to the summing-up of Mr. Justice Macnaghten in the trial of Mr. Aleck W. Bourne at the Central Criminal Court], amongst other reasons for this, that it is the first time that health has been correlated in relation to quality of life as distinct from quantity. . . . This judgment has brought to the fore that health means quality of life."

The law had the defects of its qualities, Lord Dawson continued, and it was sometimes found that judgments pronounced in other days and under other conditions resulted in some retardation of progress. It should also be said, however, that the law had always paid regard to the interest of the community, and not only to retribution and reformation of offenders, while medicine, until relatively recent times, had been held to concern itself with the individual patient and his immediate sickness. To-day medicine took and was expected to take the wider view of prevention and deterrence of disease in this and the next generation, but here it might find itself in conflict with the laws concerned with maiming, unlawful wounding, and bodily harm. In the case of persons of mature age who wished to marry, one of them being unfortunately liable to transmit disease, why should not he or she, on request, be allowed to be sterilized? He instanced the case of a woman who was a carrier of haemophilia. Another example was the carrier of typhoid, with the typhoid germ, there was reason to think, residing in the gall-bladder. Yet the removal of the gall-bladder might be regarded as unlawful wounding.

"Such shackles, never intended to apply to us, should be removed so that medicine may be set free to extend its ever-widening work of preventing disease. It would be an appropriate task for this society to set up a committee to consider how, with reasonable precautions, we may bring these laggard little bits of law up to date, and make them, as most of the Common Law already is, in tune with the advance of knowledge and the public conscience."

Lord Dawson also referred to the Criminal Justice Bill. There were a number of offences, he said, which had "one foot in pathology and one foot in crime." These cases required treatment as well as punishment. The proposals embodied a considerable extension of the range of probation which enabled treatment to be carried out

under the guise of punishment. He hoped there would be, in this field as in others, a great advance, but if mistakes were to be reduced to a minimum and success made more real there must be co-operation between the medical and legal professions.

The Unchanging Common Law

Mr. JUSTICE MACNAGHTEN, who responded for "Law," said that in view of Lord Dawson's remarks about the Common Law, he felt called upon to make some answer. Mr. Justice Humphreys and he were but servants of the Common Law, and he thought they both would resent any suggestion that the Common Law changed with the changes of popular emotion. On the contrary, the Common Law, founded on the common sense of the people of this country, was unchangeable and unchanged save in so far as Parliament, in its wisdom, or otherwise, saw fit to alter it. It fell to his lot this year to expound the law relating to the procurement of miscarriage, and he did no more than state to the jury what Mr. Justice Humphreys, as president of that society, had explained on a previous occasion.

"So far from it being true that there has been any change in the law," Mr. Justice Macnaghten continued, "the law of England on that subject has always been the same. Much of the criminal law is founded on the very simple Ten Commandments, or such of them as are applicable, and one of them is 'Thou shalt not kill.' The law that said 'Thou shalt not kill' applied also to the unborn child as it did to the living human being; but if the choice came between the life of the unborn child and the life of the mother, the Common Law of England said that the life of the mother was to be preferred to the life of the unborn child. In that, I understand, it differed as in other respects from the Canon Law. I am told that by the Canon Law the life of the unborn child was to be preferred to the life of the woman, but the Common Law of England preferred the life of the mother.

"In those days, long before Parliament ever existed (because the Common Law is much older than Parliament), medical science had not advanced so far as it has now, and it was supposed that the child was not alive until it gave some manifestation of its existence. The result was that in a prosecution for killing an unborn child the prosecution had to prove that the child was alive, and obviously there was great difficulty about that. The woman herself, no doubt, would not be a very willing witness. Parliament, in its clumsy way, at the beginning of the reign of George III, passed a law to make it a crime to procure miscarriage, even if the woman was not pregnant at all, and so it came about that there was a popular superstition that in all circumstances the procuring of miscarriage must be illegal. But the Common Law remained the same. It was always lawful to kill the unborn child if it was necessary to do so for the preservation of the life of the mother. And by preserving the life of the mother it did not mean preserving her as a lunatic or as an absolute physical wreck, preserving what was not really to be called a life at all. That, under the guidance of your president and my teacher, was the law which it fell to me to expound to the jury, and so it is thought by some who do not know—amongst whom I must not include Lord Dawson of Penn—that the Common Law of England has changed. On the contrary, the Common Law of England, founded on the common sense of the people of England, has always been the same, and if you trust to it you will be safe."

Mr. ST. JOHN G. MICKLETHWAIT, chairman of the Middlesex Sessions, proposed the health of the society, to which the PRESIDENT responded, remarking that the society was in a flourishing condition with 400 members. He referred in detail to its programme of meetings and its honorary officers. The toast of "The Guests" was proposed by Judge LEIGH, president of the Manchester and District Medico-Legal Society, and brief responses were made by Professor W. H. ROBERTS, president of the Society of Public Analysts, and Miss ELIZABETH BOLTON, president of the Medical Women's Federation.

MEDICAL USES OF RADIUM

THE M.R.C. REPORT

The sixteenth annual report on the Medical Uses of Radium, issued by the Medical Research Council,¹ must not be confused with its report on Radium Beam Therapy, which has already been reviewed in this *Journal* (December 10, p. 1209). The report now under consideration deals with the work carried out at the various centres which hold radium on loan from the Council, and, like its predecessors, consists of an experimental and a clinical section. Year by year the space allowed to experimental work has gradually increased, and this year the two sections are of approximately equal length.

A glance at the experimental section will show the wide field of research which is being covered. In the domain of pure physics Professor Paneth deals with the production of neutrons—that is, particles of unit atomic weight 1, but carrying no electrical charge—which promise to be of no inconsiderable practical importance in the near future—and other aspects of the same, subject are considered by Mr. Saxton and Mr. Michiels. Professor Hopwood is investigating the physico-chemical effects of neutrons and gamma rays; he has already established the facts that (a) the effects due to neutrons are of the same nature but relatively far more powerful than those due to gamma rays; (b) negatively charged colloidal particles become more stable, and positively charged colloids become less stable, when irradiated with either neutrons or gamma rays; (c) over a wide range of exposures the breakdown of dilute aqueous solutions of hydrogen peroxide and the oxidation of dilute solutions of potassium meta-bisulphite were directly proportional to the number of neutrons captured or of gamma-ray energy absorbed. The whole series of experiments supports the view that the primary action of the radiations is on the water, and if this view is correct the role played by water in the animal body must be significant and possibly predominant.

Dr. Mayneford reports further progress in the work of standardizing gamma-ray dosage in terms of *r* units. This is, of course, of the first importance in estimating the all-important question of dosage in radium treatment.

Research on Gamma Radiation

Dr. J. C. Mottram reports some results on the combined action of gamma radiation and the carcinogenic hydrocarbon 3:4-benzpyrene. Four batches of twenty mice each were painted with the benzpyrene once a week over seventy-five days: one batch served as control, the remaining three received doses of 1,440 *r*, 480 *r*, and 160 *r* respectively about the sixteenth day. In the control batch five warts developed; in the 160 *r* batch, six warts; in the 480 *r* group, thirteen warts; and in the 1,440 *r* batch, fifteen warts. It had been reported by Cramer that doses of 4,400 *r* and 8,800 *r* applied to mice similarly painted delayed or inhibited neoplastic formation. The general conclusion reached is that while larger doses of gamma radiation inhibit the further development of precancerous lesions, insufficient dosage to the whole or part of the lesion may increase the tendency to malignant change.

Dr. Joan Ross had already shown that a weak gamma-ray source acting for a long enough time is carcinogenic for the rabbit. The source employed was 0.5 mg. screened by 0.55 mm. platinum, and the tumours appeared at an average of 125.5 weeks after its insertion; as the first tumour had already attained a large size at 97.5 weeks, ninety weeks was considered to be the earliest time of expectation for tumour production. Subsequent experiments have been conducted with the same radium needles, but a modification has been introduced by the

¹ *Medical Uses of Radium*. Summary of reports from research centres for 1937: Medical Research Council. Special Report Series, No. 232. H.M. Stationery Office. 1s., postage extra.

injection of Shope's papilloma virus and infectious fibroma virus into two different series of rabbits, in order to see if the time necessary for the development of the tumours could thereby be reduced. It is too early to draw conclusions, but one rabbit in each series developed a tumour from sixty to seventy weeks after radium nuplantation. These experiments are being followed by further series.

Professor Russ and Miss G. M. Scott again report upon some biological effects of prolonged exposure to gamma radiation. Young male and female rats were exposed to forty-seven times the "toleration dose" on 121 days, with two free days each week.* After this exposure both males and females were rather lighter in weight and had a much higher death rate than the controls. This lag behind normal weight was never made up, when the rats were 1 year old the controls were fine healthy animals, but the irradiated rats mostly died young, and the survivors were thin and prematurely aged. The females when mated to normal males became pregnant, but in only one case did the young survive birth for any length of time. The rest died at birth, were born dead, or abortion occurred. Male irradiated rats mated to normal females were sterile for several months. Four months after the end of irradiation two surviving members produced apparently healthy offspring by their control mates. Further important contributions to the experimental work are made by Dr. J. G. Spear and Dr. C. B. Allsopp of Cambridge, as well as by Dr. M. A. C. Cowell of Manchester.

Clinical Work at the Centres

In the clinical section there are no striking new developments to record, but the usual standard of excellence is maintained at the Council's various centres. At the Birmingham General Hospital special attention has been paid during the past year to radium dosage in cancer of the breast, and Sievert chambers have been introduced as part of the routine clinical practice. At the Marie Curie Hospital cancer of the corpus uteri has hitherto always been treated when possible by operation, and radiotherapy reserved for those cases in which it was contraindicated on general grounds or when the patients refused operation. These cases treated by radiotherapy alone have, however, proved of considerable interest, and the results suggest that this may after all be the best treatment in all cases of cancer of the corpus, except when it is complicated by the presence of myomata or ovarian tumours, and possibly when pelvic inflammatory disease is present. The five-year survival rate is found to be approximately the same for radiotherapy as for surgery, while the distress to the patient is much less and the mortality should be *null*. Cancer of the oesophagus is treated at the Middlesex Hospital by using radon mounted on Souttar's tubes, a dose of 3,000 *r* being given to the mucosa over five days, during which time the patient is fed by a stomach tube passed through the nose and the Souttar's tube. This procedure has been found to improve the general health, to avoid the necessity for a gastrostomy, and to relieve dysphagia during subsequent x-ray therapy, which is still considered to be the best treatment at the hospital's disposal.

Radluthery for Metrorrhagia: A Warning

The Marie Curie Hospital issues a timely warning respecting the radiological treatment of metrorrhagia in young women. It is a matter which has several times been referred to in this *Journal*, and we are glad to find it attracting attention at this very important centre. The passage in question is well worthy of quotation:

"Researches on the hereditary abnormalities following experimental irradiation of some animals may have a bearing on the radiological treatment of haemorrhage in young women.

* The International Committee of Protection recommends that no one working seven hours a day should be exposed to a greater continuous intensity of radiation than 10^{-4} *r* per second, which is three times the toleration dose.

If it can be shown that a small radiation dosage, such as is given in these cases, may cause gene mutations which are irreversible and may be inherited, these results will have to be considered in relation to the treatment of haemorrhage in younger women. As there has been only one generation since radiation began to be extensively used in these cases it is doubtful if sufficient data for an investigation of the effects on human heredity are yet obtainable. It is important that all women of child-bearing age receiving radiation treatment should be kept under observation and their descendants followed up."

The comparative brevity of the clinical section is to be taken as an indication that procedures are gradually becoming standardized, so that there is now no need for the repetition of detailed descriptions, and a considerable part of this section is occupied by tabular summaries of the results obtained over several years.

AIR RAID PANIC

DISCUSSION BY BRITISH PSYCHOLOGICAL SOCIETY

A discussion on "Panic and Air Raid Precautions" took place at a meeting of the Medical Section of the British Psychological Society on December 14, Dr. E. A. BENNETT presiding.

Dr. JOHN RICKMAN, physician of the London Clinic of Psycho-Analysis, said that air raids must be regarded as an attack on the nerves of the civil population. The method might be new but the problem was familiar. Not everyone in such an attack showed signs of panic, and the resistance of the individual differed at different times. Panic might be defined as a condition in which the highest degree of dread was experienced, social ties being temporarily severed and self-control abandoned. External danger obviously played a part, but there were other factors, and indeed external danger mobilized the aggressive impulse. He described two stages of panic. The first was characterized by a feeling that self-control could not be maintained much longer, but it passed off if danger lessened or moral reinforcements arrived, otherwise it might develop into acute panic with loss of control of mind and body. It was during this stage that individuals "broke formation" and ran from their friends, but the capacity of response to leadership need not be lost. A calmer stage might follow, with return of self-control and loss of restlessness, but response to command would still be feeble and the sense of belonging to a group would be imperfect. In a further stage the panic might resolve itself, so that there was resumption of social contacts and return of self-respect. The most important factor in preventing panic was the building up of self-confidence, identification with a strong parental figure, firm and decisive leadership. Dr. Rickman concluded that there was not one cause of panic but a multitude of aetiological factors, not one stage but at least three, and that the endeavour to foresee and prevent what might prove to be the greatest menace of modern war was no reflexion upon the quality of British people; to gloss it over would be a failure of medical duty.

Psychological Defences

Dr. E. B. STRAUSS, physician at the Institute of Medical Psychology, said that air raids were aimed at the destruction of civilian morale. It was war waged against the mind, as, in the last resort, all wars were. It had become a cliché that spiritual disarmament must accompany or precede material disarmament; it was not as generally recognized that the converse was true—that psychological as well as material defence must be looked to. Psychiatric casualties in air raids would tend to fall into two main groups. Some people would run riot and others be rendered immobile by shock, and each group would require

to be differently handled in the interests of the individual and to prevent spread. It was impossible to estimate the proportion which such casualties would bear to physical ones in a future war, but the Spanish experience seemed to show that the population became accustomed to air raids and the number of acute psychiatric casualties became progressively less at time went on. Prophylaxis seemed likely to depend on one principle—namely, inculcation of group loyalty and sense of common aim. With the passing of the "old school tie" spirit psychological defences were impoverished, and the decline of the belief in revealed religion had left another gap. Group psychologists in certain countries had discovered that the quickest method of uniting a nation was by the inculcation of a common hate; a common love did not seem to have the same dynamic result, and yet this was likely to be a much more reliable spiritual defence in the last analysis. One important thing was that every citizen should have his particular duty allotted to him beforehand. A knowledge of what to do and where to go to do it was the best preventive of panic and neurosis.

Spanish Experience

Mr. JOHN LANGDON-DAVIES described recent observations in Spanish bombarded towns, where, after more than two years of air war, the morale of the Government supporters was unimpaired. One of the most important reasons for this was the sense of solidarity between the Government and the governed. There was no suspicion that the Government had kept the people in the dark. He pleaded for a similar frankness here. The people must be made to understand that London in air war would be the front line. A.R.P. should consist, not in fantastic instructions about gas-proof rooms, but in evacuating the people who were not suitable for front-line experience. No air raid was likely to direct attention to what were called military objectives. The only objective of air bombardment was the nerve centres of the population. It was necessary to prepare the people for a possible experience of successive bombardments at unpredictable intervals. As a relatively minor matter he complained of the wailing note of the sirens which were to give the air raid warning. The sound was a frightening one, whereas it should be a call to action. People who had a definite job to do in a raid were in a much better psychological condition than those who had not. The paralysing effect of noise in itself had also to be considered. To the nervous person the psychological damage, owing to the noise, would be equally great even though every bomb were blank. The wireless might be largely employed in calming the fears of the population due to the noise of the anti-aircraft guns.

Reactions in Different Types

Dr. DENIS CARROLL doubted whether the stages in panic were as clear-cut as Dr. Rickman had suggested. The earlier stages might represent only fear and anxiety. It was not proper to speak of panic until control had been lost in some degree. The actual factors concerned were both objective and subjective, of which the latter were the more important. The objective factor might be no more than a trigger mechanism. With a normal person presumably a much greater objective stimulus would be required. Psychotics did not panic as much as hysterics, and during the last war it was shown, both on active service and at home, that the psychoses were not increased in the same proportion as the neuroses. He agreed with what had been said about strengthening the ego by providing an ego-ideal. It was important to find an outlet for the aggressiveness which was stimulated as the result of air attack. This was most properly channelled in active or auxiliary services, but if it were not given some outlet it was liable to express itself against others in the crowd. Among certain practical suggestions he welcomed the idea of the large provision of under-

ground shelters, but said that it was important to equip them with sufficient inlets and outlets and ventilating shafts, not only for ordinary purposes but to prevent the claustrophobic reaction.

In the course of some general discussion Dr. MARGARET LOWENFELD referred to the need for recharging the morale between bombardments, and to what teachers and others could do in this respect in persuading people to undertake some creative employment instead of merely listening to others. Dr. BERNARD HART expressed himself sceptical as to whether there were fundamental differences between the Spanish and English temperament in regard to blood and death which one speaker had suggested. Dr. ROSS thought that the evacuation of women and children might be desirable from the point of view of the morale of the men, who would be less likely to suffer from the anxiety state if their dependants were not imperilled. He also mentioned that the reaction of many people to air raid bombardment would be not panic but the not unrelated condition of elation. Another speaker referred to the importance of adequate medical services from the psychological as well as from other points of view. A breakdown of medical services would be a primary factor in precipitating panic; their efficiency and adequacy would be a primary safeguard.

FAR EASTERN TROPICAL MEDICINE CONGRESS

The tenth congress of the Far Eastern Association of Tropical Medicine was held from November 25 to December 10. The meetings took place in the Medical School of the Hanoi University, a school which has a course and gives a diploma to its students, enabling them to practise without further examination in France. It is thus comparable in standard to the medical schools in Singapore and at Batavia. Many of the students go home to specialize and take degrees at French universities. The Governor-General, His Excellency M. Jules Brevié, opened the first meeting of the congress in the grand amphitheatre of the University. The president was Dr. Le Roy des Barres, professor of radiology at Hanoi, who is also known as an eminent public health officer. The British vice-presidents included Dr. Selwyn Clarke, Hong Kong; Dr. A. L. Hoops, C.B.E., Singapore; Dr. R. D. Fitzgerald, Malay States; and there were vice-presidents from India, Burma, and Australia, and Dr. Park from the League of Nations. Dr. H. C. Smith represented the United States, and Dr. Larsen, Honolulu. There were large delegations from most countries in the Far East, including China and Japan, the Dutch East Indies, the Germans in China, and small delegations from India, Burma, and Australia. The German delegation included one surgeon from Shanghai.

Hanoi, the capital of French Indo-China, is a town nearly as large as Singapore but not so up-to-date. French Indo-China is an extensive territory comprising two French colonies, in and around Hanoi and Saigon, and a number of native States with governors or residents serving under their native rulers. It may be compared in constitution to the Straits Settlements and Malay States, and to the colonies and native States in the Netherlands East Indies. Like them the natives are now being given a responsible share in the Government. The country is some 2,000 miles long and about 500 miles wide in its widest part. It borders on Siam, Burma, and the South China province of Yunnan and is not far from Hong Kong.

Dr. Hoops has been asked to visit Yunnan-fu, the capital of Yunnan, about 400 miles from Hanoi, to report on the casualties inflicted on non-combatants recently by Japanese aeroplanes operating from the region of Canton; also to inspect the medical arm of the Chinese force at Yunnan-fu and report on deficiencies of medical stores and equipment. Dr. Hoops will return to Singapore, travelling through Burma, and looks forward to sending adequate medical supplies from the Chinese War Relief Committee of Singapore.

LONDON JEWISH MEDICAL SOCIETY

Appeal for Refugee Doctors

The eleventh annual dinner of the London Jewish Hospital Medical Society was held at the Trocadero on December 18. Professor Henry Cohen, who was in the chair, in proposing the health of the guest of honour, Dr. Robert Hutchison, P.R.C.P., said that the Society met that evening with their hearts heavy on account of the position of people of their race in Central Europe. The spurning in Europe of freedom of thought and of conscience was a challenge which they as Jews must meet. Professor Cohen then paid a glowing tribute to the personal and professional qualities of Dr. Hutchison, whose medical career, he pointed out, had coincided with the great modern discoveries in medicine.

In response Dr. Hutchison said that he was particularly glad to be honoured by a Society in which he had so many old friends and whose members belonged to a race to which the science of medicine owed so much. In proportion to its numbers no race had contributed so freely to medicine, especially during the past fifty years. The Jews and the Scots, he considered, had many qualities in common, such as devotion to education, awareness of the value of hard work, and a capacity for getting on; "We fear God, and push," he said. With urbane wit and humanity Dr. Hutchison pursued his analogy and suggested that both Jews and Scots were really strangers in England and should always remember that they were the guests of a kindly and tolerant people.

The toast of "The London Jewish Hospital Medical Society and its President" was proposed in a brief and sincere speech by Mr. R. Scott Stevenson. After words of praise for the President of the Society, Professor Cohen, and for Mr. Arnold Sorby, he said that in his opinion too great limitations should not be placed upon the number of Jewish doctors to be admitted into this country from Central Europe. Replying on behalf of the Society, Mr. Arnold Sorby said that the present persecution of the Jews was not a specifically Jewish problem, but had its wider aspect—it was essentially an attack upon the dignity of human life.

Later on in the evening Professor Samson Wright, after giving details of the plight of Jewish refugees and of the tragedy of the Jewish population in Germany at the present time, said that the Jewish population in this country had a special obligation and duty to perform. It was only right that the rest of the community should expect the Jews to do everything they could to help it to look after members of their own race. There were, he reckoned, about a thousand Jewish doctors and dentists in this country, and if they would each sign a covenant to subscribe £5 a year for seven years they would be able to guarantee the sum of £50,000, taking into account the Government refund of income tax. An anonymous donor had already given £750, and he hoped that others, too, would be able to contribute sums in excess of the minimum specified. He felt it must be their responsibility that food and lodging should be provided for those Jewish doctors recently allowed to enter the country, with permission eventually to practise medicine after studying here. He was confident that every Jewish doctor and dentist in the country would readily respond to this appeal. In connexion with the committee which had recently conferred with the Home Office on this question he would like to thank Dr. Robert Hutchison for his sympathy and interest, and also Dr. G. C. Anderson, Secretary of the British Medical Association.

The Hearing Aid Manufacturers Association has been formed with headquarters at 30A, George Street, Hanover Square, London, W.1. The founder members are Allen and Hanburys Ltd., Amplivox Ltd., John Bell and Croyden Ltd., Peto Scott Electrical Instruments Ltd., Radio-Aid, Ltd., and Aural Appliances Ltd. (Sonotone). One of the chief aims of the new association will be co-operative effort to educate and advise the deaf to buy hearing aids from reliable manufacturers only, working in closest contact with the medical profession.

Reports of Societies

INVESTIGATION OF MALIGNANT DISEASE

At a meeting of the Medical Society of London on December 12, with Dr. C. E. LAKIN in the chair, a discussion took place on the investigation of cases of malignant disease of the breast and urinary bladder.

Carcinoma of the Breast

Mr. ERIC PEARCE GOULD said that from the point of view of treatment the preliminary investigation of breast cases was to-day a matter of greatest importance. Treatment was no longer wrapped up in the single question: Can surgery remove all the apparent disease? X rays and radium, either or both plus surgery, were now alternative lines of treatment. Radical operation for carcinoma of the breast was only the proper procedure if in a particular case the operation could be truly radical—that is, include a wide margin of apparently healthy tissue in every direction; and surgery of this kind, when there were possible alternatives, was only justifiable if the risk of the operation to life was negligible. The truly radical operation was out of the question if the growth, however small, was at the extreme inner or upper limit of the breast. If gland tissue was minimal, as in the case of the male, radical operation was impossible. The extent of skin involvement would determine the total area of skin that must be sacrificed, and if this were excessive it might itself deter some surgeons. The distressing features attending ulceration of the growth had made operative removal as a palliative measure recommended, but to-day radiotherapy should be given a chance before this was undertaken.

The points to be observed with regard to glandular involvement were not only the site of the glands but their number, size, and fixity. If an enlarged gland was found in the opposite axilla it was always worth while removing it for histological examination before concluding that carcinoma had spread so far. With regard to the heart, he had long held that any woman capable of leading an ordinary life was fit for mastectomy whatever the size, sound, or rhythm of the heart might be. The same was true of patients who were chronic asthmatics and/or emphysematous, but raised blood pressure was a contraindication. Diabetes to-day involved no particular operative risk if sufficient time were allowed beforehand for stabilization. No woman welcomed the mutilation of mastectomy, but most of them accepted it when advised by a practitioner they knew and a surgeon they trusted; in private practice he met from time to time a patient who was genuinely terrified of the operation or hopelessly neurotic, and he offered her in the first instance an alternative treatment.

Tumours of the Bladder

Dr. J. SWIFT JOLY said that from two-thirds to three-fourths of primary tumours of the bladder were papillary, and varied greatly in their degree of malignancy. At one end of the scale was the benign papilloma. The next type was the malignant papilloma—a contradiction in terms and yet a convenient expression, for the tumour was essentially papillary, and usually could not be distinguished by the naked eye from a benign papilloma, but in certain portions the villi might be noticed as shorter and thicker than elsewhere, due to alteration in the epithelium. Those who held that proliferation was the first sign of malignancy would have no hesitation in excising, while those who considered that infiltration was the true criterion were forced to look upon them as pre-malignant growths. Owing to the absence of malignant infiltration they were amenable to cystoscopic diathermy.

Every patient suffering from an intermittent haematuria should be cystoscoped as soon as possible. If the early

symptoms resembled those of cystitis it was usual to find that the patient was not sent up for examination until a long treatment with urinary antiseptics had proved unsuccessful and valuable time had been lost. The position of the tumour was important and materially influenced the choice of operative treatment. Most of these growths arose from the posterior lateral wall, a considerable number from the lateral wall well above the ureteric orifice. For resection of the growth to be possible there must always be a healthy area at least half an inch wide between the growth and the internal meatus. If the tumour was so placed that resection with a sufficient margin of healthy tissue would involve both ureteric orifices a partial cystectomy should not be attempted. Involvement of one ureteric orifice was not a contraindication to a partial cystectomy, nor did it add much to the difficulty of the operation, though it increased the risk because it opened the door to an ascending infection.

Descending pyelography gave a great deal of information as to the conditions in the upper urinary tract and the state of the bladder. Failure to secrete uroselectan or a similar dye must not be taken as an indication that the kidney was permanently functionless. As for the results of operation, radium implantation had proved most disappointing; he had not had one successful case. Partial cystectomy was suitable for cases in which there was a circumscribed carcinoma which did not encroach on the internal meatus or both ureteric orifices. With total cystectomy the great difficulty was the disposal of the ureters; until some safe procedure was devised in this respect the operation could never become popular.

General Discussion

Professor G. GREY TURNER stressed the need for general clinical examination in all cases of malignant disease. He had been impressed by the writings of Halsted, who was accustomed to spend an hour in the ordinary examination of a case of malignant disease of the breast. During recent years he had been interested in the great frequency with which there were secondary deposits in bones in patients who looked and felt well. He had been a little surprised to hear Mr. Gould say that the patient with high blood pressure was a bad patient for surgery. In his experience such patients seemed to get over the operation fairly well. It was a mistake to operate during the immediate premenstrual period, when haemorrhage was sometimes alarming. On types of patients in general, he was never afraid of the small shrivelled-up elderly woman, but he was rather afraid of the florid woman with a tendency to stoutness.

Mr. ZACHARY COPE mentioned cases in which carcinoma of the rectum had followed a year or two after the breast had been removed for carcinoma. A routine x-ray examination should be made in every patient whose breast was to be removed. Some patients had early deposits in the lungs which x rays would reveal. He agreed that deposits in bone might not be seen, though they might be suspected; examination of the blood would give some information as to early secondary deposits in the bones.

Mr. L. E. C. NORBURY also commented upon the simultaneous appearance of carcinoma in the breast and in the rectum. He mentioned a case of simultaneous carcinoma of both breasts, which were removed within three weeks of one another, followed by treatment with deep x rays; the patient was still alive ten years afterwards. Sir JAMES WALTON said that he was one of those people who believed that most of the younger surgeons of to-day would see the time when no case of carcinoma of the breast was operated on at all. They would all be treated by deep x rays, or some agent of that kind. Mr. E. W. RICHES considered that in carcinoma of the bladder more use should be made as a diagnostic measure of trial cystodiathermy. In cases in which it was doubtful whether a malignant growth or a papilloma was concerned a prolonged cystodiathermy would solve the problem. It was surprising how many of them responded, showing that they were of the type that was at any rate not

infiltrating. The so-called ordinary examination could be rather overdone, especially in cases of haematuria. The essential examination was by the cystoscope.

Dr. C. E. LAKIN, from the chair, said that surely a patient having Bright's disease with haematuria should not be subjected to cystoscopy. He would have said that cystoscopy was a special examination to be made after a general examination had failed to elicit the cause. So many of these cases were now going straight to specialists for special examinations, and many people were being subjected to the most disagreeable forms of examination which in the long run were unnecessary. Mr. RICHES retorted that the surgeon also saw cases which had been treated as Bright's disease but were in fact cases of carcinoma of the bladder. He stressed examination with the cystoscope not more for the value of its positive than for the value of its negative findings. Properly carried out, cystoscopy was no more disagreeable than a barium enema.

ADDISON'S DISEASE: RECENT DEVELOPMENTS IN TREATMENT

At the meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on December 13, with Dr. E. C. WARNER in the chair, recent developments in the treatment of Addison's disease were discussed.

Dr. S. LEVY SIMPSON said that the first real advance was the preparation in 1930 by Swingle and Pfiffner of a potent extract of the adrenal cortex. For a severe case of Addison's disease from 5 to 20 c.cm. was given daily intramuscularly. The next advance was made in 1935 by Loeb and his co-workers, who showed the value of sodium chloride and other sodium salts, given by mouth, in doses of 12 grammes daily, in permitting a reduction of the dose of cortical extract. Some relatively mild cases were maintained in health by salt only. The serum potassium was found to be raised in this disorder, and workers at the Mayo Clinic advocated a low potassium diet, but in the speaker's experience this had not been worth the enormous trouble of preparation. None of the various methods of extracting the active principle of the adrenal cortex in solvents such as glycerin which permitted its action when given by mouth had so far had material success. Adsorption on charcoal had proved efficacious in animals, and he had seen some degree of benefit in man from this therapy. No major advance seemed likely until the essential constituent of the adrenal cortex had been isolated and synthesized. The isolation had been effected by Steiger and Reichstein of Zürich in 1937, and the preparation had been named corticosterone (cortin), but it had not yet been synthesized, though a closely related compound, desoxycorticosterone, had been synthesized from stigmasterol. He had found 5 mg. of this substance in 1 c.cm. to be equivalent to 10 c.cm. of cortical extract in treating Addison's disease. It was an oily solution and was injected intramuscularly.

Dr. Simpson also reported on the effect of subcutaneous implantation of this substance. Its anabolic action reminded him of that of testosterone propionate, and his previous experience of such procedures related to a castrated male in whom he had implanted tablets of testosterone, the effect of which remained at a maximum for about two and a half months. In connexion with Addison's disease he had tried the effect of inserting four tablets of 50 mg. of desoxycorticosterone underneath the skin under local anaesthesia. Over a period of a few weeks the absorption appeared to be as effective as when the material was given by daily intramuscular doses. In one patient in whom 5 mg. of the preparation twice daily had proved to be a substitute for 20 c.cm. of cortin he implanted tablets in the way described, and she had carried on quite well. He also reported good results in three other cases, but he was convinced that this synthetic hormone, desoxycorticosterone acetate, was not the only essential principle in the protein cortical extract.

Maintenance Dose with Cortical Extract

Dr. J. F. WILKINSON said that the doses of cortical extracts or synthetic desoxycorticosterone might be considerably reduced by the use of subsidiary treatments, particularly salt or salt mixtures, and by potassium-free diets. He described some work carried out under the auspices of the Therapeutic Trials Committee of the Medical Research Council. In a group of thirteen patients with Addison's disease who had been treated with cortical extracts four had died, two of these being found to be grossly tuberculous. The nine surviving patients had been on cortical extract for varying periods, in one case for fifty-six months. All were typical cases with the classical symptoms. One of them had had in the course of fourteen months as much as 6 litres of cortical extract, and his final maintenance dose was 20 c.cm. daily. Several of the patients had now been put off cortin, but they were all having salt. Cortical extracts were obviously of great value in maintaining many of these patients, but they were so costly that there was a tendency among doctors to reduce the amount given in treatment to dangerous levels.

Desoxycorticosterone had been given to four patients in his series, three of whom were well at the present time; one had died. This last showed at necropsy the largest tuberculous suprarenals he had ever seen. The best results with this preparation were apparently in patients free from tuberculous foci. The amounts given, intramuscularly, had been from 5 to 18 mg. daily; no reactions either local or general had been observed. Two patients had been put on to maintenance doses of 5 mg. weekly, and one on to this dose twice weekly. Cortical extracts might be required in initial daily doses of (40 to 100) c.cm., and some patients might need a daily maintenance dose of 20 to 30 c.cm., while others required less than 2.5 c.cm. monthly, particularly when taking increased salt. Desoxycorticosterone appeared to be a complete substitute for the natural cortical extracts, but until a larger number of cases had been compared it was difficult to assess the exact clinical equivalence. There was no doubt that salt had a place in the treatment of Addison's disease in severe or moderately severe cases, but he did not think that salt by itself was of any value at all. There were patients who could not tolerate salt in any dosage. He also exhibited the low potassium diet sheets which were recommended. The diet was deficient in most mineral salts. The patients were put on to the best white bread and cereals, but their intake of meat and vegetables had to be restricted. They were given soups, sauces, meat extracts, and chocolate.

Anaphylaxis after Intravenous Administration

Dr. H. P. HINSWORTH said that by means of cortin and salt cases of Addison's disease could be controlled and a fair measure of well-being imparted. He was convinced of the deleterious effects of a high potassium intake, and while it might not be advisable to give a patient a low potassium diet it was certainly necessary to ensure that he did not take a high one. He had found cortical extract to be an extremely reliable preparation, but one fatal case of anaphylaxis had occurred in his experience. This was a patient who first came under treatment in the summer of 1936. She was eventually sent out and ordered 5 c.cm. of cortin daily. About a fortnight before Christmas she received her last injection of cortin. She then contracted influenza, but she was no worse than any other influenza case. One morning, however, she was found unconscious. A doctor gave her 5 c.cm. of another preparation of which the speaker was unaware, and she was sent to hospital, where as much as 80 c.cm. of cortin was given intravenously. She regained complete consciousness, but a few hours later she began to breathe with difficulty and died the following morning. At post-mortem the lungs, instead of collapsing, ballooned out over the cut edges of the ribs. The cause of the disease was atrophy of the suprarenals.

He had tried desoxycorticosterone acetate (Ciba) in two cases of Addison's disease. The blood chemistry was kept within normal limits throughout the period of observation, but in both cases, after an initial period of increased well-being, clinical relapse occurred. There were two possibilities: (1) that the preparation was toxic over a long period; (2) that it did not contain all the necessary active principles of the cortex required to treat Addison's disease. While cortin was both reliable and practically free from danger in the treatment of Addison's disease, desoxycorticosterone must be said to be still in the experimental stage.

BRONCHIECTASIS

A meeting of the North-Western Tuberculosis Society was held in Manchester, with the president, Dr. G. JESSEL, in the chair. Dr. W. BROCKBANK and Mr. A. GRAHAM BRYCE read papers on bronchiectasis from the points of view of the physician and the surgeon respectively.

Dr. Brockbank said that in bronchiectasis there was dilatation of the bronchi or bronchioles, which might or might not become secondarily infected. Among the causes of this condition he mentioned congenital narrowing of the bronchi, pressure from a growth or aneurysm, intrabronchial tumours or foreign bodies, and most of the inflammatory diseases of the lungs and air passages. It was possible that inflammatory changes so weakened the bronchial walls that they bulged on coughing, the bronchial musculature lost its tone, and the bronchi became dilated. The elastic fibres and, later, the cartilage were destroyed and replaced by fibrous scar tissue, which might cause a partial obstruction damming back the expectoration in the alveoli and causing a softening of the walls. There was also a pull exerted on the softened walls by the fibrous tissue. This theory did not account for the dry variety of bronchiectasis in which there was little cough or expectoration, rarely any evidence of bronchitis, and very little fibrosis. In a recent paper Lander and Davidson had recorded their conviction that massive collapse of the lung was a necessary and an invariable antecedent to the bronchial dilatation. Whatever might be the cause or whatever the type of bronchiectasis it was essential to realize that the dilations were nearly always surrounded by fibrous tissue, that the cavities were themselves lined with epithelium, and that it was almost always the lower lobes which were affected. These facts influenced the whole course of treatment.

Signs and Symptoms

Dr. Brockbank described in detail the physical signs and symptoms of advanced bronchiectasis, and said that the copious foul-smelling yellow sputum was characteristic of the advanced stage of the disease only. In the early stages of the disease the signs and symptoms were slight. In the dry type of bronchiectasis there was cough, with not more than half an ounce of sputum—which was not typical bronchiectatic sputum—and haemoptysis, which might be repeated and profuse. The constitutional symptoms were mild or absent and the physical signs indefinite. Other types might be masked by contributory diseases—chronic bronchitis, asthma, pulmonary fibrosis, tumour, or emphysema. The bronchitic type was the most common. Here physical signs, apart from rhonchi and rales, were generally absent, and the diagnosis was only suspected from the clubbing of the fingers, the unsatisfactory response to treatment, and, radiologically, from fibrosis at the bases of the lungs.

Bronchiectasis was usually bilateral and the treatment was usually medical, for the surgeon was concerned only with unilateral disease. In dry bronchiectasis only a simple tolu and squill cough mixture and breathing exercises were needed. Where the sputum was fairly copious, creosote, in capsules, in the form of an inhalation by means of a Yeo inhaler, or in a creosote chamber, was

useful. Some preferred the use of garlic instead of creosote. Menthol and guaiacol, injected intratracheally by means of a special syringe, was also advocated. Postural drainage was valuable, but must be kept up indefinitely. It was necessary to determine the exact area diseased so that the posture adopted should drain the sputum into the main bronchus, from where it could be expectorated. He considered the types suitable for operation were: (1) cases with unilateral disease; (2) cases with foul-smelling sputum; (3) cases with recurrent attacks of pneumonia; (4) cases in which the continual coughing of sputum was an embarrassment; and (5) cases of dry bronchiectasis with repeated haemoptyses. In the vast majority of cases of bronchiectasis artificial pneumothorax had proved a failure.

Surgical Treatment

Mr. Graham Bryce referred to Carl Hedblom's use of phrenic evulsion in cases of delayed resolution or early pulmonary fibrosis after bronchopneumonia which brought about symptomatic cures; the patients did not relapse and lipiodol failed to show bronchial dilatation. Alexander, too, had had good results from the phrenic crush operation in cases of suppurative pneumonia before the stage of abscess formation or of chronic bronchiectasis. Artificial pneumothorax and phrenic evulsion were on the whole unsatisfactory. Phrenic evulsion had a special disadvantage in that it interfered with the efficiency of the cough mechanism. Thoracoplasty had had a thorough trial and had now been almost entirely abandoned in the treatment of non-tuberculous bronchiectasis. He had little to add to what Dr. Brockbank had said about postural drainage, and he agreed that it was a method of the greatest importance by itself or in the pre- and post-operative management of cases treated surgically. He regarded bronchoscopic aspiration for bronchiectasis as largely a waste of time, although he advocated diagnostic bronchoscopy in every case.

Pneumonectomy and Lobectomy

Bronchiectasis did not respond to treatment by external drainage as it was difficult to drain more than a few of the affected bronchi. Thoracic surgeons nowadays considered that almost the only worth-while method of treating the disease was by ablation. Defining the term "pneumonectomy" he said it meant, rather paradoxically, either excision of part of a lobe or the extirpation of an entire lung. Cautery pneumonectomy had almost entirely given place to lobectomy or total pneumonectomy, but he thought it could be undertaken in selected cases more often than it was, although it left more deformity of the chest wall than either of the more radical procedures. There was much discussion concerning the relative merits of the one-stage and two-stage methods of lobectomy. He described the one-stage method of Brunn and Shennstone and also the two-stage or Alexander's method. There was no doubt that the one-stage technique was gaining ground. In patients awaiting lobectomy it was important to make specific inquiry regarding the possibility of an inhaled foreign body. In the medical examination attention must be paid to the heart muscle, the vital capacity, and the possibility of amyloid disease. The blood must be grouped and the nasal sinuses x-rayed. The teeth should have any necessary treatment. Tuberculosis must be excluded. It was important that the patient should have postural drainage for four to six weeks, and it was advisable to begin breathing exercises before the operation.

The exact anatomical distribution of the disease was extremely important to the surgeon, and it was necessary to make bronchograms of each lung separately. An apparently excellent postero-anterior bronchogram was often found to be inadequate when a lateral film was made. In children, who required a general anaesthetic for

every x-ray examination with lipiodol, it was often possible to get an accurate localization of the disease from a single picture. Where all the lobes of one side were found to be affected the introduction of a little lipiodol into the base of the other lung might demonstrate that the case was beyond the reach of surgery and thus save the patient attending for another bronchogram. For bronchography he used a catheter introduced orally through a laryngoscope or, in some cases, Singer's method. Blood transfusion or oxygen-tent therapy was often advisable in the immediate post-operative period, although he did not use them as a routine. A bronchial fistula and a localized empyema occurred in practically every case. The patient was usually in hospital for two months after his operation.

Results of Operation

Professor Sauerbruch's recent survey of 387 lobectomies revealed a mortality which varied from 13 per cent. to 24 per cent., the average being 21 per cent. Churchill of Boston had a series of forty lobectomies for bronchiectasis with a mortality of 5 per cent. Mr. Graham Bryce's own series comprised twenty-eight operations on twenty-seven patients. The immediate mortality rate calculated on five patients who died within two months of the operation was 14.3 per cent. Two patients died later, one five months after the operation and one two years after; this gave a total mortality of 25 per cent. Of the remaining twenty patients four were still under treatment, though in the convalescent stage. Of sixteen others, in thirteen the result had been very satisfactory and the patients were able to lead practically normal lives. In none of these was the sputum offensive, even where it had been before the operation. The other three patients were all in good general health although they had some degree of residual bronchiectasis. Mr. Graham Bryce concluded his remarks with the warning that thoracic surgery was a very specialized field in which experience was dearly bought, but in his opinion the surgical treatment of bronchiectasis was well worth while.

PATHOLOGY OF CHRONIC AORTIC VALVULAR DISEASE

At a pathological meeting of the Liverpool Medical Institution on December 1, with the president, Dr. E. GILBERT BARK, in the chair, Dr. R. Y. DAWBARN read a paper on the pathology of chronic aortic valvular disease.

Dr. Dawbarn said that there were three common chronic diseases of the aortic valve—syphilis, rheumatism, and Mönckeberg's calcific degeneration. In many cases the macroscopical features sufficed to distinguish these conditions, but difficulty was most likely to occur where much calcification had followed an old rheumatic process, and where the calcific degeneration of Mönckeberg was accompanied by marked fibrosis. In such cases microscopical examination might be very helpful, and it was advisable to stain the sections by some method which showed the elastic fibres. In cases of old rheumatic disease the cusps were opaque and thick, especially along the free border, and some, or all, of the following microscopical changes could usually be found:

1. Thickening of the ventricular layer of the cusp with reduplication of the elastic lamina, especially in the sub-aortic angle.
2. Vascularization of the cusps and ring with capillaries and muscular arterioles.
3. Scarring of the ring with increase of elastic fibres.
4. Calcification in either the ventricular or aortic layer.
5. Thickening of the subendothelial tissue in the pocket.

Rheumatism in early life might lead to a bicuspid deformity of the aortic valve; Louis Gros considered that

most cases of this condition, discovered in adults, had a rheumatic basis. Mönckeberg's calcific degeneration was a disease mainly of the fibrous aortic layer of the cusp characterized first by the deposit of lipoids and then by calcification. Large calcified, craggy masses might be formed in the cusps and project mainly into the sinuses of Valsalva. The ventricular layer of the cusp was not thickened, as in rheumatism, but was usually normal, or else thinned out by reason of the stretching and distortion caused by the calcareous masses.

In the discussion which followed Dr. W. S. SUTTON and Dr. A. M. ABRAHAMSON took part. Pathological specimens were then shown by Mr. HUGH REID, Dr. G. D. OWEN, and Dr. RONALD ELLIS.

Local News

ENGLAND AND WALES

Westminster Hospital Medical School

The annual dinner of past and present students of Westminster Hospital Medical School was held at the Trocadero on December 13, with the dean, Dr. Adolphe Abrahams, in the chair. Proposing the toast of "The School," Dr. Abrahams said that the Westminster was now in the greatest year of its history, and those present were paying honour to the school and to all generous benefactors who had helped to build it. The president (Lord Wigram), the chairman (Mr. B. D. F. Doeker), and the secretary (Mr. Charles M. Power) were with them that evening to prove the close bond between hospital and school. When they dined together once again in ten months' time the new Westminster would be completed. Dr. Abrahams paid affectionate tribute to Mr. E. Rock Carling, the senior surgeon, without whom it was difficult to believe that there would ever have been a new Westminster. After some witty suggestions for slogans for each department, so that the hospital might "put itself across to the public," he called upon a distinguished old student, Mr. C. Price Thomas, and the honorary secretary of the Students' Union, Mr. G. Martin Jones, to reply to the toast. Mr. Rock Carling proposed "The New Hospital" and spoke of the adaptation of its structure to function and of the old fine spirit of the place which would carry on into the new phase. He said that in several ways the Westminster had given a lead to other hospitals in respect of construction and equipment. Mr. Doeker, replying to the toast, declared that the new building would be one of the finest hospitals of its kind in the country. It was being erected with the blessing of the Ministry of Health, the L.C.C., the Middlesex County Council, and the Westminster City Council. In pursuit of its ideal of co-operation, general practitioners would be encouraged to visit their patients in the hospital, to act as clinical assistants, and to attend short postgraduate courses. The hospital would provide 400 beds (350 of them available for teaching purposes), and it was safe to assume that patients would be admitted to the new building in May next. The senior staff had been most helpful and unselfish in tackling the problem of allocation of beds between the various departments. The health of the guests was submitted in happy phrases by Sir Stanley Woodwork, who welcomed many old friends of the hospital and school, and in particular Dr. Robert Hutchison, P.R.C.P., Professor J. A. Ryle, Professor G. E. Gask, Dr. K. J. Franklin, and the Editors of the *Lancet* and the *British Medical Journal*. Lord Macmillan, in acknowledging the toast, said that London University was proud of its medical schools and of their work in promoting the greatest of the sciences. The last toast, very warmly received, was that of "The Chairman," proposed by Mr. Arthur Evans.

Tuberculosis in Lancashire

The report of the Central Tuberculosis Officer (Dr. G. Lissart Cox) for the year 1937 shows that the death rate from pulmonary tuberculosis in the County of Lancashire has remained the same as in the previous three years—0.46 per 1,000 of the population—and there has been an increase of sixty over 1936 in the number of new cases of pulmonary tuberculosis reported. Similarly in regard to non-pulmonary tuberculosis, the death rate—0.10 per 1,000 of the population—is the same as in 1935 and 1936, and the number of new cases reported shows an increase of twenty-nine over the previous year. Bearing on the importance of early diagnosis in the campaign against tuberculosis, Dr. Lissart Cox carried out an investigation, and found that between 1920 and 1937 the duration of symptoms from their onset to the date the patient consulted his medical attendant had declined by 61 per cent. to 2.9 months for negative-sputum cases, and by 48 per cent. to 4.2 months for positive-sputum cases. The period the patients were kept under observation by their medical attendants showed similarly a decline of 40 per cent. to 3.2 months for negative-sputum cases, and of 27 per cent. to 3.5 months for positive-sputum cases. Dr. Cox comments that "the reductions are welcome, but there is still much room for further improvement both on the part of the patient and the medical attendant." Co-operation with the medical practitioners, together with the medical officers and sanitary inspectors of county district councils, is shown in the fact that no less than 92 per cent. of new cases (excluding contacts) were sent *before notification* to the tuberculosis officers for an opinion as to diagnosis and treatment. The examination of contacts remains unsatisfactory—only 45 new child contacts and 51 new adult contacts were examined per 100 deaths from tuberculosis. The respective figures for England and Wales are 95 and 82, and even these figures are generally admitted as being far too low. Finally, attention may be drawn to the liberal staffing of the dispensaries in Lancashire: it compares very favourably with other counties in England. The report contains a very clear and well illustrated account of tomography by Dr. F. S. C. Bradbury, which deserves wide publicity.

Empire Rheumatism Council

The Empire Rheumatism Council began its work in October, 1936, and had as one of its avowed objects the education of the public with regard to rheumatic diseases. Its educational programme has been continued with success, despite the preoccupation of the British people in recent months with gas masks which do exist and bomb-proof shelters which do not. With the co-operation of the Press the man in the street is gradually being made to realize that rheumatism is a disorder affecting not only the health but also the economic well-being of the community. An affiliated Council is undertaking the same sort of educational work in Canada, and it seems likely that an Australian Rheumatism Council will come into being within the next few months. The volume of work undertaken by the Scientific Advisory Committee of the Council has been such that it has become necessary to establish three subcommittees—bacteriological, chemical, and physical—for the preliminary examination of suggestions for treatment. Dr. C. A. Green has been appointed to take direct charge of an investigation into the causes and the best means of prevention and treatment of rheumatic disease in the training establishments of the Royal Navy. The Medical Research Council has co-operated in the important task of allotting research grants and fellowships, and work is in progress on a variety of problems, the most important of which is perhaps that of preparing a report on a system of treatment which might be economically applicable on a national scale. It is hoped that this particular report will be completed in the early part of the New Year. New treatment centres

have been established in connexion with different hospitals during the past year, but they are still too few. It is probably true to say that even now specialized treatment is available in England and Wales for less than 10 per cent. of the million or more adult cases of rheumatic disease and for less than 25 per cent. of about half a million juvenile patients. These disturbing figures were given by Lord Horder, the chairman of the Empire Rheumatism Council, on Monday last in the course of his second annual report. Even so, the situation is better than it was twelve months ago, thanks largely to the efforts of the Council. Lord Horder also referred to the recent Cancer Bill and went on, perhaps prophetically, to hope 'that "with the growth of knowledge of the tragic degree of human suffering and economic loss caused by rheumatism this will also shortly be fully recognized as a national problem."

Manchester Hospitals Advisory Board

The third annual report of the Manchester Joint Hospitals Advisory Board reveals continued progress in co-operation between voluntary and municipal hospitals in the Manchester area. A scheme for co-ordinating the treatment of fractures, which follows the principles laid down in the British Medical Association's report, has been agreed upon; the existing fracture services will be grouped in northern, central, and southern areas and a free interchange of patients between the hospitals within each group should make for greater efficiency and should steadily diminish the overlapping and duplication of services which seemed inevitable only a few years ago. Thoracic surgery in Manchester is to be concentrated in two units with one surgeon in charge of both; that at the Royal Infirmary will deal with all non-tuberculous cases, that at Withington Hospital with all tuberculous cases. The question of establishing a central hearing-aid clinic is being considered and work on other problems of co-ordination continues. In Manchester, at least, it would seem that Section 13 of the Local Government Act of 1929, which has since been repealed and re-enacted as Section 182 of the Public Health Act, 1936, is being implemented as fully as it possibly can be.

Food and Drugs Act, 1938

The Minister of Health has issued a circular to all local authorities and public analysts on the new Food and Drugs Act passed last July. The Act does not come into force until next October, but it should receive early study and attention, for it represents a very great simplification of the existing Food and Drugs Law, a process which has involved many minor amendments. The opportunity has also been taken to introduce into the general law provisions which have up to now only been included in Local Acts. The existing legislation dates back many years—some of it to the sixteenth century—and modern methods of food sophistication and advertising have revealed loopholes which it is hoped the new Act will effectively close. Among the new provisions which will become enforceable in October next are the registration by local authorities of premises used for the sale or manufacture of ice-cream and the preparation or manufacture of sausages or preserved food; ice-cream vendors must have their names and addresses on stalls, carts, barrows, etc., and this requirement may be extended in any district to all or any other foods by the local authority. Slaughterhouses and knacker's yards will all in future be licensed for limited periods only, and this includes those now known as registered slaughterhouses and those licensed without limitation of time. It will be an offence to dispose of meat from a knacker's yard for human consumption, and local authorities may require records to be kept of animals and carcasses in such yards. In addition new requirements are laid down as regards rooms, yards, etc., in which food is sold or prepared for sale. The Act largely follows a draft

Bill prepared by a departmental committee and explained by them in their report published in December, 1937 (Cmd. 5628; 1s.). This report very fully explains the amendments in the law, and the circular now issued merely elaborates certain points. The circular is numbered 1755 and may be obtained from the Stationery Office, price 2d.

The L.C.C. and the Cancer Bill

In reporting to the London County Council on the Cancer Bill, which received a second reading in the House of Commons last week, Mr. Somerville Hastings and Mr. Charles Latham, chairmen respectively of the Hospitals and Medical Services and the Finance Committees of the Council, state that substantial facilities already exist for the diagnosis and treatment of cancer in London, and while it is recognized that there is a need in various parts of the country for the provision of further facilities, it is not clear, so far as London is concerned, that there is any need for the imposition of a statutory duty upon the L.C.C. to ensure that arrangements for the diagnosis and treatment of cancer shall be adequate. The Council treats cancer patients in all its twenty-seven "acute" general hospitals, and there are special units for deep x-ray and radium therapy at Lambeth and Hammersmith Hospitals. Many voluntary hospitals treat cancer patients, and some have spent considerable sums on radium and x-ray apparatus. The total number of admissions of cancer patients to the Council's hospitals in 1937 bordered on 7,000. At a conference between the Minister of Health and representatives of the L.C.C. and others it was understood that the inclusion of voluntary hospitals as circumstances may render desirable in schemes prepared by local authorities may embrace not only the provision of treatment but also the provision of diagnostic centres. The choice of hospitals, both municipal and voluntary, for inclusion in schemes will naturally depend upon the needs of the area to be served and upon the service which the hospitals are equipped to render.

At the interview with the Minister the Council's representatives submitted that Exchequer grants towards the expenditure of voluntary hospitals in London should be made direct to such hospitals without supplement from the rates and without prejudice to the Council's responsibility for the preparation of a scheme for cancer in the metropolis. The Minister, however, stated that he thought the scheme would work more smoothly and efficiently if the control were in the hands of the local authority, and that it would be better for the authority to pay the grant due under the scheme to the voluntary hospitals. Those speaking for the Council do not share this view, and hold that grants from public funds to voluntary hospitals for cancer treatment and facilities should be paid direct by the Minister. It is also considered that, as the additions to the expenditure of local authorities by the imposition of further statutory duties have already heavily intensified the Council's financial burdens, the proposal to scale down the grant in respect of the new cancer service below a minimum of 50 per cent. to any authority should be resisted. The Minister's suggestion is that as the existing facilities for dealing with cancer in the areas of the "richer" authorities are so much better than in the areas of the "poorer," the cost to the former would be comparatively small, and therefore there is justification for their percentage of Exchequer grant being scaled down.

It is anticipated that the unit cost in London will be materially higher than the country average, having regard to the higher standard of costs to which the cancer service in London will unavoidably be subject. The L.C.C. maintains that the object of control over the expenditure of local authorities could equally well be secured by substituting for the average for the whole country an approved unit for regions in which special local factors would receive proper recognition, and the Minister has intimated that he is prepared to consider this point.

SCOTLAND

The R.C.P. Laboratory at Edinburgh

The annual report of the Laboratory of the Royal College of Physicians of Edinburgh records the resignation of its Curator, Sir Robert Philip, after nearly thirty years of active official association with the laboratory. Sir Robert had held the appointment of Curator for the past fourteen years. During the year under review thirteen papers were published by workers in the research department. Further investigation of anti-rabies treatment statistics includes a study of the figures from the Union of Soviet Socialist Republics. It appears that during the years 1927 to 1934, 343,149 persons were treated in Russia, and 584 (0.17 per cent.) of them contracted rabies. The most striking feature of these statistics is a steady decline in the number of people presenting themselves for treatment, attributable to "an abrupt diminution of rabies in animals in the U.S.S.R." Among other researches are studies of the mode of action of cod-liver oil and certain other oils in the treatment of wounds. Experiments *in vitro* have shown that cod-liver oil, both in the presence and in the absence of a nutrient medium, possesses a strong bactericidal action, which is markedly increased by previous irradiation of the oil with ultra-violet light. Of other oils investigated, only linseed oil proved to be more potent than cod-liver oil, but for various physical reasons this substance is contraindicated as a means of treatment. In the field of parasitology trichomonas infections have been studied, and it has been demonstrated that *Trichomonas vaginalis* and *Trichomonas intestinalis* differ from one another in morphological and cultural character. Vaginal infection with this parasite appears to be far more common than is generally supposed. Conditions predisposing to infection, and the part played by the parasite in causing sterility and other pathological changes in the genital tract, are under investigation.

The Blind in Scotland

At the opening of an extension to the Royal Blind Asylum, Edinburgh, on December 9, Mr. W. J. Anstruther Gray, Parliamentary Secretary to the Secretary of State for Scotland, said that this institution had been founded by Dr. Johnson of Leith in 1793, and the school had been added by James Gall in 1835. Since the Blind Persons Act of 1920 expenditure in Scotland on behalf of the blind had risen from £80,000 to £300,000, and 9,000 blind people were provided for. The number of blind children had greatly decreased, and the increase in the total number of the blind was due to longer life. Mr. James Adshad, chairman of the Board, said that estimates for the extension amounted to £20,000, of which education authorities throughout Scotland who sent children to the school were expected to provide three-fourths, leaving about £5,000 to be found by the institution itself.

Treatment of Venereal Diseases

The current annual report of the City and Royal Burgh of Edinburgh Venereal Diseases Scheme opens with a masterly synopsis of the advances in treatment during the last twenty-five years. It is recalled that it was the Edinburgh Corporation which, in 1928, promoted and presented to Parliament a Bill designed to secure compulsory powers for the examination and treatment of known or suspected cases of venereal disease. The Bill, however, was not passed, for the enforcement of such legislation would present considerable difficulties. The employment of sulphamidamide and its derivatives produced highly satisfactory results in the treatment of gonorrhoea during the year under review. An allied preparation—uleron or disethyl—was also given extensive clinical trials. The clinical officer states that in the majority of cases the effect of these new drugs has been amazingly rapid, resulting in the disappearance not only of the

signs and symptoms of the disease but also of the causative organisms within a few days. The response, however, was not satisfactory in every case, and to this extent their action may be described as inconstant and "capricious." The report records a considerable increase in the number of new patients. This is chiefly accounted for by a larger number of cases of non-specific venereal disease, syphilis and gonorrhoea showing a slight diminution. Analysis of new cases gives the following figures, those of the previous year being shown in parentheses: Total number 2,860 (2,540); syphilis 686 (695); gonorrhoea 1,256 (1,280); chaneroid 35 (27); non-specific venereal disease 883 (538). The last named thus forms nearly one-third of the total.

Dundee Health Report

Attributable to simultaneous outbreaks of whooping-cough, influenza, and primary pneumonia during the first quarter of the year, a rise in the general death rate is recorded in the annual report for 1937 of the Public Health Department, City of Dundee. The rate for the year was 15 per thousand, compared with 14.1 in 1936 and 13.2 in 1935. These three diseases caused 406 deaths—whooping-cough 51, influenza 113, and pneumonia 242. Of the deaths from whooping-cough twenty-four occurred in infants under 1 year, and twenty-four in children aged 1 to 5. Only one death was certified as due to whooping-cough alone. The remaining cases suffered from complications, of which pneumonia was the most frequent. Among other infectious diseases scarlet fever and chicken-pox also showed an increased incidence, but with regard to measles intimations of only 312 cases were received, compared with 1,862 in 1936. The majority of the measles cases occurred in the last two months of the year under review, conforming with the usual tendency of this disease to make biennial appearance in epidemic form in the city. Of ten notifications of enteric fever, all of which were admitted to hospital, the diagnosis was accepted in eight—two typhoid and six paratyphoid B. In three of the latter cases it was thought probable that the source of infection might have been associated with the eating of periwinkles.

Correspondence

Lay Analysts at L.C.C. Mental Hospitals

SIR,—I think that you may be interested to learn the circumstances under which lay analysts are to be allowed to receive instruction in the London County Council's mental hospitals.

On November 15, 1938, a report from the St. Bernard's Hospital Committee was received by the General Purposes Subcommittee of the Mental Hospitals Committee, stating that the Director of the Institute of Psycho-Analysis had asked for permission for a small number of lay analysts to observe the technique and to study the reactions of patients at St. Bernard's Hospital, and that the medical superintendent was willing to co-operate. As this involved an important question of principle, we, the Municipal Reform Party members, asked whether before reaching a decision the Board of Medical Superintendents might be consulted, as it was a matter on which we as a lay committee were not competent to decide. This was refused. We then asked whether the question could be deferred until the committee of the British Medical Association which we understood was inquiring into the whole question of the scope of the work of lay analysts had reported. This was

also refused. The matter then came up to the Mental Hospitals Committee. Dr. Odum moved and I seconded that the matter be deferred pending a report from the committee of the B.M.A., and we were outvoted. We then asked that the matter should be reported immediately to the Council, and this was refused. Finally, under Standing Order 139A, on the request of twenty members, the matter had to be reported at once to the Council, but by rule of the Council only two five-minute speeches on each side were allowed, and therefore it was impossible fully to state our objections.

These are briefly: (1) That the matter was *sub judice* by a committee of the British Medical Association, and therefore might be prejudiced. (2) That the examination of a patient was confidential, and persons would be present who were not bound by any ethical rules and were not pledged to secrecy. (3) That before agreeing we should have full information (a) as to the scope of the work to be undertaken, and (b) as to the safeguards which were to be demanded for the protection of the public, such as whether the lay analysts would always have to work under medical supervision, etc.—I am, etc.,

London, S.E.1, Dec. 13.

BARRIE LAMBERT.

Radium Policy and Practice

SIR,—In your account of the annual report of the Radium Commission (December 10, p. 1217) you say, "it is to be hoped that the formation of a therapeutic centre [at Cambridge] in the near future will give practical expression to the ever-increasing developments of experimental radiology." As these words imply that there are no facilities for the treatment of cancer at Cambridge, and that the authorities at Addenbrooke's are adopting an obscurantist attitude, perhaps you will permit me to state the facts.

Addenbrooke's was one of the very first hospitals in the country to treat cancer by x rays, a plant having been installed in 1921 in charge of the late Dr. Shillington Scales. For some time past two plants have been in constant use. For many years candidates for the Cambridge D.M.R.E. have been taught here. The follow-up system is probably as efficient as that of many of the radium centres. As for the quality of the work, it is not for me to express an opinion. In addition to serving our own large area we have had to treat patients from one of the radium centres which, be it noted, only in the last year has provided facilities for the purpose. As regards radium the hospital possesses its own supply, purchased two years before the formation of the Commission, while in addition the gynaecological department, under Dr. Canney, uses radium lent by the Medical Research Council.

In spite of all this the Radium Commissioners, when they first established their centres, were apparently completely oblivious of the claims of Cambridge. They made no effort to investigate our achievements, difficulties, or potentialities. They merely sent us gratuitous advice to the effect that we should send our patients to Norwich. It was not until about two years ago that they made the discovery that Cambridge presented certain advantages possessed by few other towns. Since then they have lost no opportunity of proclaiming their newborn infatuation and lamenting the failure of the hospital, partly on financial grounds, to respond to their advances.

May I also dispute your statement that "treatment by high-voltage x rays is an indispensable adjunct to treatment by radium"? Although this view may still be held in certain quarters, there is a widespread and increasing

belief that the vogue for radium is declining and that more is to be expected from x rays. I think I am voicing the opinion of my colleagues when I say that in our negotiations with the Commissioners this belief at least played a part in our declining to recommend to the General Committee an offer which would have imposed too great a strain on the hospital's resources. While naturally willing to try every method we have refused to be stampeded into the view that radium is and must remain the dominant line of attack.

For my part, with all due respect, I cannot subscribe to the view that a Radium Commission which has on it no representatives of qualified radiologists is necessarily the best body to decide upon what constitutes the most efficient method of treating cancer.—I am, etc.,

The Douty X-ray Clinic, Addenbrooke's
Hospital, Cambridge, Dec. 13.

FF. ROBERTS.

Domiciliary Emergency Treatment of Eclampsia

SIR,—Dr. H. J. Thomson's note (*Journal*, December 10, p. 1204) regarding the above is interesting, but his table of results does not quite fully support his contention. During 1937 the deaths from eclampsia were *nil*, a greater number of cases (seventeen) being treated in hospital than at home (eleven). In that year, therefore, treatment in hospital would seem to have been at least as successful as domiciliary treatment.

Dr. Thomson's table gives the results of cases treated at home by the emergency team. Additional value would attach to the table if it stated how many cases of eclampsia were treated other than by the emergency team, and what the mortality was in these cases, if any. I notice that the incidence of eclampsia as treated by Dr. Thomson's service appears to have risen steadily during the years covered by his table. Does this mean that such cases are being referred to hospital in greater numbers?

I believe that the treatment of eclampsia lies in the prevention of its onset by timely termination of pregnancy rather than in the treatment of the established condition. The routine adopted in the Croydon Obstetric Service is that all cases seen at the ante-natal clinics whose diastolic blood pressure is 90 or over, with or without albuminuria, are admitted to hospital, and if the usual dietary and other treatment does not result in subsidence within about ten days the pregnancy is terminated. Cases with definite pre-eclamptic signs, especially severe headache and visual disturbances, are not allowed so long a period if there is not definite amelioration of symptoms within the first few days. As a result of the rigid observance of this rule over 300 cases of hypertension with or without albuminuria have been admitted to the Croydon County Borough Hospitals during 1937 and 1938; and no case so admitted has developed eclampsia. Two cases of established eclampsia were admitted in 1937, the pregnancy being terminated immediately in each case, with no maternal or foetal mortality.

The urea-concentration test is invaluable in these cases, and I use it; combined with a blood-urea estimation, in all cases of doubt. I look upon a poor urea-concentration test as an absolute indication for the termination of pregnancy. The chances of permanent renal damage in these cases are far greater than is generally supposed, and in my opinion this risk does not justify very prolonged treatment of pre-eclamptic conditions.

In the table on eclampsia in Dr. Thomson's report for 1937 I note that cases Nos. 6 and 10 were in hospital twenty-six and twenty-three days respectively before

delivery; No. 6 had four intra-partum fits, and in No. 10 the fits recurred in labour. Might not early induction have lessened the danger?

While congratulating Dr. Thomson on the excellence of his results for 1937, I feel that he must have had an extremely anxious time while the seventeen cases of eclampsia were in hospital.—I am, etc.,

RUTH C. THOMAS,
F.R.C.S.D., M.C.O.G.

Croydon Obstetric Service,
Dec. 12.

Treatment of Placenta Praevia

SIR,—I have seen, somewhat belatedly, in the *Journal* of June 18 (p. 1334) a letter from Dr. Bethel Solomons, one of my former assistants at the Rotunda Hospital, under the above heading. It contains the following extraordinary statement: "I was brought up to believe in the value of vaginal plugging" [for placenta praevia]. Now the people who were responsible for the obstetrical "bringing-up" of Dr. Solomons were the late Sir Arthur Macan, Dr. Hastings Tweedy, and myself. Sir Arthur accepted vaginal plugging somewhat diffidently as a possible alternative to podalic version. Dr. Hastings Tweedy opposed the use of the plug in both his teachings and writings, and I have consistently done the same. Where, then, was Dr. Solomons brought up to believe in its value? Can it be that he confuses unavoidable and accidental haemorrhage, and has come to believe that the older teaching of the Dublin school on the treatment of the latter complication applies also to the former?—I am, etc.,

Christchurch, New Zealand, Nov. 23. HENRY JELLET.

Treatment of Pneumonia

SIR,—I have been interested in the correspondence and reports relating to the above subject which have appeared in the medical press during the last few months, and I have naturally been impressed by the results of the practical application of up-to-date serological and chemotherapeutic methods. I have been struck, however, by the omission of any mention of quinine. I am not of the generation which was privileged to have personal contact with Burney Yeo, but I have had the good fortune to work under those who were taught by him. As a result I have employed very often his effervescent quinine mixture—quinine and citric acid in the one bottle and potassium bicarbonate plus nux vomica or potassium iodide in the other—according to the needs of the moment, and have never had reason to regret it.

Typing of the organism and the use of homologous serum is, of course, an excellent and everyday procedure in lobar pneumonia, but does not always produce equally good results in bronchopneumonia. In the practice of a large infectious hospital, such as that to which I am attached, lobar pneumonia is comparatively infrequent, but bronchopneumonia, in measles and whooping-cough especially, is a common and often fatal complication. Most of the cases are little children, and it is usually impracticable to give quinine by mouth to such young subjects. During the past eight years I have used quinine in the form of "transpulmin," an oily solution of quinine and camphor which is administered by hypodermic injection (Homburg Pharma Ltd., Africa House, W.C.2), and in that time have had occasion to employ it in hundreds of cases, with more than gratifying results. I usually give from 0.5 c.cm. to 1 c.cm. daily for a week, and after a few days' break, if the bronchopneumonic condition has not

shown signs of clearing up, I begin a second course. It is equally efficacious in adult patients. Beyond a purely clinical satisfaction I have no interest in this preparation; but my primary object in writing this letter is to prevent so excellent a drug as quinine from being submerged by the more modern products, and at the same time to place on record my appreciation of a form in which it is usefully and scientifically available.—I am, etc.,

Liverpool, Dec. 10.

ELSIE A. BURNS, M.D.,
Principal Medical Officer, City
Hospital, Fazakerley.

Glycosuria

SIR,—I have read with interest Dr. V. J. Glover's letter (December 10, p. 1224), in which he draws attention to the high incidence of glycosuria found in a group of apparently normal individuals. Of 132 volunteers for A.R.P. work eight men were found to have glycosuria, and Dr. Glover puts this forward as evidence of the frequent occurrence and insidious nature of diabetes. The fact that those persons found to have sugar in their urine "felt well and strong and all save one followed occupations involving hard work" is surely presumptive evidence against the diagnosis of diabetes, and no such label should be attached to them unless they prove to have abnormal blood-sugar curves. I do not think it is unreasonable to express the opinion that most, if not all, of these people who passed sugar at the time of the crisis would subsequently be found to be either sugar-free or to have normal sugar curves.

The mechanism whereby emotional stress produces transient glycosuria is possibly the same as produces diabetes when acting over a considerable period of time; but it would be incorrect to describe such transient examples as the subjects of diabetes. It is recognized that psychological stimuli may produce repercussions on the autonomic and endocrine systems sufficient to cause organic disease, but if every minor disturbance, such as temporary glycosuria during emotional stress, is regarded as evidence of disease it will lead to unnecessary restriction of the lives of many normal persons. Certainly they should be investigated, but their subjective symptoms should be given due weight. If an individual feels happy and well and is able to lead a normal life, it is at least presumptive evidence that he is biochemically correct.—I am, etc.,

Colchester, Dec. 12.

S. A. PROPERT,
M.A., M.R.C.P.

SIR,—It is well known that many cases of unsuspected diabetes are discovered in the course of examinations for life insurance, even when there are no marked objective symptoms, especially in elderly people. But the discovery of glycosuria is an indication for further investigation rather than of final diagnostic significance. I do not suppose Dr. Vincent J. Glover (*Journal*, December 10, p. 1224) intended for a moment to convey that glycosuria and diabetes are synonymous. Eight men in 132 seems rather too high an incidence for true diabetes. Unfortunately Dr. Glover does not say anything about the specific gravities of the urines which gave "rapid and copious reduction."

In the course of many thousand examinations I have more than once found glycosuria of a psycho-adrenal origin in highly nervous subjects who on further examination had normal glycaemia, sugar tolerance, and renal threshold.

Dr. Glover mentions that all save one of the eight men "followed occupations involving hard work." If the

urines of a Rugby football team be examined at the end of a hard game many will be found to contain sugar, due to the escape of temporary hyperglycaemic sugar from the blood when the demand of the muscles has ceased and the physiological activity of the adrenals is slowing down as the body returns to a condition of comparative rest.

A few months ago I was puzzled by finding that a large number of female urines gave a copious reduction of a peculiar light purplish-red colour, both with Fehling and Benedict (0.3 c.cm. of urine to 5 c.cm., boiled for two minutes, and cooled by standing). After a lengthy investigation it was found that all the individuals concerned munched throughout the day large quantities of chocolate of a certain brand, which they bought at their canteen. On their abstaining from this chocolate the reaction disappeared from the urine.

In persons showing glycosuria without any objective symptoms of diabetes, whose glycaemia and sugar tolerance are normal, I always look for septic foci, especially in the teeth, tonsils, and gall-bladder. The association is commoner than is generally realized.

In conclusion I would like to stress the importance of scrupulous care, both as regards reagents and technique, even in a simple routine matter such as urine testing. It is easy to obtain fallacious results, especially when so-called "convenient" methods are employed. Glucose is not the only substance which will reduce copper. The fermentation test is easily applied and, if the ordinary test solutions are reduced, should never be omitted. There is a minute trace of sugar even in healthy urines; and I have seen a reduction in specimens highly concentrated through hard muscular work and copious perspiration. Glycosuria is also found in certain subjects of gastrointestinal anastomosis—but, as Kipling says, that is another story.—I am, etc.,

Brookwood, Surrey, Dec. 10. H. M. STANLEY TURNER.

Health and Agriculture

SIR,—It was with the greatest possible pleasure that I read in the *Journal* of December 10 (p. 1208) your leading article "Health and Agriculture." As one who is intensely interested in the subject I hope your article will stimulate the minds of all who read it, so that by united effort some form may be fashioned out of the present chaos. You gave pride of place to milk as a "health-protective" food, and you go on to say that "if it were increased by one-third of a pint per day it would still be far below the level which is desirable on nutritional grounds; yet such an increase would entail an expansion of our natural milk output of no less than 65 per cent. At the present rate of productivity this would require the maintenance of 2½ million more cows."

In reply to this statement, I believe I am quite accurate in saying it would not pay. In the first place, is this to be raw milk or pasteurized? If the former, then I can say definitely that to produce Grade A T.T. milk at present prices does not pay. The intensive grassland management required, the loss on cows failing to pass the tuberculin test, depreciation, etc., are such a handicap that the farmer is lucky if his accounts balance. During the last twelve months the *Field* published a series of articles which showed the sorry plight of agriculture in England. Letters have appeared more recently on the same subject in *Horse and Hound*, and, although not unanimous, the impression left on one's mind is the absolute futility of farming at present. Store cattle can be bought in the months of April and May, and sold in

November at a loss. To fatten beasts therefore under present conditions is a speculative business.

The figures published showing the use made by the farmers of the lime and slag subsidy are disappointing; they reveal how little use relatively was made of this grant. May it be assumed from this that even the reduced cost was outside the means of the farmers? An analysis of the cost of production of vegetables and eggs would be sorry reading, I feel sure, but I have no practical experience of this. The towns have swallowed up the population; food is only regarded in the light of what it costs in the shops, and little thought, if any, is given to the method and cost of its production; the horse has been supplanted by the motor; hay, oats, and straw had a ready market when the horse did the work; nothing has been devised to replace this loss to the farmer. The recent crisis stirred up a great interest in A.R.P. work. Can something not be done to excite the interest of all in the much more important subject of food in peace and war?—I am, etc.,

Belfast, Dec. 13.

W. A. ANDERSON.

SIR,—I should be greatly obliged if someone would demonstrate to me the appositeness of the oft-repeated slogan, "effecting a marriage of agriculture and nutrition," which you quote in a leading article on Astor and Rowntree's book in the *Journal* of December 10. Since "agriculture" desires to obtain as much as possible for its products—and "nutrition," naturally, to pay as little as possible for them—to my mind the prospective partners to the marriage are faced from the outset with a fundamental disagreement, which would tend to anything but conjugal harmony and constructive co-operation. In effect, this difference on the basic principle essential to such a pact separates them as far as it is possible for any incompatibility of temperament to do so. Nor—marriage or no marriage—can I see any justification for the prediction by the enthusiasts of a paradise awaiting agriculture as a result of its association with nutrition. Indeed, the fact that what is beneficial for the one is by that very fact detrimental to the other renders the fulfilment of such a forecast unlikely in the extreme.

If one considers, for instance, the case of milk, as matters stand we have on the one hand internal tariffs, subsidies, and bribes (to employ Astor and Rowntree's wording), all of which are disadvantageous to the "demanders." "Suppliers," however, will be advantaged for a time; but ultimately demand will be curtailed and either price will have to be reduced or some "suppliers" go out of business. On the other hand, in free-marketing conditions, with the operation of competition among "suppliers," "demanders" would at first have an advantage, which, however, would be rectified when, certain "suppliers" having gone out of business as the result of the competition, the demand would rise out of proportion to the available supply. There is the further point to be considered, and a very significant one from the point of view of nutrition, that in the first set of circumstances the tendency over a period would be towards diminished consumption of milk per head and a diminished production of it for the country as a whole; while, in the second case, the tendency would be in the opposite direction towards an expansion in both instances. We have here simply an illustration of the operation of Newton's third law of motion (applied to economics, as it can be) that to every action there is an equal and contrary reaction, the net result being a tendency to return always to an intermediate mean value.—I am, etc.,

Aberdeen, Dec. 12.

J. P. McGOWAN.

Primary Abdominal Tuberculosis

SIR.—We are grateful to Sir Henry Gauvain for his complimentary reference to our article pointing out the danger of primary abdominal tuberculosis in young children. We fully agree that in older children danger of dissemination of the disease from the primary focus is not so great and that early diagnosis is not so difficult as in early childhood. But in our paper we considered only children up to 5 years of age whose disease, before the onset of meningitis, was at the stage of a recent primary focus, the anatomical basis of which consists usually of a few moderately enlarged glands. No definite sign of this lesion exists, and the general initial symptoms given by Sir Henry Gauvain are too common to suggest tuberculous infection. One of us (S. E.) investigated from this point of view children complaining of vague abdominal symptoms and found that the tuberculin test in these children was less often positive than in children without abdominal symptoms. This shows that there is little likelihood of there being a causal connexion between a primary tuberculous focus and vague abdominal symptoms in children. By the time that secondary local or distant manifestations appear (for example, the "doughy abdomen" which Sir Henry quotes as presumptive evidence of tuberculous) diagnosis is not difficult and the risk of dissemination is small. As we emphasized in our paper, it is before the disease is clinically recognizable that meningitis is likely to occur, and for this reason we stressed the necessity for prevention of infection.

It may be of interest to note that since our paper went to press four other cases of tuberculous meningitis following a primary abdominal focus of infection have come to necropsy at this hospital.—We are, etc.,

SILVIA ENGL.
RUBY O. STERN.
G. H. NEWNS.

The Hospital for Sick Children, Great
Ormond Street, W.C.1, Dec. 12.

Human Oil and Adherent Scars

SIR.—With reference to the article by Mr. Cecil P. G. Wakeley in the *Journal* of September 17 (p. 618), may I state that eighteen years ago I used injections of human oil, or as I called it melted human fat, in the treatment of adherent scars on the face in soldiers. Although it gave apparently satisfactory results at the time I gave up its use because it seemed to me that the scars tended to become re-adherent after the fat had completely absorbed, as it always did. A much more satisfactory and lasting method is to divide the adhesions subcutaneously and insert thin autogenous fat grafts, which do not tend to absorb, and the results are in my experience more efficacious and cosmetically much superior.—I am, etc.,

Wellington, N.Z., Nov. 23.

H. P. PICKERILL.

For many years Mr. and Mrs. Alexander Farquharson have been developing and making known the idea that the study and teaching of sociology and civics should be based on observation and field work, and they are now organizing a winter school of sociology and civics from December 30 to January 6 at the London House of Citizenship in South Kensington. The Royal Borough of Kensington will provide the material for observational work and field studies dealing with the natural environment, historical development, and present-day social and economic conditions. Mr. and Mrs. Farquharson will have the assistance of Dr. Marie Jahoda, formerly of Vienna. Particulars may be obtained from the Hon. Organizer of Field Studies, Le Play House, 35, Gordon Square, W.C.1.

Obituary

SIR COOPER PERRY, G.C.V.O., M.D., LL.D., F.R.C.P.

Consulting Physician, Guy's Hospital

The death of Sir Cooper Perry on December 17, at the age of 82, removes an outstanding character and a mind of remarkable strength and versatility.

Edwin Cooper Perry, son of the Rev. E. C. Perry, had a brilliant career at Eton and King's College, Cambridge, which he entered as a scholar. He was Senior Classic in the Classical Tripos of 1880, and immediately afterwards was elected a Fellow of King's. While still holding this fellowship he studied medicine at the London Hospital, taking the M.R.C.S. in 1885, the M.B. soon afterwards, and proceeding M.D. in 1888. During his period of residence at King's he was assistant demonstrator of anatomy in the Cambridge Medical School. At the London Hospital he served as house-physician and house-surgeon.



Sir Cooper Perry's long connexion with the teaching staff of Guy's Hospital began with a demonstratorship in morbid anatomy. He was soon afterwards elected assistant physician, and held office in the medical school as lecturer in materia medica, in dermatology, and in medicine, and he was given charge of the skin department. He was also examiner in materia medica and pharmacology for the University of London, in medicine for the University of Cambridge, and in materia medica and medicine for the English Conjoint Board. His election as F.R.C.P. was in 1894, and he served on the Council of the College in 1913-15. He wrote papers for the *Guy's Hospital Reports* on malignant disease (with Dr. Lauriston Shaw) and on diseases of the duodenum. For many years he combined clinical and teaching work at Guy's with the post of superintendent of the hospital, which gave scope for his great powers of administration, and on retiring from the staff he was elected consulting physician and a governor of the hospital and school. In 1903 he received the honour of knighthood. From 1920 to 1926 he was Principal Officer of the University of London, after serving two years as Vice-Chancellor. On October 20, 1926, the Senate adopted a resolution placing on record its high appreciation of the work he had done for the University.

From 1898 onwards Sir Cooper Perry was closely associated with King Edward's Hospital Fund for London, and he served on its General Council and Management Committee and presided over its Distribution Committee. He had held many other public offices, including membership of the Army Qualifying Board, the Voluntary Hospitals Commission, and the Departmental Committee on Postgraduate Medical Education in London, and chairmanship of the London School of Hygiene and Tropical Medicine, of the Chartered Society of Massage and Medical Gymnastics, and, after his retirement to Worthing, of the local hospital. He had also been chairman of the

Army Hospitals Commission and a governor of Holloway College. In 1927 he went to Egypt to reorganize the work of the Faculty of Medicine in the Egyptian University at Cairo, and remained there for some time as director. He was created G.C.V.O. in 1935.

Mr. H. L. Eason, C.B., C.M.G., Principal and late Vice-Chancellor of the University of London, sends the following appreciation:

"Nihil quod tetigit non ornavit" is, I think, the best epitaph for Sir Cooper Perry. He would have made an ideal Civil Servant. A classical scholar, a musician, a great physician and pathologist, an administrator of unusual quality, in all spheres of his activity he did not much care who got the credit for anything done so long as it was done, usually by him. Those who worked with him behind the scenes knew his value, his massive intellect, and his constructive capacity. The outside world knew him hardly at all. This was due to a peculiar combination of intense shyness and a justifiable vanity. He hated public speaking, and in his hospital days was so nervous about giving a lecture to students that he never slept the previous night. When he did lecture he did so with his eyes on the ground in manifest discomfort. His shyness led him to hide behind a certain brusqueness of manner which was not always appreciated by his acquaintances. Those who got behind this screen soon found that he was intensely human, kind-hearted, and sensitive. He was extraordinarily fair-minded and just, and would make allowances for everything but mental dishonesty. Moral delinquencies he could forgive, but anyone who prostituted his intellectual gifts to base purposes or was tortuous in his mental dealings passed into the limbo of outer darkness so far as he was concerned.

In the world of medicine he was the last of the great succession of morbid anatomists at Guy's Hospital. His manual skill in conducting a necropsy was perfect, and his knowledge of morbid anatomy encyclopaedic. His bedside teaching was extremely effective, owing to his grasp of both clinical knowledge and morbid anatomy, and to be his house officer was the delight of generations of Guy's men. In the world of music his important achievement was the revision, in conjunction with Dr. A. H. Mann, of the Anthem Book in use at King's College, Cambridge, and throughout his life he was a devotee of the more formal and classical music. It was in administration, however, that he made his mark. Coming to Guy's Hospital from the London Hospital in the early nineties of the last century, he found that it had been asleep for thirty years. He reorganized its constitution, its administration, and its finances, and for the twenty-eight years that he was its superintendent it flourished as a happy institution free from acute financial anxiety. He reorganized the Army Medical Service after the South African War and was responsible for the building of the present Army Medical College at Millbank. He was for many years on the council of King Edward's Hospital Fund for London and the chairman of its Distribution Committee. In this capacity his profound knowledge of hospital administration and his understanding of the peculiar problem of teaching hospitals were invaluable.

He had a mastery of concise and lucid English prose. He was a firm believer in that precept of Quintilian's that "Care should be taken not that the reader may understand if he will, but that he must understand, whether he will or not." It was this passion for accuracy that led some people to think that he was fussy over verbal corrections. As a matter of fact he never corrected a document that he did not improve. A few words changed,

a sentence reconstructed, and the memorandum was at once on a higher plane. When he himself was in doubt as to the clarity of a sentence he had the habit of translating it into Latin and then back again into English. If he could get the sense clearly in Latin it must be clear and he was satisfied.

Women either admired him or disliked him intensely. There was no middle course for them. He had a habit of paying back-handed compliments that did not make for feminine appreciation. Those who realized his great human qualities behind the lack of social graces were his devoted friends for life, and he in turn repaid their devotion with countless kindnesses. In his form he was bulky and ungainly. No one seeing him at any time in the last forty years would ever have imagined that he had played the wall game at Eton. He never walked if he could take a cab, and in his later years physical exercise was unknown to him.

His success as an administrator was due to the fact that he always had a constructive policy of his own for every problem. He had a contempt for the destructive critic who had no constructive ideas. As a committeeman one found that he had always read the minutes of the previous meeting and had corrections to make if necessary. He had always read his agenda and had his own ideas as to the action to be taken; and, finally, he had his own ideas committed to writing in the form of a resolution. A man who does this nearly always carries a committee with him, especially when his ideas are both well-considered and original. Resembling the late Lord Salisbury in his face and figure, he in his mind also resembled an Elizabethan statesman such as Cecil. Weighty, wise, deliberate in judgment, knowing just when to wait and watch and when to take decisive action, he would have been a worthy member of Queen Elizabeth's famous Councils of State. He could draft a document that could be subtle without deceit and uncompromising yet courteous.

He lived his life as he wished it. Regardless of money or public applause or preferment, he chose the reality of power and influence rather than the trappings of publicity, and he used his incomparable mental gifts entirely to the public good. He well deserved one of his favourite epitaphs—"Inservivit saeculo suo."

Many will have heard with deep regret of the death of HUGH DAVIES-COLLEY, O.B.E., M.B., F.R.C.S., who has been responsible for much of the surgical work of the Aldershot Command since 1915. The spirit of surgery coursed in his veins, for he was the son of a famous Guy's surgeon, and his mother was the daughter of a former treasurer of Guy's. The family record is a most illustrious one, for not only have his father and younger brother held posts of high honour on the surgical staff of Guy's, but each has also served the Royal College of Surgeons of England in several distinguished capacities. His sister, who herself predeceased him, was a famous woman surgeon and was on the surgical staff of several hospitals in London. Educated at Westminster and Trinity College, Cambridge, Hugh Davies-Colley received his clinical education at Guy's. He obtained the Fellowship of the Royal College of Surgeons in 1904, but it was the European war that really discovered him as a surgeon. Davies-Colley was appointed to the staff of the Cambridge Military Hospital, Aldershot, at a time when Sir Arbuthnot Lane was organizing the medical and surgical arrangements of the Command; at first the genito-urinary department was allotted to him, and to many his name will conjure up memories of a kindly, indefatigable, and in those days bearded surgeon wandering through the long corridor at any hour of the day or night armed with his "periscope." He ultimately became the chief surgeon

to the Cambridge Hospital, and held this position until his death. He had a most lovable disposition; his temper was never known to be ruffled; I do not believe that he had an enemy in the world. It was indeed fitting that his coffin should have been borne on other men's shoulders from the hospital to which he had given his best for nearly a quarter of a century.—G. G.-T.

The death of Dr. JOHN WHITIER CLEVELAND, J.P., of St. Albans, on November 11, at the age of 61, removed one who had been conspicuous for his work in various spheres of public service; it brought sorrow to a large circle of his medical colleagues. Born at Havant in Hampshire, he was educated at Charterhouse and St. Bartholomew's Hospital. Having taken the diplomas M.R.C.S., L.R.C.P. in 1904, he was assistant house-surgeon at the Royal Berkshire Hospital, Reading, and then resident anaesthetist and house-surgeon. He began to practice in St. Albans in 1906, where he continued at work until his death, apart from a period of war-time service, during which he was at first resident surgeon officer at the King George Military Hospital for Officers, and later medical officer in charge of the Endsleigh Palace Hospital for Officers. In 1919 Dr. Cleveland was appointed to the medical staff of St. Albans Hospital, and ultimately became honorary consultant surgeon and a member of the House Committee. He was one of the founders of the St. Albans Division of the St. John Ambulance Brigade, and its surgeon. He was appointed an Associate of the Order of St. John in 1923, and three years later was promoted to the rank of Officer of the Order in view of his great services. For nearly sixteen years he was a member of St. Albans City Council, and was mayor of the city in 1922-3; he was also active in support of the Nursing Association and the British Legion. He was a prominent Freemason; W.M. of the Halsey Lodge in 1928, and a Past Provincial Grand Deacon of Herts, in both the Craft and the Royal Arch Degrees. A keen Conservative, he was for many years a member of the executive council of the divisional association, and chairman of the East Ward Association. He captained the Verulam Golf Club in 1922, and had presided over the St. Albans Cricket Club. He was a strong supporter also of the St. Albans Football Club, and its honorary surgeon.

Dr. GRANT ROSS GRIBBEN, formerly a member of the Trinidad Medical Service, died at Brummana, Lebanon, on November 19, and was buried at Beirut in the Anglo-American cemetery. A student of Glasgow University, he graduated M.B., Ch.B.Glasg. in 1924, and afterwards took the D.T.M. Liverpool. Dr. Gribben during his period of service in Trinidad was medical officer of health for Brighton-la Brea rural sanitary district and port medical officer. He was elected a member of the British Medical Association by the Glasgow and West of Scotland Branch immediately after graduation, and five years ago he read to the Trinidad and Tobago Branch a paper on mass treatment with plasmoquin, which was fully reported in the *British Medical Journal* of November 13, 1933.

Dr. WILLIAM FOSTER, medical officer of health under the Shipley Urban District Council for thirty-four years, died at his home on November 27 at the age of 83. The son of Dr. John Foster of Bradford, he was educated at Bradford Grammar School, Epsom College, and the University of Cambridge, taking the clinical part of his course at the Leeds Medical School. He obtained the M.R.C.S. and L.S.A. diplomas in 1879, the Cambridge M.B. in 1885, and the D.P.H. in 1892. After working as house-physician and resident medical officer at the Bradford Royal Infirmary Dr. Foster travelled to Australia, South Africa, and America as a ship surgeon. He began practice at Shipley in 1885, and was appointed medical officer in 1895 and school medical officer in 1906. He acted for some time as medical superintendent of the child welfare centre and consulting surgeon to Sir Titus

Salt's Hospital. He had been a member of the British Medical Association for thirty-five years at the time of his retirement from active work in 1929.

Dr. JOHN H. FARDON, a well-known practitioner of Birkenhead, died at Oxtou, Birkenhead, on November 28, 1938, at the age of 75. After qualifying M.R.C.S., L.R.C.P., he became demonstrator in anatomy at Bristol University, which position served him in good stead for his future career as a surgeon and general practitioner. He later held resident posts in the Liverpool hospitals and began general practice in Birkenhead in 1894, in which town he remained in active practice until the day of his death. He was appointed honorary surgeon at the Birkenhead General Hospital, then called the Borough Hospital, in 1902, giving his time and skill unstintingly until 1926, when he became a consultant surgeon. During the late war Dr. Fardon, besides doing his work at the hospital and in general practice, was medical officer to one of the larger school military hospitals in Birkenhead, and it is on record that he only missed meeting four of the ambulance trains arriving day and night during the whole of the war years. For this excellent work he was awarded the M.B.E. He had been a member of the British Medical Association since 1896. A colleague, "E. L. M.," writes: Dr. Fardon was a most enthusiastic worker for the British Red Cross, in which Society he took a tremendous interest and was for many years an examiner and instructor in the Birkenhead area. He was a man of high standing in his profession, conscientious, keen, and kindly, although of a retiring disposition. He was greatly esteemed and looked up to by his younger colleagues, who recognized his experience and that he was one of the real old type of general practitioners—fast fading away. Beloved by his patients, he will be greatly missed by all, and our united sympathies are extended to his wife and daughter.

Dr. CUTHBERT BRACEY DALE, who died on December 9 at Weston-sub-Edge, Gloucestershire, had practised for many years at Edgbaston, where he had been born in 1870. A student of St. Bartholomew's Hospital, he qualified as M.R.C.S., L.R.C.P. in 1891, and after serving as house-surgeon at Bart's and at the Bucks General Infirmary, Aylesbury, he was for two years clinical assistant to the Royal Eye Hospital, South London. While in general practice at Edgbaston he was certifying factory surgeon for East Birmingham, and for some time anaesthetist to the Birmingham Ear and Throat Hospital and to the Birmingham School Clinic. Dr. Dale was a member of the Midland Medical Society, and joined the British Medical Association in 1901.

On December 14 EDWARD PHILIP, M.B., C.M., died suddenly at his home in Roehampton Lane, London, S.W., aged 67. The son of William Philip, shipmaster, he had his medical training at Aberdeen University, where he graduated in 1893. At an early age he started practice in a working-class district of South-West London, and his admirable professional abilities soon resulted in constant overwork. As time went on his reputation grew steadily and rapidly, and he was able to move into Redcliffe Gardens, where he practised for many years. Without making any pretensions to academic distinction, Philip had those qualities of observation, judgment, and sympathy which not merely made him deservedly successful but ensured also the affection of his patients. Some few years ago his health began to arouse anxiety—quite probably caused by the severe strain of his early days in practice, when he was accustomed to attend 200 midwifery cases a year at microscopic fees (or none at all)—and about six years ago he retired, settling ultimately opposite the gates of Roehampton Club. Philip was a man of real and unostentatious piety; he was a storehouse of amusing anecdotes, mainly Rabelaisian; and he had hosts of devoted friends among his professional colleagues, in his practice, and in the world at large. His

wife died several years ago, and he is survived by two sons and two daughters. He joined the British Medical Association in 1907, but never took office, though he was keenly interested in its affairs.

Dr. ALEXANDER MACALISTER, Walt Whitman's physician and friend, and one of the first in America to use diphtheria antitoxin, died at Camden, New Jersey, on November 22, aged 77.

JORGEN PETER MÜLLER, originator of the Muller system of home gymnastics and for many years principal of the Muller Institute in London, died at Aarhus, Denmark, on November 17, at the age of 73.

Medico-Legal

A HERBALIST ACQUITTED

A case tried before Mr. Justice Croom-Johnson at the Manchester Assizes at the end of November* raised some interesting points concerning unqualified practice.

Trial at Manchester Assizes

A "consulting herbalist" named Thomas Hugh Wilbraham was charged with the manslaughter of a youth of 22, whose father had put him under Wilbraham's care for diabetes. Mr. J. G. Lynskey, K.C., prosecuting, said that Wilbraham represented himself as being skilled to deal with the disease of diabetes, but had not shown the necessary skill or used the necessary care, with the result that the boy had died on September 5. In March, 1937, the boy's father had noticed that he was drinking much water and becoming drowsy. The father consulted a doctor, who diagnosed serious diabetes and sent the boy to Dr. Norman Kletz, who tried a diet for two or three weeks and then decided that the boy required insulin injections. Unfortunately, before that treatment was undertaken the father had heard that insulin was not a cure for diabetes but only a stabilizer, and got the impression that diabetes could be cured by a herbalist or osteopath. For a time he placed his son under the treatment of a woman herbalist, but in November, 1937, he went to Wilbraham. The accused, said counsel, told him that he specialized in the treatment of diabetes, had had successful results with other patients, strongly disapproved of the use of insulin, and included in his treatment the use of herbal medicine which caused the pancreas to function again. He was confident he could cure the boy. His charges were 10s. a visit. He did not prescribe any special diet except that the boy should restrict himself as much as possible to green vegetables. He began treatment in January, and in August the boy again broke down, became weak in his legs, and was terribly thin. Wilbraham, however, said he was very pleased with his condition, and that he was giving "pancreatic juices" in the medicine. Later he said that the sugar was down 14 points. In September the boy could not stand, and his father asked Wilbraham by telephone whether he should get a doctor. The accused replied that he did not think it necessary. Next day he came to see the boy at the request of the father and said that the sugar was less, that there was not much chance of coma, that the boy was suffering from a poisoned stomach, and that he would give him medicine to put him right. Next morning the boy was worse, and he died in hospital next day.

In cross-examination by Mr. E. J. Hemmerde, K.C., the father admitted that he would not have accepted Wilbraham's treatment along with insulin, but he denied that Wilbraham had suggested insulin. Re-examined, he said that two doctors had advised the use of insulin, but he had not followed their advice because a friend gave him a paper which said that

diabetes could be prevented and cured if it had not progressed too far, provided the patient had not taken too much insulin.

Dr. Patrick Fay said that he had seen the boy in March, 1937, and that on April 23 he had stressed the need for insulin. Dr. Kletz said that in this case it was probable that without insulin life would have been materially shortened. Dr. W. H. Grace, the pathologist who made the necropsy, expressed the opinion that if the boy had started to take insulin in January he would now be living a normal active life.

Wilbraham, giving evidence on his own behalf, not only denied having neglected to give insulin, but said that the use of insulin with his treatment was definitely helpful in some cases and essential in others. He asked his diabetic patients to get insulin prescribed by a doctor. He was not allowed by law to prescribe or use insulin. Some of his present patients were using insulin under doctors' directions. In August he had told the father and the son that the son must have insulin. The son said he did not want it and the father said he could not have it. Later he said to the father, "Without the use of insulin I am afraid you are going to make a terrible mistake." The father walked out of the place in disgust. Wilbraham told him that he must call in a doctor right away, and that if he did not Wilbraham would send one. The father replied that he did not care for the doctors round there; he had had some trouble with them before. From first to last, said Wilbraham, he treated the boy according to the knowledge he had, and did everything he could to help him. If he had been allowed to use insulin he would have compelled the boy to have it. The death was accelerated by the failure to give insulin.

The judge, in summing up, warned the jury that they were not trying the question whether treatment by registered medical practitioners according to ordinary practice was better or worse than treatment by herbal medicine. The question was whether Wilbraham had advised or failed to advise insulin, or had advised against its use. The jury found him not guilty and he was discharged.

The Services

DEATHS IN THE SERVICES

Surgeon Commander ALFRED THOMAS GAILLETON, R.N. (ret.), died at Valparaiso on November 29. He was educated at Edinburgh University, where he graduated M.B., Ch.B. in 1898. He entered the navy soon after qualifying, became surgeon commander on August 10, 1915, and retired after the war. After his retirement he took the D.P.H. at Cambridge in 1923. He served in the war of 1914-18, receiving the medals.

Major-General JOHN JOSEPH GERRARD, C.B., C.M.G., late R.A.M.C., died in London, from the effects of an accident, on December 14, aged 71. He was born in Dublin on October 22, 1867, and was educated at St. Augustine's College, Ramsgate, and at Trinity College, Dublin, where he graduated M.B., B.Ch., B.A.O. in 1888. He entered the Army as surgeon captain on July 23, 1891, and was specially promoted to surgeon major for services in the Tirah Campaign on May 20, 1898. Incidentally he was the last officer promoted to surgeon major before the grant of the military titles. He became lieutenant-colonel on July 28, 1906, colonel in the long list of war promotions on March 1, 1915, and major-general on January 24, 1918, and retired on January 27, 1922. He served on the North-West Frontier of India in the Tirah Campaign of 1897-8, when he was mentioned in dispatches in the *London Gazette* of April 5, 1898, received the frontier medal with two clasps, and was specially promoted to surgeon major; in the South African War from 1899 to 1902, when he took part in the action at Colenso and in the relief of Ladysmith, and in operations in the Orange River Colony and the Transvaal, and received the Queen's medal with three clasps and the King's medal with two clasps; and throughout the war of 1914-18, when he held various administrative appointments at the fronts in Flanders and France, was mentioned in dispatches in the *London Gazette* of June 15, 1916, January 4, 1917, and May 29, 1917. He received the C.B.

* *Manchester Guardian*, November 30 and December 1.

in 1917 and the C.M.G. in 1919. After the war he was principal medical officer in Ireland from 1920 to 1922, during the Sinn Féin rebellion. He was appointed Honorary Physician to the King in 1920. In 1898 he married Miss Mabel Repton, who survives him with two sons and two daughters. His eldest and third sons were killed in action in 1918.

Lieutenant-Colonel SIDNEY ARTHUR WILKINSON, chief medical officer of the Bombay, Baroda, and Central India Railway, lost his life on November 26 after a railway accident at Barwani on that line. Apparently no one was injured in the accident itself; some carriages were derailed and Colonel Wilkinson had got out of his carriage and was walking alone the line to see if there were any casualties when he suddenly collapsed and died of heart failure. He was educated at St. Thomas's Hospital and took the M.R.C.S., L.R.C.P. in 1914, and subsequently, when on leave in England, the D.T.M. at Liverpool in 1927, and the D.T.H. in 1928. After acting as house-surgeon at Wolverhampton Hospital he entered the service of the Bombay, Baroda, and Central India Railway and had risen to be its chief medical officer. He took a commission in the Indian Railway Volunteers on May 1, 1915, subsequently joining the Indian Auxiliary Force Medical Corps, in which he held the rank of major from May 1, 1927, and recently reached the rank of lieutenant-colonel. At the time of his death he was expecting to go home soon on furlough. He had been a member of the British Medical Association since 1919. He leaves a widow and daughter, who were in Bombay when he died.

Lieutenant-Colonel FREDERICK DEBAND SHIRING FAYRER, I.M.S. (ret.), died at Eastbourne on December 2, aged 69. He was born on October 28, 1869, the fifth son of the late Sir Joseph Fayrer, Bt., K.C.S.I., President of the Medical Board, India Office, for over twenty years—1873 to 1895. He was educated at Cambridge University, where he graduated B.A. in 1891 and proceeded M.A. in 1894, and at Charing Cross Hospital, and took the M.R.C.S., L.R.C.P. in 1896. He entered the Indian Medical Service as surgeon lieutenant on January 29, 1898, became lieutenant-colonel after twenty years' service, and retired on April 8, 1925. He served in the war of 1914-18, on the North-West Frontier of India in 1914-15, in the Toshi Valley. He had been a member of the British Medical Association since 1901.

Universities and Colleges

UNIVERSITY OF OXFORD

The following medical degrees were conferred in Congregation on December 10:

D.M.—D. G. Ferriman, H. R. Bathurst-Norman.

B.M.—E. M. Poulton, J. Scholefield, L. G. C. E. Pugh, R. G. W. Osterhew, C. D. Cormac, E. L. James, J. C. G. Abraham, E. H. Hiley.

UNIVERSITY OF CAMBRIDGE

At a Congregation held on December 9 the following medical degrees were conferred:

M.D.—W. A. Elliott, A. K. Monro, L. C. Cook.

M.B., B.Chir.—A. W. Bone, *G. V. Steward, K. E. Bond, A. Winder, A. H. Masina, R. S. Saxton.

M.B.—F. H. Masina, A. H. Gurney.

* By proxy.

UNIVERSITY OF LONDON

At a meeting of the Senate, held on December 14, the Graham Scholarship in Pathology was awarded to R. M. Calder, M.B., Ch.B.

Dr. H. E. A. Boldero has been appointed as one of the representatives of the General Medical Schools on the Senate for the remainder of the period 1938-42 in succession to the late Professor Leonard S. Dudgeon.

The Royal Hospital, Wolverhampton, has been approved for three years as from October, 1937, for the purposes of the External Diploma in Clinical Pathology.

Foundation Day was celebrated on November 24, when the Chancellor, the Earl of Athlone, F.R.S., held a reception at Senate House. Graduates who had obtained degrees since May were presented to the Chancellor.

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—J. B. Griffiths, J. L. J. Honeywill (University Medal), M. E. MacGregor, C. M. Miller, C. S. Smith, *R. B. Terry, *Margaret D. Thomas, Mary E. E. Ward, B. S. Acharya, A. G. Apley, J. R. Ascott, Romana G. Bartolot, D. McN. Beaugis, R. D. Blackford, Natalia S. Blumenfeld, D. J. A. Brown, K. C. Brown, Margaret M. Burton, W. E. Clarke, J. C. A. L. Colenbrander, Dorothy L. Crossley, E. R. Davis, D. A. Davies, Joan M. St. V. Davies, A. S. Dods, A. M. Edwards, J. A. C. Edwards, Phyllis M. Edwards, B. H. Ellis, D. G. Evans, J. A. P. Evans, C. C. Ivill, C. G. Fagg, B. R. Fink, D. S. Foster, H. Foster, J. P. Fox, D. F. Freedy, Yvonne M. Garland, Margaret F. Gilson, Janet D. Gimson, H. M. Goldberg, Jean E. Grant, L. J. Grant, S. I. Green, C. L. Greenbury, W. S. Hacon, J. A. G. Hair, M. Halberstedter, N. W. A. Harvey, Doreen Jamieson, S. M. Jenner, A. Jordan, J. B. Kinnmonth, C. C. Kirby, G. S. A. Knowles, G. Kruttschae, A. S. Lee, D. R. Levinson, C. V. Lewis, A. W. Little, K. N. Lloyd, M. Lubran, Margaret E. McLaughlin, R. J. H. McMahon, D. E. Macrae, Elizabeth C. Marshall, H. A. C. Mason, S. W. Maxwell, Mary D. Mellersh, P. S. Meyrick, G. D. N. Milne, Elizabeth M. Mitchell, J. D. N. Nabarro, Gladys L. Neill, C. S. Nicol, A. J. Nimmo, D. E. Parry, Edith A. S. Parry-Evans, T. Partington, K. G. Pascall, Ruth Penlon Jones, Gloria H. Platt, S. S. F. Pooley, D. W. Pugh, Elizabeth C. Randall, W. J. Rees, Nora Reid, Nancy E. G. Richardson, R. B. K. Rickford, A. C. Rickis, A. T. M. Roberts, L. I. W. Salmon, D. K. Sambrook, C. R. Savage, W. J. Shannon, P. S. Smith, G. Shcncron, M. M. Shrinagresh, J. R. Simpson, J. H. Smart, Margaret D. Snelling, G. R. Staley, Margaret M. Strange, Mary R. Thompson, L. C. Thomson, K. B. Thornton, J. Todd, Betty Walker, J. W. B. Waring, C. P. Warren, W. W. West-Watson, M. H. G. White, J. H. Whittles, R. F. Wyatt, G. Wynn Williams, R. O. Yerbury. *Part I:* H. Auger, Diana E. Barbour, Patricia E. Barclay, Rosalind S. Barclay, G. A. Beck, Mary B. Bensusan-Burt, H. E. Bentley, A. C. Bingold, R. A. Blair, Elizabeth Broadhead, T. H. W. Clarke, J. V. Davies, M. E. Davies, A. R. Dearlove, W. Donkin, Jean M. Drury-White, Jean L. Edwards, R. G. Evans, Edith F. Fettes, E. L. Frankel, P. Frankel, J. M. French, Kathleen M. French, L. V. Gimson, G. L. Haine, V. W. J. Hettrud, C. A. Jackson, G. M. Killpack, R. A. Kings, P. D. C. Kinnmonth, Dorothy M. S. Knott, Joan V. Laughlin, G. D. Lumb, L. Nancekiewicz, S. Oram, A. S. O'Leary, D. J. Paddison, G. A. Robinson, R. G. Robinson, A. F. Russell, R. W. B. Scott, I. A. G. Seaton, Margaret M. Shrubbsall, Joyce R. Simmonds, F. M. S. Smith, T. D. Spencer, B. L. C. Stanley, W. M. Stephens, Katharine W. Stuart, W. F. T. Tatlow, Norah G. Taylor, J. L. Temple, Elise M. Terry, R. D. Tonkin, Elizabeth Topley, F. G. Tucker, A. J. Walker, A. F. Wallace, M. Watkins, Alice Yates. *Group I:* L. D. Arden, R. H. Barrett, Mary Brandon-Jones, G. L. Burgess, J. Burton, Mercy S. Cam, H. B. O. Cardew, C. D. Chilton, H. D. Cockburn, P. P. Crean, T. T. Davies, J. J. Davis, Ursula M. Dick, J. E. Dickson, C. J. Evans, W. K. Frewen, P. A. Gardner, Beryl M. Gee, J. Henry, R. N. Houlding, Barbara J. Hussey, M. T. I. Jones, R. R. McSwiney, F. P. S. Malone-Barrett, H. Matthews, A. Miller, H. E. Moody, Rosie Morris, R. E. Newman, Sylvia D. Orchard, J. F. Petrides, G. L. Pitt, A. S. Porter, J. Sondheimer, Susan M. Tracy, Joan Wagstaff. *Group II:* R. Asquith, J. C. Ballantyne, P. B. Banaji, Ailsa Bannerman, D. A. G. Brown, Amelia E. Burch, J. A. Burnett, Diana M. M. Carr, Phoebe Charlton, D. L. Davies, D. M. Dunn, P. S. Fuller, L. Goodman, S. Grossmark, J. Herbert-Burns, A. P. Hick, J. D. O'D. Lavertine, Dorothy K. Paterson, M. Radzan, S. B. Smith, P. D. Swinstead, J. Watkins-Pitchford, N. A. F. Young.

* Distinguished in medicine. † Distinguished in forensic medicine and hygiene. ‡ Distinguished in surgery. § Distinguished in obstetrics and gynaecology.

KING'S COLLEGE HOSPITAL

The Committee of Management of King's College Hospital has decided that one of the medical registrars shall be resident and has appointed R. B. Niven, B.M., B.Ch., to hold the office from January 1, 1939. To another medical registrarship has been given the name of Sir Raymond Crawford, a former dean of the medical school and senior physician to the hospital, and G. A. Kiloh, M.B., B.S., has been appointed first holder of the office. G. R. Stead, M.B., B.S., has been appointed to the Samhrooke Medical Registrarship, founded in 1866 by a lay member of the committee of management.

UNIVERSITY OF BRISTOL

The following candidates have been approved at the examination indicated:

FIRST M.B., Ch.B.—J. F. Ackroyd, E. M. Barber, C. B. Jones, M. M. Lewis, Jane Mackintosh, *Joan E. Mackworth, P. C. C. Phelps, Sybil M. Williams. *In Group II (completing examination):* J. S. Richardson. *Section I:* Ruth Appleby, Dorothy M. Ayre, D. L. Bayley, *D. C. Bodenham, Jean A. Butt, Mary Crago, J. N. P. Davies, *Marjorie O. Dunster, *J. L. Elliott, J. L. Emery, Sara M. Field-Richards, E. M. Grace, *Betty F. Hannaford, F. R. Hurford, Rosemary W. Knowles, N. E. Mellington, *C. A. St. Hill, *Jeannette Shed, *Dorothy M. Shotton,

P. R. H. Slade, A. R. Stonehill (formerly Steinberg), * Edith M. Wagstaff, * T. H. White.

* Second-class honours. † Distinction in surgery. ‡ Distinction in public health. § Distinction in forensic medicine and toxicology. ¶ Distinction in materia medica, pharmacy, pharmacology, pharmaco-therapeutics, and toxicology. * Distinction in pathology and bacteriology.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—W. Dodd, F. R. Edwards, R. L. Hartley, A. J. Helfet, L. Henry, K. Jilani, J. C. Twomey, O. Walker.

M.CH.ORTH.—S. R. Chandra, E. W. Knowles, W. R. D. Mitchell, G. C. Sen, G. M. Sleggs, J. V. Todd.

FINAL M.B., Ch.B.—Part I: W. F. Christian, J. Collins, D. W. Ellis-Jones, A. H. Hands, Mrs. C. W. L. Harries, M. P. Jones, Joan Macara, S. B. Nelles, P. P. Newman, Margaret E. Parry-Edwards, C. W. R. Roseby, Beryl M. Smith, R. H. M. Stewart, P. G. W. Sutton, Hilda Walker. *Pharmacology and General Therapeutics*: G. J. C. Brittain, W. Rotherham. Part II: S. Ellenbogen, H. Hall, J. S. Hindley, R. R. Knowles, R. J. Parry, Kathleen Pugh-Jones, H. J. Shuttleworth, H. J. H. Soubly, G. O. Thomas, Joan P. Thomson, A. G. Williams. Part III: E. J. Bowmer, H. Buckley, J. L. Chisnall, W. H. R. Cook, D. J. Doherty, O. M. Haarburger, S. Hen, A. L. T. Hutson, Iola L. T. Jones, G. Karstaedt, Helen Kay, G. L. Manson, J. M. Marchant, S. Newman, J. L. Patton, G. I. Roberts, G. R. Thorpe, G. C. Tweedie.

DIPLOMA IN TROPICAL MEDICINE.—A. S. Affnra, B. Basu, S. J. Campbell, L. J. Charles, S. K. Chatterjee, S. G. Cowper, S. Garmjana-Goonchorn, C. Haddad (recommended for Milne Medal), M. N. Hwang, B. S. Jaiswal, H. N. Lee, D. V. Oka, I. S. Parboosingh, H. R. R. E. Ramesar, S. H. Segerman, A. H. D. S. de Silva, G. C. Watt.

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

FINAL M.B., Ch.B.—Muriel I. R. ApThomas, H. B. Austin, K. Harrison, R. B. Hollos, P. N. Holmes, D. N. Kiff, Jean Mason, J. Meynell, Mary B. Oakden, Lilian P. Parry, T. B. Whitehead, E. J. Yates. Part I: Peggy Anderson, G. T. Ashley, J. G. Atherton, T. G. Barlow, E. F. Burdred, J. H. Gifford, C. Hamwee, E. Lee, D. Livshin, A. S. Ogden, W. E. Rigby, Barbara M. Statham, W. P. Sweetman.

THIRD M.B., Ch.B.—*Pathology and Bacteriology*: Eva Abrahamson, A. Ashworth, J. H. R. Barker, F. R. Brebner-Smith, T. Brittain, I. C. Campbell, G. Caplan, Rachel Claiman, Hilary J. Crewe, W. Dickson, H. Diggles, G. R. Ferguson, J. G. Ferguson, E. S. Frazer, R. J. Gampell, J. Gregory, Hilda R. Harris, H. Hassall, S. Haythornthwaite, B. L. Hoffmann, Irene E. Howorth, Margaret Jacques, O. Janus, P. W. Kippax, G. Lancaster, J. T. A. Lloyd, J. L. Muelcan, W. Mellor, Elsie L. Mettam, Catherine E. D. Nash, C. Parish, K. C. Prausnitz, T. F. Redman, F. Robinson, Margaret H. Roscoe, J. C. Seddon, G. K. Spruell, J. K. Steward, T. A. Taylor, Edith M. Thorp, A. L. Tulk, Ena M. Walmsley, Elizabeth C. S. Williams, Joyce Worthington. *Pharmacology*: E. P. Abson, R. G. Balf, J. Ball, J. K. Brown, E. A. Cachia, B. O. Dowdell, B. I. Eames, E. Feinmann, A. Glass, E. Greenwood, J. C. Greenwood, P. G. Griffiths, E. G. Hall, Frances A. Hepburn, S. H. Jackson, R. P. Jepson, H. Khazani, M. Levinson, D. C. Little, J. K. McMyn, F. S. Mooney, A. B. Morrison, T. E. Parry, S. S. Rose, Susanne M. Seligsohn, G. J. Shanklin, H. G. B. Slack, J. Thompson, Vera Waine, *A. E. Wall, F. R. Wilde, *L. Wise, B. Wolman.

* With distinction.

UNIVERSITY OF ABERDEEN

At a graduation held on December 14 the following medical degrees were conferred:

M.D.—*A. Grant, †J. A. Cardno, †H. D. Chambers, H. S. Fraser, W. R. Gauld.

M.B., Ch.B.—L. C. Allan, Margaret P. Allan, J. Anderson, S. C. Anderson, J. Caie, W. Cockburn, N. J. H. Davidson, L. G. Eddey, W. J. Finnie, F. D. Forbes, W. L. Gordon, N. L. Hulsh, Marion MacLeod, D. G. McRobbie, D. Matheson, H. K. Paterson, M. MacR. Paterson, L. G. Tulloch, J. Walker, Margaret J. Walker, Elizabeth A. White, J. Wylie.

* With honours.

† With commendation.

UNIVERSITY OF EDINBURGH

A graduation ceremonial was held in the Upper Library Hall on December 16, when the following degrees were conferred:

M.D.—D. M. Anderson, W. G. Annan (*in absentia*), †A. F. M. Barron, H. E. Collier, †I. Douglas-Wilson, F. O. Graham, †C. L.

Grant, †G. M. Greig, J. Hutton, †J. S. Lawrence, *Agnes R. Macgregor, †F. M. L. Richardson, Major, R.A.M.C., J. Ronald, A. G. H. Smart (*in absentia*).

M.B., Ch.B.—M. A. Ayoub, J. McK. Bertram, A. G. Brown, Fanny B. Chisholm (née Macintosh), P. S. Clouston, J. H. Comloquoy, S. P. Cornell, W. E. Cowie, H. D. Dobson, R. Dowie, Janet K. O. Duff, W. Finlayson, W. Forrester, W. A. Glaubman, R. M. Henderson, G. M. Jolly, A. Ketchin, E. H. Lamb, S. Lurie, R. D. McIntyre, A. MacLeod, J. W. Martin, C. M. Norman-Williams, A. A. F. Nussiebeh, B. M. Omar, J. C. Robertson, S. P. Robson, A. M. T. Runcie, W. S. Russell, Annie D. Savill, F. S. Sedgwick, Ellie Seligman, C. S. Singh, Evelyn M. Stewart, L. N. Stewart, Ida E. Wilkinson, Pnk Foo Woo, R. B. Wylde.

* Awarded gold medal for thesis. † Highly commended for thesis. ‡ Commended for thesis.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following medical degrees were conferred on December 3:

M.Ch.—R. L. Forsyth, R. G. Taylor.

M.B., B.Ch., B.A.O.—M. E. C. Balmer, Miriam A. Becket, J. W. Boland, R. S. MacL. Cooke, H. R. T. Devlin, D. B. George, Emily E. E. Hill, J. R. Mahon, J. L. Mans, D. E. Meares, F. G. Millar, J. E. Milne (formerly Murphy), J. R. Murdoch, F. W. Parke, W. A. J. Pike, Elizabeth M. Rees, Elizabeth L. J. Ryan, Kathleen E. A. Smith, D. K. Stewart, J. G. Waugh, S. L. Wray.

L.M.D., L.Ch., and L.A.O.—M. D. M. Bergin.

The following candidates have been approved at the examinations indicated:

FINAL MEDICAL EXAMINATION.—Part I, *Materia Medica and Therapeutics and Pathology and Bacteriology*: †F. G. M. Ross, †C. P. Clancy-Gore, †Maureen C. Johnston, †W. E. O'C. Powell, R. M. Halahan, S. O. O. Franklin, M. D. Leitch, M. Steinberg, L. C. Jacobson, Lois J. Macaulay, H. FitzGibbon, Olive S. H. Devlin, J. Nash, F. J. Qually, E. G. R. Butler, H. B. C. Houston, C. F. Ford, F. N. C. Levy, S. D. Reid. *In completion*: Margaret Sutcliffe. Part II, M.B.: †J. G. Waugh, †W. Sandford, †J. R. Murdock, †L. S. Levinson, Sylvia M. FitzGerald, M. Herman, Elizabeth L. J. Ryan, Miriam A. Becket, Rosaleen de C. McCormick, W. A. J. Pike, F. G. Millar, W. B. Welply, W. Jones, E. R. F. Mellon, J. W. Boland, F. R. T. Hollins, J. L. Mans, Mary A. Conyngham, D. A. Huggard, Kathleen E. A. Smith, E. R. Coetzee. B.Ch.: †Emily E. E. Hill, †S. L. Wray, †J. R. Mahon, Miriam A. Becket, F. P. O'Sullivan, J. W. Boland, Elizabeth M. Rees, Kathleen E. A. Smith, M. E. C. Balmer, R. S. MacL. Cooke, H. R. T. Devlin, D. B. George, D. K. Stewart, F. G. Millar, J. L. Mans, J. E. Milne, D. E. Meares, F. W. Parke, M. D. M. Bergin. B.A.O.: *M. O'C. Drury, *R. S. W. Baker, †C. J. Du Preez, †E. G. Hobart, †G. S. Sheill, D. L. Harbinson, S. F. H. Haughton, E. N. O. Sodeinde, G. A. Anderson, C. H. Rutherford, M. E. Tapissier, J. P. Gore-Grimes, E. F. Keating, W. M. Winn, Sheila Kenny, Patricia D. Conneannon, D. St. B. F. Nunan, Kathleen E. A. Smith, R. Brass, B. Serebro, T. Shier, F. P. O'Sullivan, R. J. Balfe, D. G. Harrison, J. R. A. Martin.

M.D.—R. Bowesman.

* First-class honours.

† Second-class honours.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—C. V. Arthur, J. A. Bailey, D. L. P. De Courey, J. Fergusson, N. A. Jevons, H. Shepherd, W. Simpson, J. W. Weston, C. E. Winterstein.

MEDICINE.—H. J. S. Coldham, R. M. Corker, H. L. Francis, J. B. Gurney Smith, J. A. L. Leeming, R. P. Parkinson, T. G. Viljoen, M. Whitehead.

FORENSIC MEDICINE.—H. J. S. Coldham, R. M. Corker, H. L. Francis, J. B. Gurney Smith, J. A. L. Leeming, R. P. Parkinson, T. G. Viljoen, M. Whitehead.

MIDWIFERY.—H. J. S. Coldham, M. Becker, M. M. El Garrahy, F. W. Ford, A. J. Fraser Simson, A. Jones, A. B. Taylor.

The diploma of the Society has been granted to M. Becker, R. M. Corker, D. L. P. De Courey, J. Fergusson, H. L. Francis, N. A. Jevons, R. P. Parkinson, T. G. Viljoen, and J. W. Weston.

BRITISH ASSOCIATION OF RADIOLOGISTS

At the recent examination for the Fellowship of the Association, the following were successful:

*J. E. Bannen, M.B., Ch.B., D.M.R.E., *T. P. Eustace, M.D., D.M.R.E., †P. R. Goodfellow, M.B., B.Ch., D.M.R.E., *S. Nowell, M.B., Ch.B., D.M.R.E., *R. G. Reid, M.B., Ch.B., D.M.R.E.

* Honours in radiodiagnosis. † Honours in radiotherapeutics.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh held on December 16, with Mr. W. J. Stuart, President, in the chair, the following candidates, having passed the requisite examinations, were admitted Fellows:

J. E. Andrew, M. Arnold, N. B. Bette, H. N. Bhatt, W. Blackwood, C. Bawesman, D. P. Burkett, R. J. Coto, E. J. Crawford, I. W. Davidson, K. S. Fitch, R. J. Fleming, I. T. Fraser, L. D. B. Frost, J. C. Gough, T. L. Gordon, P. R. Greaves, A. H. Hall, M. E. S. Harrison, S. H. Harrison, J. Kiely, M. V. Kramer, S. L. A. Manuwa, I. G. MacGregor, A. McKenzie, J. C. Nicholson, H. Park, H. Poston, J. F. Riley, W. Simpson, A. J. Slesor, A. L. Som, J. R. St. G. Stead, W. J. Virgin, R. H. H. Williams.

ROYAL AUSTRALASIAN COLLEGE OF PHYSICIANS

On December 15 the Royal Australasian College of Physicians was inaugurated in the Great Hall of Sydney University. The Governor of New South Wales, Lord Wakehurst, attended the ceremony and read a message from the King wishing the College all success. The Royal College of Physicians of London was represented by Dr. H. Morley Fletcher, formerly Senior Censor, who presented an address from the old College to the new, which was printed in the *British Medical Journal* of December 10 (p. 1218). The College was incorporated on April 1, 1938, under the Companies Act of the State of New South Wales as a company limited by guarantee and not having a share capital. The registered office is in Macquarie Street, Sydney. The first President is Sir Charles B. Blackburn (Sydney); the vice-presidents are Dr. C. T. Champion de Crespigny (Adelaide), Professor D. W. Carmalt Jones (Dunedin, N.Z.), and Dr. S. V. Sewell (Melbourne); the censor-in-chief is Dr. S. O. Cowen (Melbourne); the hon. secretary Dr. Allan S. Walker (Sydney), and the hon. treasurer Dr. Stewart Arthur Smith (Sydney). The Foundation Fellows number 247 and the members 39.

Medical Notes in Parliament

The business of the House of Lords this week included the third readings of the Marriage (Scotland) Bill and the Housing (Financial Provisions) (Scotland) Bill.

The House of Commons this week discussed foreign policy, the National Register, and the redistribution of population before adjourning till January 31, when the House will probably go into committee on the Cancer Bill.

During the dinner given by present and past members of the Parliamentary Medical Committee to Dr. Elliot at the House of Commons on December 14, Dr. Elliot recalled that the Committee was founded by Sir Watson Cheyne in 1919 and that he himself had been its honorary secretary from 1920 to 1922, when he was succeeded by Sir Francis Fremantle. Speeches were also made by Sir Francis Fremantle—in the chair—Sir Auckland Geddes, Dr. Somerville Hastings, Dr. O'Donovan, Sir John Worthington, Sir Richard Luce, Dr. Drummond Shiels, and Dr. A. B. Howitt. Lord Dawson was unable to attend owing to indisposition.

Progress of Bills

The Public Health (Coal Mines Refuse) Bill was reported on December 8 from a Standing Committee of the House of Commons.

The Custody of Children (Scotland) Bill and the Pensions Acts (Amendment) Bill were read a second time by the House of Commons on December 10.

On December 15 the House of Lords passed the Expiring Laws Bill.

Dentists' Annual Registration Fee

On December 5 Mr. HOPKIN asked the Minister of Health if his attention had been drawn to the fact that dentists qualifying after 1921 had to pay an annual registration fee of about £4, whereas other dentists had to pay no annual fee; and if, in view of the dissatisfaction among dentists, he would inquire into the whole question. Earl WINTERTON, who replied, said that the Dentists Act, 1921, provided that the payment of the annual fee in question might be required only in the case of dentists registered after the commencement of the Act. This provision, which preserved the rights of those practising dentistry before the Act was passed, gave effect to a recommendation of the Interdepartmental Committee on the Dentists Act, 1878. He was not aware that the provision had caused any general dissatisfaction in the dental profession, and he did not consider that further inquiry was called for.

Workmen's Compensation Bill

In the House of Commons on December 10 the Workmen's Compensation Acts (1925 to 1938) Bill was rejected on second reading. This Bill, introduced by Miss Irene Ward, proposed to deal with compensation claims for miners' nystagmus. Miss Ward explained that it was designed to implement the report of the Stewart Commission. M.P.s for mining constituencies opposed the Bill because they were not satisfied with the system of diagnosis which it proposed. Mr. W. J. STUART said nystagmus was often not discernible to a medical man when the miner was above ground. Mr. GEOFFREY LLOYD said there was not now much increase in miners' nystagmus. He referred to unsatisfactory arrangements for medical certification.

A.R.P. at Mental Hospitals

On December 13 Mr. BERNAYS, replying to Mr. Sorensen, said that the Minister of Health hoped to issue very shortly a memorandum on the air raid precautions which should be carried out at hospitals, including mental hospitals, in the more vulnerable areas. Information regarding precautions actually being carried out had been utilized in the preparation of the memorandum. The Government was prepared to assist in approved cases towards expenditure on precautions at hospitals, including mental hospitals, which were included in the emergency hospital schemes. No estimate of the total expenditure involved in protecting mental hospitals could be given at present, as the appropriate measures varied widely according to local conditions.

Board of Control for Scotland

In moving the second reading of the Reorganization of Offices (Scotland) Bill in the House of Commons on December 13, Colonel COLVILLE said that the proposals were based on the report of the Committee on Scottish Administration, appointed at the end of 1936. The committee had considered the question of the reorganization of the General Board of Control. It was represented to them by certain witnesses that the intimate relations between physical and mental health made it desirable to abolish the Board altogether and to transfer its functions to the Department of Health. The committee, however, decided that there were special reasons—in particular the necessity for having a separate body with independent and quasi-judicial functions to protect the interests of the insane—which made it desirable to retain the Board. The Government accepted this recommendation. At the same time, they felt that the views expressed by the committee as to the need for strengthening the Board's staff and associating it more closely with the Department of Health were wise.

The existing Board was therefore being reconstituted. It would consist of a paid wholetime chairman, who would be an officer of the Department of Health holding the rank of assistant secretary; the two existing paid medical commissioners; a part-time paid legal commissioner; a representative

of the Scottish Education Office; and two unpaid members representing the general public. The committee took the evidence of several medical men on the question. They had the Scottish Division of the Royal Medico-Psychological Association before them in the person of Professor Henderson and Dr. McAlister. They also had the Board of Control for England and Wales, and heard Sir Hubert Bond as representing the medical interests, and also Dr. Thomson of the Board of Control for Scotland. On balance the Government decided that the advice expressed as to the protection of the interests of the insane by a quasi-judicial body was good, and they had therefore adopted it. It was intended that the functions of the Secretary of State relating to lunacy and mental deficiency should, when the new system became operative, be discharged through the Department of Health, and not through the Scottish Office as at present.

The Bill was read a second time by 157 votes to 99, and committed to a Standing Committee.

Gold Coast Medical Service

In reply to Mr. Cecil Wilson, Mr. MALCOLM MACDONALD said on December 14 that the scale of salary for a European medical officer in the Gold Coast was £660 a year for three years, then £690 a year rising by annual increments of £30 to £840 a year, then, subject to passing an efficiency bar, £880 a year rising by annual increments of £40 to £1,000 a year. The period of probation was three years, and free quarters were provided.

The scale of salary for an African medical officer in the Gold Coast was £500 a year rising by annual increments of £25 to £600 a year, thence, subject to passing an efficiency bar, rising by annual increments of £30 to £720 a year. The period of probation was three years, and free quarters were not provided. While awaiting probationary appointment an African (suitably qualified) might be employed as a junior medical officer in one of the larger hospitals of the Gold Coast for a period of preliminary training, during which he was granted salary at the rate of £400 a year.

At present the higher posts in the medical department of the Gold Coast were normally filled by European officers belonging to the Colonial Medical Service. No appointments were actually reserved for European officers, and in the medical as in the other branches of the Service African officers were fully eligible to be considered on their merits for promotion to any appointments for which they may be qualified.

Bill to Control Sale of Contraceptives

The second reading of the Contraceptives (Regulation) Bill was moved on December 16 by Mr. O. E. SIMMONDS. He said the decline by 54 per cent. in the birth rate of England and Wales between 1880 and 1930 proved that a large section of the community believed it had a moral right to birth control. The Bill dealt not with public morality but with public decency, and circumscribed some of the offences against public opinion committed by those who traded in contraceptives. Such aggressive practices included the nauseating display in shop windows, sale from slot machines, and distribution of alluring literature. Most young people in their 'teens had moral fibre to resist the temptation of this flagrant commercialism, but it was known to have the saddest results in many cases. Youngsters who replied to advertisements by certain physical culture experts received later batches of contraceptive literature. It was reported from an industrial area that factory girls procured contraceptive devices from slot machines and carried them in their handbags. Mr. Simmonds said a similar Bill had previously been introduced in the House of Lords by Lord Dawson and in the Commons by Mr. R. J. Russell. Clause 1 of the present Bill prohibited the display of contraceptives in or outside any shop in a manner visible to persons outside the shop. It also prohibited the sale or hawking of contraceptives in streets and public places or by automatic machines placed to be used by persons in streets or public places. A paragraph prohibited the unsolicited dispatch to persons under 18 years of contraceptives or of

circulars and advertisements dealing with them. The Bill did not prevent anyone desiring to purchase contraceptives from having reasonable opportunity of doing so, and it did not deal with the distribution of literature through societies. It did not raise the question of aphrodisiacs or sexual stimulants, nor did it touch abortifacient devices. A committee on abortion was now sitting. If a bottle of olive oil were placed in a window and marked "Olive oil for contraceptive purposes," the vendor would be liable under the Bill, but not if there were no reference to contraception. In industrial areas the problem of the sale of contraceptives was serious. Many varieties of contraceptives could be purchased from slot machines in Birmingham.

Mr. SALT seconded the motion.

Sir WILLIAM WAYLAND moved an amendment declaring that the whole subject of improper commercial exploitation of contraceptive, abortifacient, and aphrodisiac devices should be dealt with by a Bill after publication of the Report of the Departmental Committee on Abortion. Sir William said the reduction in venereal diseases was largely due to the use of contraceptives. Instead of trying to prevent them being sold Parliament should try to teach young people to use them properly.

Sir FRANCIS FREMANTLE moved the closure, but this was refused by the Speaker, and the second reading discussion was adjourned till February 10. Further progress with the Bill this session is improbable.

Children for Adoption: Medical Certificates

Miss HORSBRUGH moved, on December 16, the second reading of the Adoption of Children Bill. She said it was founded on the recommendations of the Departmental Committee, set up by Sir John Simon when Home Secretary, to study the difficulties and the methods pursued in child adoption, particularly when adoptions were arranged by associations or groups of people. She had been chairman of that committee. Legislation passed for England in 1926 and for Scotland in 1930 failed to cover the cases where adopters did not go to the courts for adoption orders and omitted to deal with the third party who arranged the adoption. The Bill would deal with abuses or neglect in these cases. Clause 4 (c) dealt with inquiries to be made if adoption were to be successful, and expressed the necessity for obtaining a certificate concerning the child's health. The best adoption societies insisted on having a doctor's certificate, and several societies insisted on a Wassermann test either in the case of the child or the mother, but other societies did not insist on this. Children with venereal disease might be received into a hostel with other children and sent out for adoption as healthy children. Therefore if adoption societies were to be registered this regulation about medical certificates should be insisted upon.

Mr. GEOFFREY LLOYD said the opinion of the Government was that the Bill was very useful.

The Bill was read a second time and sent to a Standing Committee.

Nurses' Emergency Register.—On December 12 Dr. ELLIOT informed Mr. R. Duckworth that one of the main objects of the emergency register of nurses was to secure the services in a national emergency of women with nursing experience no longer practising, who would be a valuable reinforcement to nurses already attached to hospitals and other institutions.

Silicosis among Slate Miners.—Mr. GEOFFREY LLOYD stated on December 15 that an expert medical inquiry carried out a few years ago revealed no evidence of silicosis among slate quarrymen, but the Home Secretary was aware of some evidence pointing to the occurrence of silicosis among slate miners working underground in the Festiniog area.

Milk in Schools.—On March 31, 1938, there were 5,035,506 children on the registers of the public elementary schools in England and Wales. Of these, 2,235,278 were receiving milk on payment at the reduced rate under the milk-in-schools scheme and 457,062 were receiving free milk. Corresponding figures for Scotland are: number of children on the registers

of primary schools, 613,984; number of children receiving milk on payment at the reduced rate under the milk-in-schools scheme, 237,581; children receiving free milk, 62,472. In forty-eight areas in England and Wales, for the most part small, the local education authorities, of which four are in Lancashire, do not exercise their power of providing free milk. In eight of these areas free solid meals are provided.

Approved Societies Benefits.—Dr. Elliot cannot give any undertaking about the introduction of amending legislation to bring uniformity in cash benefits to all members of approved societies and in make dental and ophthalmic benefits available to all these members. He and Mr. Cnville recently received a deputation on this subject, which Dr. Elliot describes as highly controversial.

Safety in Mines.—The report of the Royal Commission on Safety in Mines has been signed and submitted to the King. Captain Crookshank hopes that copies will be available for members of the House of Commons in about a fortnight.

Bacterial Content of Pasteurized Milk.—The Milk (Special Designations) Order, 1936, prescribes a maximum bacterial content for pasteurized milk before delivery to the consumer, and Dr. Elliot is advised that the method of counting laid down by the Order is reasonably suitable. It is for the licensing authority under the Order to take steps to secure compliance with the prescribed standard.

Extent of Overcrowding.—The latest reports of the medical officers of health place the number of overcrowded houses at the end of 1937 at 265,000—a reduction of about 77,000 on the figure of the original survey of 1935-6.

Notes in Brief

The Interdepartmental Committee on the Nursing Services is likely to submit an interim report in the very near future.

A scheme for the centralization of health services in Barbados has been drafted by the Board of Health and awaits consideration by the Legislature.

Medical News

A meeting of the Society for the Study of Inebriety will be held at 11, Chandos Street, W., on Tuesday, January 10, at 4 p.m., when Commissioner David C. Lamb, chief of the Intelligence Office of the Salvation Army, will open a discussion on "Inebriety: Some Aspects of the Problem."

Immediately preceding the annual congress of the Ophthalmological Society of the United Kingdom on April 20, 1939, the following meetings will be held at the Royal Society of Medicine, 1, Wimpole Street, London, W.: International Association for the Prevention of Blindness (address, 66, Boulevard Saint-Michel, Paris, VI), on Wednesday, April 19, at 2 p.m., "The Application of the Cr  d   Method for the Prevention of Ophthalmia Neonatorum in Various Countries." The speakers will be Dr. Sinclair (Edinburgh); Professors Terrien (Paris), V. Szily (Munich), Maggioro (Genoa), Vasquez Barri  re (Montevideo); Dr. Wilson (Cairo); Mr. J. D. M. Cardell (London), Dr. C. Herens (New York). International Organization against Trachoma (address, 33, Welbeck Street, London, W.1), April 19, at 4.30 p.m., "The Incidence and Clinical Type of Trachoma met with in Europe and North and South America—that is, in countries which are commonly considered to be non-trachomatous." The speakers will be Dr. Lavery (Dublin), Dr. Harry Gradle (Chicago), Mr. Arnold Sorsby (London). Subsequently there will be a short discussion on the treatment of trachoma by sulphanilamide and its congeners. Members of the congress are invited to attend these meetings, and ophthalmologists from abroad are invited to attend all meetings of the congress.

The twenty-ninth annual exhibition of scientific instruments and apparatus, arranged by the Physical Society, will be held at the Imperial College of Science and Technology, Imperial Institute Road, South Kensington, as follows: January 3, 2.30 p.m. to 9 p.m.; January 4, 4 p.m. to 9 p.m.; January 5, 2.30 p.m. to 9 p.m. The leading manufacturers of scientific instruments will be exhibiting their latest products in the Trade Section. The Research and Educational Section will contain contributions from research laboratories, and experiments of educational interest. A discourse will be delivered on January 3, at 7.45 p.m., by Dr. J. D. Cockcroft, on "The Cyclotron and its Applications." Admission to the exhibition is by ticket only, obtainable from the Exhibition Secretary, 1, Lowther Gardens, Exhibition Road, S.W.7.

In connexion with the fortieth anniversary of the discovery of radium a special wireless programme was relayed to America from Paris on November 27, in which there took part Senator Justin Godard, president of the International Union against Cancer, Dr. Francis Carter Wood, director of Columbia University's Institute of Cancer Research, and Dr. J. E. Gendreau, director of the Radium Institute at Montreal. The last speaker recalled how on her visit to America in 1921 Madame Curie had found in a practical country enthusiastic idealism and a friendly sympathy which gave her renewed inspiration and courage. The 1939 meeting of the Union is to be held at Atlantic City, New Jersey.

The Minister of Health on December 9 received a deputation consisting of representatives of the Oxford and District Joint Hospitals Board, the British Medical Association, and the Emergency Committee of Oxford and District. The deputation put before the Minister a statement as to their experience of the emergency provisions before and during the recent crisis. The division of responsibility between the central and local officers, the areas at present covered by hospital officers, and the arrangements decided on between the Ministry of Health and the Service Departments for the best use of the hospital accommodation of the country were among the topics discussed. The Minister promised to bear in mind the suggestions of the deputation with regard to the organization of their district for the future.

The postgraduate news in our *Supplement* contains an announcement of clinico-pathological demonstrations by the staff of Westminster Hospital on Tuesdays, at 5 p.m., beginning on January 3 and continuing at fortnightly intervals.

Lord Nuffield has given a cheque for £31,383 to the Wingfield Morris Orthopaedic Hospital, Oxford, for capital expenditure on buildings and equipment. This brings his gifts to the hospital up to £140,000. His benefactions in the cause of orthopaedic surgery in Great Britain, Australia, New Zealand, and South Africa now amount to approximately £500,000.

The authority for awarding the Nobel prize in medicine, the College of Teachers of the Caroline Institute, Stockholm, has recently announced that no prize for medicine will be awarded in respect of the year 1938.

Dr. Ellice M. Alger, Professor of Ophthalmology at the New York Post-Graduate Medical School, on December 1 received the Leslie Dana Gold Medal "for outstanding achievements in the prevention of blindness and the conservation of vision" at the annual meeting in New York City of the National Society for the Prevention of Blindness.

Twenty-three Jewish professors from twelve Italian universities have been dismissed, including Ugo Lombroso (physiology), Albert Ascoli (morbid anatomy), Mario Donati (surgery), Carlo Foa (physiology), and Maurizio Ascoli (internal medicine).

Mr. Thomas E. A. Stowell, F.R.C.S., has been re-elected to the Council of the Industrial Welfare Society, of whose Advisory Medical Committee he is the chairman.

Professor Raffaelli Paolucci has been elected successor to Professor Roberto Alessandri in the chair of clinical surgery in the Faculty of Medicine at Rome.

Professor A. Staniceff, the eminent Bulgarian surgeon, has been elected rector of Sofia University.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended December 10, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns (125 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases : a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) |
| Cerebrospinal fever | 25 | 1 | 13 | 2 | 2 | 16 | 2 | 8 | 2 | — | | |
| Deaths | — | — | 3 | — | — | 4 | — | — | — | — | | |
| Diphtheria | 1,512 | 167 | 262 | 67 | 28 | 1,683 | 233 | 257 | 73 | 53 | 1,529 | 233 |
| Deaths | 26 | — | 7 | 4 | — | 37 | 8 | 5 | 1 | — | | |
| Dysentery | 44 | 6 | 20 | — | — | 441 | 109 | 47 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Encephalitis lethargica, acute | 2 | — | — | — | — | 4 | — | — | — | — | | |
| Deaths | — | — | — | — | — | 1 | — | — | — | — | | |
| Enteric (typhoid and paratyphoid) fever | 24 | 5 | 1 | 10 | — | 47 | 6 | 5 | 10 | 1 | 30 | |
| Deaths | 1 | — | — | — | — | 9 | 1 | — | — | — | | |
| Erysipelas | — | — | 85 | 7 | 5 | — | — | 95 | 6 | 7 | | |
| Deaths | — | — | — | — | — | — | 2 | — | — | — | | |
| Infective enteritis or diarrhoea under 2 years | 36 | 15 | 16 | 10 | 1 | 59 | 18 | 15 | 8 | 5 | | |
| Deaths | — | 10 | 11 | — | 1 | 24 | 1 | 378 | 5 | 218 | | |
| Measles | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Ophthalmia neonatorum | 77 | 9 | 17 | — | 1 | 78 | 9 | 32 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Pneumonia, influenzal* | 794 | 94 | 19 | 11 | 28 | 1,102 | 121 | 54 | 4 | 6 | 1,103 | 121 |
| Deaths (from influenza) | 26 | — | 7 | 1 | 2 | 45 | 4 | 17 | 2 | — | | |
| Pneumonia, primary | — | — | 368 | 9 | — | — | — | 511 | 3 | — | | |
| Deaths | — | 11 | 24 | 10 | — | — | 17 | 13 | 15 | — | | |
| Polio-encephalitis, acute | 3 | — | — | — | — | 3 | 1 | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Polio-myelitis, acute | 27 | 2 | 1 | — | — | 10 | — | 1 | 1 | 2 | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Puerperal fever | 3† | 3 | 18 | 2 | 1 | 5† | 5 | 11 | 5 | — | | |
| Deaths | — | — | — | — | — | — | 3† | — | — | — | | |
| Puerperal pyrexia | 163 | 18 | 21 | — | — | 160 | 22 | 19 | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Relapsing fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Scarlet fever | 1,943 | 166 | 347 | 49 | 73 | 2,434 | 160 | 602 | 127 | 89 | 2,441 | 300 |
| Deaths | 4 | — | 2 | 1 | — | 1 | 1 | 4 | 1 | — | | |
| Small-pox | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | | |
| Deaths | — | — | — | — | — | — | — | — | — | — | | |
| Whooping-cough | — | 193 | 343 | — | 10 | — | — | 32 | — | 12 | | |
| Deaths | 10 | 1 | 3 | — | — | 8 | 4 | — | 1 | 2 | | |
| Deaths (0-1 year) | 299 | 64 | 74 | 30 | 19 | 386 | 72 | 105 | 33 | 20 | | |
| Infant mortality rate (per 1,000 live births) | 49 | 52 | — | — | — | 65 | 60 | — | — | — | | |
| Deaths | 4,681 | 852 | 672 | 213 | 176 | 5,244 | 994 | 799 | 215 | 160 | | |
| Annu persons living) | 11.5 | 10.9 | 13.7 | 14.4 | 15.6 | 12.9 | 12.5 | 16.3 | 14.7 | 14.2 | | |
| Live births | 6,044 | 1,101 | 816 | 359 | 232 | 5,570 | 1,124 | 808 | 268 | 197 | | |
| Annual rate per 1,000 persons living | 14.9 | 14.0 | 16.6 | 24.3 | 20.6 | 13.7 | 14.2 | 16.5 | 18.3 | 17.5 | | |
| Stillbirths | 253 | 34 | — | — | — | 259 | 40 | — | — | — | | |
| Rate per 1,000 total births (including stillborn) | 40 | 30 | — | — | — | 44 | 34 | — | — | — | | |

* Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

† After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

‡ Deaths from puerperal sepsis.

EPIDEMIOLOGICAL NOTES

Principal Infectious Diseases in England and Wales
during November, 1938

In the five weeks ending December 3, 1938, 9,885 cases of scarlet fever, 7,467 cases of diphtheria, 3,451 cases of primary pneumonia, and 133 cases of enteric fever were notified in England and Wales. The notifications of these were respectively 76 per cent., 108 per cent., 76 per cent., and 79 per cent. of the expected numbers (deduced from the median values of the corresponding weeks of the years 1929-37).

Enteric Fever 1937-8

An increase in typhoid morbidity was observed in 1937, in comparison with the previous year, in the United States of America and Japan and in most European countries; the only countries in which a decline was recorded were Norway, Bulgaria, Yugoslavia, and England. In this country, in spite of the increase in November (chiefly the Croydon epidemic), the number of cases recorded in 1937 was only 84 per cent. of the number for 1936. The available data for typhoid morbidity in Europe show little change compared with 1936; the highest rates were recorded in Portugal (16.5 per 100,000 population, as against 14.3 in 1936), Malta (10.3), and Hungary (9.5, as compared with 10.1). Then came Czechoslovakia (6.3 against 6.0), Bulgaria (5.8), Lithuania (5.5), Rumania (4.3), Turkey (3.8), and Yugoslavia (3.5 per 100,000). In 1938 a decline in the number of cases was observed in England, Germany, France, Czechoslovakia, Poland, the Netherlands, and the Scandinavian countries. Despite the observed decline in morbidity in recent years the seasonal distribution, which differs somewhat from country to country but is generally greatest in the second and third quarters of the year, remains unchanged. The incidence of the disease in 1938 was below the median value for the years 1927-37 in England, France, and Poland, and below the median for the period 1933-37 in Hungary.

During the week under review the incidence of enteric fever in England and Wales and in London fell from 29 to 24 and 8 to 5 respectively. The centres chiefly affected were: Lancashire 5 (Liverpool 4, Blackpool 1); London 5 (Shoreditch 2, Battersea, Islington, and Lambeth 1 each); Essex 2 (Dagenham, Romford); Yorkshire West Riding 2 (Sheffield, Holmfirth). No more cases of typhoid fever have been notified in the Shoreditch outbreak since last week, but a third death has been reported.

Acute Poliomyelitis*

There was an appreciable drop in the notifications of acute poliomyelitis in England and Wales and in London during the week—27 (37) and 2 (9) respectively. The chief counties affected were: Southampton 3 (Bournemouth, Southampton, Eastleigh); Essex 2 (Colchester 2); Glamorgan 2 (Cardiff 2); Kent 2 (Bromley, Chislehurst and Sidcup); Lancashire 2 (Barrow-in-Furness, Westhoughton); London 2 (Deptford, Lewisham); Middlesex 2 (Harrow, Twickenham); Surrey 2 (Guildford, Kingston-on-Thames). According to a statement in the Press 2 cases of poliomyelitis occurred at Wellington College and parents were notified that their sons could return home immediately.

Infectious Diseases in China (Canton)

A recent report states that despite the constant influx of refugees and the continued migration of large numbers of persons there have been no serious epidemics during the past year and the general health of the people has maintained an average standard so far as infectious diseases are concerned.

Small-pox.—The epidemic which began in December, 1937, lasted until April, 1938. No accurate figures are available, but a number of cases is estimated at 1,000 to 2,000. There

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

was a high proportion of cases of haemorrhagic small-pox and of purpura variolosa. Work at the Sai Chuen military academy indicates that assistance in the diagnosis of difficult cases at the beginning of an epidemic may be obtained by sternal puncture, the view being held there that in small-pox there is in the bone marrow an increase of the plasma and reticulum cells and of lymphocytes.

Malaria.—Only a few cases occurred in Canton, and the disease never assumed epidemic proportions there. There was one death in a European. Serious epidemics occurred elsewhere in the province, especially in the eastern area, in the Swatow area, and in Hong Kong and Macao.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

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QUERIES AND ANSWERS

Flatulence on a Milk Diet

"E. S." asks for information concerning the prevention of flatulence with patients on a milk diet.

* Excessive gas occurring in the alimentary tract of a patient on a milk diet is either swallowed air or gas formed by fermentation. Actually milk tends to decrease rather than increase intestinal fermentation, and therefore the more likely cause of flatulence is the excessive swallowing of air. This may be prevented by giving the milk in semi-solid or solid form. Milk jelly, junket, and cornflour shapes might be tried. There is an excellent chapter on milk in the latest edition of Hutchison and Mottram's *Food and the Principles of Dietetics* (p. 136). If fermentation is suspected as a cause one of the special milks such as sour milk or buttermilk might be tried.

Wasp Stings

Dr. C. STRICKLAND, Professor of Medical Entomology, Calcutta School of Tropical Medicine, writes with reference to "A. H. D.'s" query on wasp stings (*Journal*, October 1, p. 727): I would suggest he look up L. I. B. Braun in *South African Medical Record*, September 26, 1925, vol. 23, No. 18, p. 408, for Notes on Desensitization of a Patient Hypersensitive to Bee Stings. Of course a bee is not a wasp, but there you are!

Income Tax

Tax Deducted from Annuity

"J. G." pays his mother £100 a year under a deed for a period of seven years. He deducts tax from the payments and the amount so deducted is repaid to the mother when she

reclaims it. He asks, "Do I have to repay to the Inland Revenue the amount of tax I have deducted?"

** No; the effect of the deed is to convert £100 of his income into the legal income of his mother. She is entitled to have the tax repaid to her, and there the matter ends so far as "J. G." is concerned.

Repayment of Loan

"A. J." borrowed £2,000 to buy a share in a partnership on terms requiring him to pay back £250 per annum. Is there any way in which he can get relief on this £250?

** No; the payments represent savings out of income, are capital in their nature, and do not affect income tax liability.

LETTERS, NOTES, ETC.

Treatment of Cracked or Sore Nipples

Dr. J. WALKER (Bootle, Liverpool) writes: In an experience of over fifty years in general practice I have found nothing so effectual in promoting rapid healing of cracked or sore nipples as a very old, and apparently almost forgotten, device known as "Wansbrough's metallic nipple shield." The action of the milk on the shield produces lactate of lead; of course, the nipple is carefully cleansed after removal of the shield.

Sulphonamide in Acute Cystitis

Dr. A. FREITAG (South Norwood) writes: I think the following case might be interesting from the point of view of the rapidity of the response to sulphonamide therapy. A married woman aged 38 was operated on, on October 21, for a chronic prepyloric ulcer. On October 28, while in hospital, she developed slight dysuria and frequency of micturition. She was sent home on November 7. I saw her on November 9, when her frequency of micturition and dysuria were a little more troublesome. On November 11 she developed rigors; her temperature was 103° F., her pulse rate 120, and her urine contained *B. coli*. The dysuria and frequency were very distressing. I put her on sulphonamide, 1 gramme every four hours, followed by copious fluids. On November 12 her temperature was 100° F., her pulse rate 90, and she felt better as regards her urinary symptoms. On November 13 her temperature was 98.6°, her pulse rate 84, and the urinary symptoms had almost completely disappeared. The dosage of sulphonamide was reduced to 0.5 gramme three times a day for another two days, and then stopped. She has had no recurrence since and has felt perfectly well. The interesting point is that within twenty-four hours of the first administration of sulphonamide the patient improved dramatically without any other treatment whatsoever.

Karl Sudhoff

Dr. WALTER R. BETT writes: In these days of political bewilderment, when even the ideals of scientific fellowship are challenged and in jeopardy, the brilliant and monumental researches of Karl Sudhoff continue to bear testimony to his daily renewed and daily vindicated consciousness of a common intellectual heritage. To many men in many lands his friendship was a sense of comradeship in work that recognized no national limitations. Son of a Protestant Minister, Sudhoff was born at Frankfort-on-Main on November 26, 1853. At the age of 25 he started general medical practice at Bergen, near his native city, four years later moving to Hochdahl, near Düsseldorf. His scanty leisure was divided between gardening and medical history. When he was 52 years old it so happened that the widow of the Viennese medical historian, Theodor Puschmann, left her entire fortune to the University of Leipzig to promote medico-historical research. Sudhoff, who had acquired a taste for this subject in his student days and who was entirely self-taught, in 1905 accepted the chair on condition that an institute was built for him. A born researcher, with a sound training in the ancient languages, unquenchable enthusiasm, and an excellent memory, for nearly twenty years he travelled far and wide combing public and private libraries, archives, and museums for rare and unprinted medical manuscripts and illustrations, which he photographed, collated, and edited. No one ever saw him tired. Fond of the society of young people, his was a happy, imperious, temperamental nature. While as a lecturer he could be exceedingly dull, in conversation he was always

interesting and even inspiring. A voluminous and charming correspondent, his handwriting even in his old age was clear, bold, and artistic. Of his original contributions to medical history, his writings on the School of Salerno, on leprosy, syphilis, and plague, and particularly on Paracelsus, whom he may be said to have rediscovered, are exhaustive and of permanent value. While the *Sudhoff Archiv für die Geschichte der Medizin* and the Professor Karl Sudhoff-Strasse in Hochdahl tangibly perpetuate his name, his memory will continue to animate and inspire medical historians of the civilized world for many generations to come.

An American Country Doctor's Notebook

Dr. JOHN S. MEIGHAN writes from Glasgow: Please allow me heartily to commend to those of your readers who do not know it Dr. Wm. N. Macartney's *Fifty Years a Country Doctor* (U.S.A.—British publisher, Geoffrey Bles). In addition to many interesting experiences the reader will find many valuable tips and wrinkles of all kinds, some of them admittedly heterodox, but perhaps none the worse for all that. It is sad, however, to find Dr. Macartney recommending linsed poultices for boils, and his statement, "A boil is always ready for incision from the time it starts," is sadder. Surely modern experience is agreed that the less boils are interfered with locally the better, while boils in the facial area should be left severely alone. Dr. Macartney is typical of what might now be called the "old" family doctor, and is just the sort of man one would like to see at one's own bedside, in the first instance at least, if one were seriously ill. He himself, however, does not believe that the day of the G.P. is over. "From two-thirds to three-fourths of our population are still treated by their family physicians," he says, and "The species is a long way from extinction; they are a hardy breed and will survive." The British reader of the book should bear in mind that, to Dr. Macartney, Bombay is not the "Gateway of India," but a small town in the north of New York State. The book is, unfortunately marred by numerous printer's errors (there seems to be an epidemic at present in London of what I might call "proof-readers' carelessness"), and by an extraordinary oversight page 347 appears between pages 345 and 346.

Tuberculosis Christmas Seals

For thirty-two years the double-barred red cross has appeared on Christmas seals, issued at first by the American National Red Cross, and since 1920 by the National Tuberculosis Association. This year's design depicts two children standing by a curtained window and watching their mother place a lighted candle on the sill. The three figures are dressed in mid-Victorian attire, and the predominant colours are red and green. The seals are issued in sheets of one hundred stamps, ninety-six being the regular seals, while the four corner ones are portraits of Laennec, Koch, Edward Livingston Trudeau, who in 1884 founded the first American open-air sanatorium for early tuberculosis, and of Einar Holboll, a Copenhagen post-office clerk, who in 1904 suggested the use of Christmas seals to brighten letters and greetings and to raise funds towards building a tuberculosis hospital.

pH for the G.P.

Those who would like to know a little more about the mysteries of pH can obtain some useful information from a booklet produced by the British Drug Houses, Graham Street, London, N.1, entitled *pH Values: What They Are and How to Determine Them*. This is the fifth edition of the booklet, and now consists of thirty-two pages which include among other things a chart of indicators and hydrogen-ion concentration data. A copy will be sent free to any practitioner who applies to the above address.

Wanted—Osteology Sets

Brigadier T. C. MUDIE, D.S.O., Secretary of the Scottish Branch, British Red Cross Society, writes from 206, Bath Street, Glasgow, C.2: May we ask the courtesy of your columns to appeal to any Scottish doctors who have osteology sets they no longer require to send them to us for the use of first-aid classes? We are at present organizing an exceptional number of such classes both for V.A.D.s and for A.R.P. volunteers, and would be most grateful for any sets for instructional purposes.

KEY TO CURRENT MEDICAL LITERATURE

GENERAL JOURNALS

Deutsche Medizinische Wochenschrift

Berlin vol. 64 October 14, 1938

- Some Important Clinical Questions concerning Electrocardiography. W. Trendelenburg.—p. 1501.
 *Relation to Pernicious Anaemia of Certain Diseases leading to Gastritis. W. Thiele.—p. 1501.
 Treatment of So-called Prostatitis (concluded). A. W. Fischer.—p. 1506.
 Conservative and Surgical Treatment of Calculus of Ureter (concluded). I. Boerninghaus.—p. 1508.
 Demonstration and Content of Vitamin B₁ in Body Fluids. H. Otto and F. Rühmkorb.—p. 1511.
 Intracranial Injections of Prostetil in Encephalitis. I. Wehlem.—p. 1513.
 "Tarsesin" in Paediatrics. A. Eikens.—p. 1515.
 Influence of Measles and Mumps on Genitohyal Vaginitis. B. Jutkoff and B. Sacharoff.—p. 1516.
 Lumbar or Occipital Puncture? W. Knier.—p. 1517.
 Employability in Industry of Persons with Reduced Working Capacity. II. Gastric Ulcer. W. Fleimes.—p. 1518.

Gastritis and Pernicious Anaemia.—The diseases or states discussed in this paper are: chronic infections, conditions following operations on the stomach, diabetes, hyperthyroidism, and pregnancy.

Journal of the American Medical Association

Chicago vol. 111 October 15, 1938

- Ureteral Conditions stimulating Glomerulonephritis. A. J. Scholl.—p. 1421.
 Chronic Streptococcal Ulcer of Skin. M. Goodman.—p. 1427.
 Recent Studies on Experimental Latent Pneumonia. O. Robertson.—p. 1432.
 Leprosy of Upper Respiratory Tract. F. Pinkerton.—p. 1437.
 Psycho-analytical Treatment of Chronic Addiction to Alcohol. R. Knight.—p. 1443.
 Cerebro-cranial Injuries. G. Swift and S. Berens.—p. 1448.
 Medical Supervision of Benzene Plant Workers. N. Isenberg and M. Berg.—p. 1452.
 Pathogenesis of Werlhof's Disease. M. Torrioli and V. Puddu.—p. 1455.
 Sulphanilamide Excretion in Human Breast Milk. H. Stewart and J. Pratt.—p. 1456.
 Chemistry of Vitamin C. C. King.—p. 1462.
 Local Urinary Antiseptics. H. Walther.—p. 1465.

Psycho-analysis and Alcohol Addiction.—Knight has spent about 2,000 hours analysing twenty male addicts. Sanatorium treatment and psycho-analysis combined for periods of one and a half to four years appear to offer some hope for alcoholic addicts. The waning urge to recover of the patient himself and interference on the part of relatives are among the many difficulties encountered in practice.

Sulphanilamide and Human Milk.—In order to find out whether sulphanilamide is excreted in breast milk, and, if so, in what amounts and what effect it has on the nursing baby, Stewart and Pratt studied twenty-eight normal convalescent mothers. Estimations of the milk and blood of the mothers showed that the drug was excreted in both; it was also found in the blood and urine of the babies, but it is believed that the baby cannot obtain an adequate therapeutic dose through the mother's milk when she is receiving only an average clinical dose.

Klinische Wochenschrift

Berlin vol. 17 October 15, 1938

- Clinical Applications of Ergography. H. W. Knipping.—p. 1457.
 Effect of Blood-pressure-raising Remedies on Renal Function. D. Schneider and P. W. Springorum.—p. 1460.
 Anti-thyrotropic Property of Blood in Health and Disease. H. Eitel.—p. 1465.
 Splenomegaly proved by Sternal Puncture to be Case of Boeck's Disease. M. Dressler.—p. 1467.
 Mode of Action of Prostigmin in Nyctasthenia Gravis. A. Lanari.—p. 1471.
 *Nature and Diagnostic Significance of Triboulet's Test. H. Wiesbrock.—p. 1473.
 Value of Culture of Bone Marrow in Typhoid and Paratyphoid. A. Ott.—p. 1475.
 Differentiation of "Left" Type of Electrocardiogram in Cardiac Hypertrophy and Transposition. E. Dunis.—p. 1476.

- Estimation of Acetone Bodies. O. Cantoni.—p. 1479.
 Vitamin B₁ and Acetylcholine. E. and R. Abderhalden.—p. 1480.
 Differentiation between Whooping-cough and Influenza Bacilli. A. Steigler.—p. 1480.
 Effect of Insulin and Dextrose on Large Water Losses in Arsenical Poisoning. L. Mosonyi.—p. 1480.
 Effect of Weak Doses of Nicotine on *Lebistes reticulatus*. E. R. Schuster-Woldan.—p. 1481.

Triboulet Test.—This bichloride of mercury-acetic acid reaction has proved positive in 100 per cent. of intestinal infections. It should prove a valuable complement to bacteriological tests.

Lancet

London vol. 2 October 15, 1938

- Bacteriæmia. J. A. Ryle.—p. 867.
 *Treatment of Ankle Fractures. W. G. Campbell.—p. 872.
 Oxygen Therapy. Note on New Nasal Mask. R. V. Christie.—p. 876.
 New Chemical Contraceptive. J. R. Baker, R. M. Ranson, and J. Tynen.—p. 882.
 Cardiazol Convulsion Therapy in Non-schizophrenic Reaction States. L. C. Cook and W. Ozden.—p. 885.
 Traumatic Myositis Ossificans. W. B. R. Monteith.—p. 888.
 Polycæmia after Ulcer Treatment. C. T. van Valkenburg and G. A. Kreuzendelich von dem Borne.—p. 889.

Ankle Fractures.—Campbell adopts Ashurst and Bromer's classification of Pott's fractures. He regards "minor fractures," in which only one side of the joint is affected, as essentially stable and not requiring support. Eighteen such cases are described, treated by procaine injections without support; in no instance did displacement or non-union follow. The essential steps in diagnosing the "minor fracture" and controlling the treatment are given fully.

Medical Journal of Australia

Sydney vol. 2 September 10, 1938

- Diverticulosis and Diverticulitis. C. Bickerton Blackburn.—p. 405.
 Diverticulosis and Diverticulitis from Radiological Point of View. H. R. Sear.—p. 409.
 Occurrence of Juxta-articular Nodules in Australia. F. Fenner.—p. 412.
 Some Aspects of Psittacosis and Isolation of Virus. A. Tremaine.—p. 417.
 Some Observations on Use of Protamine-zinc-Insulin in Management of Diabetes Mellitus. E. Downie.—p. 421.

Medizinische Klinik

Berlin vol. 34 October 14, 1938

- Prostetil in Septic Gynaecological Affections (Discussion). W. Benthin, A. Mayer, B. Ottow, and F. Engelmann.—p. 1347.
 Clinical Review of Bronchiectasis. R. Herbst.—p. 1352.
 Spontaneous Pneumothorax in Sport. W. Knoll and H. Götz.—p. 1353.
 Comparative Anatomy of Spleen and its Storing and Defensive Functions. E. v. Herrath.—p. 1355.
 Success with "Stryphon" in Thrombopenic Purpura. H. Rosengger and H. Bremer.—p. 1359.
 Treatment of Ménière's Disease with Pilocarpine. E. Leichsenring.—p. 1361.
 *Clinical Experience with "Gastro-Sil." H. Hollenstein.—p. 1361.
 *Experience with Intravenous Magnesium Sulphate Therapy. St. Kuthan.—p. 1363.
 Treatment of Gastric Ulcer and Gastritis with Insulin (Remarks on Paper by Roller).—p. 1364.
 Biological Medicine. H. Winkelmann.—p. 1364.
 Estimation of Useful Living Space in One-family Houses. W. Spohr.—p. 1376.

Gastric Ulcer and Gastritis.—Good results are reported from "gastro-sil" given by the mouth in cases of gastritis and gastric ulcer. The preparation is well tolerated and rapidly relieves pain.

Intravenous Magnesium Sulphate.—Injections of 5 c.cm. of a 50 per cent. solution of magnesium sulphate have proved beneficial in uræmia, and also in cases of overdigitalization. It has also been found useful in affections of the liver and gall-bladder.

Medizinische Welt

Berlin vol. 12 October 15, 1938

- Actiology of Pyuria in Childhood. E. Unshelm.—p. 1479.
Chemotherapy of Pneumococcal and Mixed Streptococcal Infections. B. Kemkes.—p. 1484.
*Cardiac Damage with Nicotine. F. Laessing.—p. 1485.
Agranulocytosis and the Ear, Nose, and Throat Specialist. W. Kindler.—p. 1488.
When is Radiological Examination of Gastro-intestinal Tract Necessary? W. Kaufmann.—p. 1491.
"Chinfortan Homburg" in Treatment of Lung Infections. K. Blanke.—p. 1493.
Treatment of Purulent Infections with Unguenta containing Tar. O. Lange.—p. 1495.

Nicotine and Cardiac Damage.—Chronic nicotine poisoning in smokers, according to Laessing, results from several factors. Constitution, age, sex, abuse of caffeine and alcohol, debility, and the amount of tobacco consumed are important. Subjective symptoms are vague but reminiscent of cardiac neuroses and angina pectoris. Palpitation, tachycardia, vertigo, headache, and faints may be complained of. There may be pain behind the sternum and alternating feelings of cold and heat. Objective symptoms include bradycardia and tachycardia, changes in rhythm, and extrasystoles. The blood pressure is usually lower than normal. The heart is occasionally enlarged and changes in the electrocardiogram may be observed.

Münchener Medizinische Wochenschrift

Munich vol. 85 October 14, 1938

- Actiology and Operative Treatment of Recurrent Dislocation of Patella. P. Pitzén.—p. 1577.
Recurrent Dislocation of Shoulder. G. Maurer.—p. 1578.
Intra-uterine Trauma to Head and Eugenic Sterilization. A. Mayer.—p. 1580.
On Fate of Infants with Convulsions due to Birth Trauma. E. Fischer.—p. 1582.
Sleep in Childhood. A. Peiper.—p. 1585.
Results of Observations on 1,167 Cases of Pneumonia. K. Sakir.—p. 1587.
Coagulative Effect of "Mancetol" (Bayer). E. Adam.—p. 1589.
Electrolytic Therapy with "Sephelen." H. di Gasparo.—p. 1591.
Therapeutic Possibilities of Coffee Charcoal. A. Heilser.—p. 1592.
Treatment of Diabetes Mellitus with Depot-insulin. W. Beckert.—p. 1594.

New England Journal of Medicine

Boston vol. 219 October 13, 1938

- Diabetic Situation in Massachusetts. E. P. Joslin.—p. 547.
Attitudes in Relation to Illness. L. K. Lunt.—p. 557.
Sulphanilamide: Its Mode of Action and Use in Treatment of Various Infections. C. S. Keefer.—p. 562.
Significance of Latent Forms of Tuberculosis. J. B. Amberson.—p. 572.

Nordisk Medicinsk Tidskrift

Stockholm vol. 16 October 15, 1938

- Allergic Diseases of Nose. O. F. Opheim.—p. 1607.
*Sputum in Silicosis. A. Ingelman-Sundberg.—p. 1619.
Studies of Frequency of Gastric Ulcer: III. G. Alsted.—p. 1626.
Extent of Latent Tuberculous Infections in Children at Different Ages. N. Johannsen.—p. 1629.

Sputum in Silicosis.—A modification of Burke's method for the demonstration of mineral particles in the sputum is described and the sources of error are discussed.

Norsk Magasin for Laegevidenskaben

Oslo vol. 99 November, 1938

- *Follow-up Study of 100 Thoracoplastic Operations in Bedø Hospital. K. Schanke.—p. 1177.
Case of Huntington's Chorea with Marked Vegetative Symptoms. S. B. Refsum.—p. 1201.
Experiences of Zondek-Ashheim and Friedman Biological Pregnancy Reactions. K. Hansen and H. Laake.—p. 1219.
Wandering Spleen with Multiple Aneurysms in Splenic Artery and Haemolytic Jaundice treated by Splenectomy. B. Frøthem.—p. 1230.
Demonstration of Splint for Upper Arm. J. Kvittingen.—p. 1246.

One Hundred Thoracoplasties.—Of the 100 tuberculous patients operated on, sixty-six had been under observation for more than two years. Fifty of them were cured or much better, while sixteen were dead or had not improved.

Policlinico

Rome vol. 45 October 17, 1938 (Sez. Prat.)

- Lateral and Mediastinal Fibrothorax in Pulmonary Tuberculosis. V. Fanano.—p. 1893.
*Waterhouse-Friderichsen Syndrome. G. Piacentini.—p. 1903.
Schistosomiasis and Molluscs in Libyan Sahara. I. A. Nastasi.—p. 1907.

Waterhouse-Friderichsen Syndrome.—A case of meningococcal sepsis with purpura is described in an infant of 7 months: death occurred twelve hours after the onset from bilateral haemorrhage into the adrenals. The thymus was not enlarged, but all the lymph-glandular tissues were hypertrophied: the significance of the latter finding is discussed.

Presse Médicale

Paris vol. 46 October 12, 1938

- *Treatment and True Clinical Symptoms of Lambliasis. Ch. Garin.—p. 1505.
*Existence of Haematopoietic Hormone Demonstrated by Production of Polycythaemia by Means of Anterior Lobe Hypophyseal Extracts. J. Flaks, I. Himmel, and A. Zotnik.—p. 1506.

Lambliasis.—Garin states that before 1936 he had tried twenty-three remedies for this condition without much success, but since Galli-Valerio of Lausanne first had the idea of using atebirin it has been tried on an extensive scale and found to be practically specific.

Polycythaemia and Hypophysis.—The authors, as a result of their experiments on rats, claim to have demonstrated the presence of a special haematopoietic hormone in the anterior lobe of the hypophysis.

Paris vol. 46 October 15, 1938

- *Angina Pectoris is One. V. Audibert and Mlle Legré.—p. 1521.
Epilepsy in Tumours of Brain. J.-A. Chavany and A. Placé.—p. 1522.
Sterility is chiefly due to Chronic Gonococcal Infection. C. Bécélère and E. François.—p. 1525.
Oubaine Arnaud. C. Dimitracoff.—p. 1527.

Angina Pectoris.—Eighty "explanations" have been put forward, according to Audibert and Legré, to account for the various manifestations of angina pectoris. The authors claim, however, that they may all be reduced to one—namely, stimulation of the sensory nerve supply to the heart—that is, the cardiac plexus. There can therefore be no such thing as a "false" angina, though there may be benign or malignant forms of the disease according to the circulatory efficiency of the individual concerned.

Schweizerische Medizinische Wochenschrift

Basle vol. 68 October 15, 1938

- Principles of Classification of Cerebral Tumours. M. Askarazy.—p. 1154.
Topographical Anatomy of Pulmonary Nerves at Hilum in Man. A. Baumann.—p. 1156.
Asylum In-patients in Switzerland. H. Bersot.—p. 1157.
Psychiatric Contribution to Psychiatry. P.-M. Besse.—p. 1159.
*Chronic Alcoholism and Pellagra. G. Bickel.—p. 1159.
Effect of Acetylcholine on Retinal Blood-pressure. E. Frommel and V. Bischler.—p. 1160.
Investigation of Renal Function in Scarlet Fever. P. Gantier.—p. 1161.
Surgery of Peripheral Nerves. A. Jentzer.—p. 1162.
Psychiatric Treatment without Insulin. J. Klaesl.—p. 1164.
Urobilinuria in Alcoholism. R. de Montmollin.—p. 1165.
Relation between General Arterial Pressure and Retinal Arterial Pressure in Psychiatry. F. Morel, A. Franceschetti, and E. B. Streiff.—p. 1166.
Judicial Errors from Doctrine of "Traumatic Neurosis." G. de Morsier.—p. 1168.
Diagnosis and Non-recognition of Traumatic Cerebral Lesions. F. Naville.—p. 1169.
Cutaneous Reaction to Diphtheria Toxin. T. Reh.—p. 1173.
Complex of Xanthippus. M. Roch.—p. 1173.
*Insulin in Non-schizophrenic Psychic Disturbances. J. E. Staehelin.—p. 1175.
Insulin Treatment of Schizophrenic Psychoses. H. Steck.—p. 1177.
Frequency and Evolution of Hallucinatory Syndrome in General Paralysis treated by Malaria. M. Tchernak.—p. 1179.

Chronic Alcoholism and Pellagra.—Chronic alcoholism in civilised countries is a frequent cause of hypovitaminoses—especially of B factors and of C; it may thus cause pellagra. An alcoholic patient is described in whom a bullous and erythematous eruption, stomatitis, and diarrhoea, psychotic changes, and coproporphyrinuria occurred acutely after a brief sunbath, thus simulating Günther's acute porphyria-pathia. The condition cleared up rapidly under treatment by nicotinic acid and a diet rich in vitamin B. The part played by perverted porphyrin metabolism and photosensitization in pellagra is discussed.

Insulin in Non-schizophrenic Psychic Disturbances.—The effect of insulin in schizophrenia is not specific. Extensive trials in schizoid psychopaths and neurotics have shown insulin treatment to be followed by increased accessibility to psychotherapy as well as by improvement in insomnia and in the physical condition; favourable psychic reactions similar to those noted in schizophrenics also follow. Deep coma need not necessarily be induced. Insulin therapy is particularly commended in toxicomaniac conditions and in climacteric psychoses, but was found harmful in hallucinations associated with Parkinsonism. It is useful in exogenous but not in endogenous depressive states.

Ugeskrift for Læger

Copenhagen vol. 100 October 13, 1938

- A Little about Psycho-analysis H. Reistrup—p. 1147.
Intrapapillary Pressure and its Relationship to Vegetative Nervous System. J. Olesen—p. 1155.
Serum-protein Determination by Glass Bead Method. J. Bing—p. 1162.
Post-operative Mycophenidia. G. Hagerup—p. 1164.

Serum-protein Determination.—This study comes from the University Medical and Physiological Institute in Copenhagen, and concerns a simple and rapid method for serum-protein determinations.

Wiener Klinische Wochenschrift

Vienna vol. 51 October 14, 1938

- Use of Hormones in Surgery R. Friedmann—p. 1117.
Crisis in Cellular Pathology. A. Greil—p. 1121.
Treatment of Skin Disease in Pregnancy E. Navratil—p. 1125.
Gastric and Gastric Carcinoma. D. Relier—p. 1126.
Stability of Local Increase in Effect of Short Waves. M. Berger and G. Brecher—p. 1129.
Positive Non-specific and Temporary Wassermann Reaction. T. Stryecki—p. 1131.
Medicine and Sport E. Risk—p. 1131.
Intraurethral Reaction of Prostate. T. Hrynchak—p. 1134.

SPECIAL JOURNALS

Acta Medica Scandinavica

Stockholm vol. 85 September 1938

- New Method of Treatment in Trigeminal Neuralgia (Ger.) O. Reid—p. 105.
Climax Power of Human and Mammalian Blood in relation to Vitamin K (Eng.) H. Dam and J. Glavind—p. 108.
Myelotic Leukemia (Ger.) O. K. Eversen and H. Scharum-Hansen—p. 129.
Quantitative Estimation of Urobilinogen in Blood Plasma (Ger.) C. J. Rees—p. 140.
Scurvy Disease (Eng.) L. Meyer—p. 157.
Cutis Verticis Gyrata: One of Symptoms of Acromegaly (Eng.) A. Renander—p. 155.
Clinical and Experimental Observations on Alcohol Tolerance (Eng.) J. Eriksson and P. A. Heer—p. 159.
Metabolism of Amino Acids and Liver Function (Eng.) J. Horejs, A. Mect, and J. Scharova—p. 217.
Symphysis-endocrine Insufficiency (Eng.) H. Engelke—p. 231.
Further Observations on Mode of Protein Estimation, Particularly of Induced Variations in Proteinuria (Eng.) H. Berglund and A. R. Frick—p. 255.
Pathogenesis of Anaemia due to Worms (Ger.) G. Toettermann—p. 269.
Serological Testung of Patients affected with *Boithocephalus latus* (Ger.) O. Sievers—p. 269.
Rheumatic Fever and Nephritis (Eng.) H. A. Salvesen—p. 304.
Conditions Similar to Pernicious Anaemia in Pregnancy and after Delivery (Fr.) L. Abramson—p. 319.
Behaviour of RII Metabolism in Acute Inflammations of Pancreas (Ger.) J. W. Grotz—p. 317.
Histomorphology of Rheumatoid Myocarditis and its Clinical Value (Ger.) M. A. Skworzoff—p. 344.
Hepatic or Citrate for Sedimentation Reaction? (Eng.) J. Stroem—p. 365.
X-ray Examination of Kidneys in Certain Cases presenting Diagnostic Difficulties (Ger.) E. Ask-Upmark—p. 390.
Serum-protein Determination by Glass-bead Method (Eng.) J. Bing—p. 403.
Takata Reaction in Blood Serum (Eng.) J. Horejs—p. 408.

Amino Acids and Liver Function.—Estimation of the response to an intravenous injection of glycine gives information regarding nitrogen metabolism and hepatic function. An increase in the urea excreted in the urine after the injection is of favourable significance. The test shows results which are in tolerable agreement with other tests of hepatic function.

Takata Reaction.—The Takata reaction is a flocculation test with 0.5 per cent. mercuric chloride and 0.02 per cent. diamant fuchsin dye. It has proved useful for diagnostic purposes in liver diseases, and is therefore recommended as a routine clinical method in such cases.

American Journal of Anatomy

Philadelphia vol. 63 September 15, 1938

- Development of Inner Ear Rudiment of Rabbit Embryo in Foreign Environment A. J. Waterman—p. 161.
Comparative Study of Dots of Cross-striated Muscle and Simulacra in Smooth Muscle, with Special Reference to So-called Transitional Musculature. H. E. Jordan—p. 221.
Falkner Ovary C. P. Martin and N. McF. Falkner—p. 251.
Weights and Measurements of Parts and Organs of Mature Intred and Crossbred Guinea-pigs. O. N. Eaton—p. 273.
Increase in Lymphocytes in Healthy Persons under Certain Emotional States. E. J. Farris—p. 297.
Emotional Lymphocytosis in Albino Rat E. J. Farris—p. 325.

Falkner Ovary.—A detailed examination of this human ovum has been made, and photographs of representative sections and of a reconstruction in the median plane of the embryonic plate have been published. The embryonic disk measures 0.15 mm. in the longitudinal axis and is 0.29 mm. in breadth. The age is estimated to be approximately seventeen days. The primitive streak occupies about one-third of the length of the disk. A notochordal plate is present, which ends anteriorly in what is regarded as a prechordal plate. Strands of mesoderm connect the ventral pole of the yolk sac with the wall of the chorionic vesicle, and the yolk sac shows a partial division into two compartments.

American Journal of Digestive Diseases

Fort Wayne vol. 5 October, 1938

- Carbonate Excretion in Urine as Indication of Alkalosis L. C. Gatewood—p. 461.
Variations in Enzymatic Activity of Duodenal Contents. V. C. Myers, A. H. Free, and A. J. Beams—p. 464.
Triple Mechanism of Chemical Phase of Gastric Secretion B. P. Bakkin—p. 467.
Present Status of Treatment in Chronic Gastritis: Gastroscopic Observations. W. A. Swalm and L. M. Morrison—p. 472.
Psychiatric Contributions to Study of Gastro-intestinal System. E. D. Bond—p. 482.
Studies on Use of Aluminium Hydroxide Gel in Treatment of Peptic Ulcer. E. S. Emery and R. B. Rutherford—p. 486.
Level of Ascorbic Acid in Blood and Urine of Patients with Peptic Ulcer. D. T. Chamberlain and H. J. Peckin—p. 493.
Vagotomy plus Partial Gastrectomy for Duodenal Ulcer. A. Winkelstein and A. A. Berg—p. 497.

Development and Healing of Gastric Ulcer: Clinical, Gastroscopic, and Roentgenological Study. W. L. Palmer, R. Schindler, and F. E. Templeton.—p. 501.

Carbonate Excretion.—A simple test for alkalosis in patients with peptic ulcer under treatment with soluble carbonates is described. The reagent used is nickel sulphate. Patients who are taking sodium bicarbonate or other soluble carbonates excrete demonstrable amounts of carbonate in the urine, as shown by this test. Should alkalosis develop, the carbonate excretion is reduced or absent, but reappears on a return to a normal acid-base equilibrium.

American Journal of Physiology

Baltimore vol. 124 October, 1938

Experimental Menstruation-like Bleeding due to Hormone Deprivation. G. W. Corner.—p. 1.

*Oxygen Saturation of Venous Blood in Normal Human Subjects. A. Keys.—p. 13.

Study of Circulatory Failure and Shock following Trauma to Healthy, Vigorous, Adrenalectomized Dog. W. W. Swingle, W. M. Parkins, A. R. Taylor, and H. W. Hays.—p. 22.

Influence of Clothing on Physiological Reactions of Human Body to Varying Environmental Temperatures. A. P. Gagge, C.-E. A. Winslow, and L. P. Herrington.—p. 30.

Relative Influence of Radiation and Convection upon Temperature Regulation of Clothed Body. C.-E. A. Winslow, L. P. Herrington, and A. P. Gagge.—p. 51.

Influence of Piperidinomethylbenzodioxane on Action of Sympathin. K. Lisák.—p. 62.

Studies on Formation of Ammonia by Kidney. J. W. Cavett and W. C. Foster.—p. 66.

Potassium Changes in Submaxillary Glands during Stimulation. J. H. Wills and W. O. Fenn.—p. 72.

Effects of Ingestion of Glucose and Fructose on Rate of Excretion of Urine and Various Constituents. G. Buchmann, J. Haldi, C. Eisor, and W. Wynn.—p. 77.

Effect of Cocaine and Ergotamine on Renal Pressor Substance. J. R. Williams.—p. 83.

Further Studies in Mechanism of Vascular Hypertension following Intracerebral Injection of Kaolin in Rat. J. Q. Griffith and E. Roberts.—p. 86.

Influence of Experimental Biliary Obstruction and Liver Injury upon Total Bile Acid Content and Partition in Blood and Urine. S. S. Lichtman.—p. 94.

Effect of Acute Haemorrhage on Absorption from Small Intestine. E. J. VanLiere, D. W. Northup, and C. K. Sleeth.—p. 102.

Destruction of Spinal Cord and Production of Hypertension. F. Glenn and E. P. Lusher.—p. 106.

Organ Hypertrophy following Injections of Thyrotropic Hormone. R. Murphy, S. Lowther, and L. Pagnello.—p. 110.

Oestrogenic Substances and Thyroid Function and Respiratory Metabolism. T. C. Sherwood.—p. 114.

Manifolant Planar Reflexes in Terms of Afferent Fibres. A. S. Harris.—p. 117.

Concerning Metabolism of Fat and Carbohydrate. J. L. Donnelly.—p. 126.

Chemistry and Nature of Cerebrospinal Fluid during Foetal Life. L. B. Flexner.—p. 131.

Salivary Conditioning in Atropinized Dogs. G. Finelli.—p. 136.

Antagonism between Pituitary Secretion and Acetylcholine. H. Necheles and I. Neuwelt.—p. 142.

Effect of Chloroform on Serum Amylase and Liver Esterase. F. A. Cajori and H. M. Vars.—p. 149.

Action of Excess Sodium, Calcium, and Potassium on Coronary Vessels. L. N. Katz and E. Lindner.—p. 155.

Changes in Skin Temperatures of Extremities produced by Changes in Posture. G. M. Roth, M. M. D. Williams, and C. Sheard.—p. 161.

Ability of Dog to Utilize Vitamin A. D. Bradfield and M. C. Smith.—p. 168.

Responses of Normal and Hypophysectomized Immature Rats to Menopausal Urine Injections. H. H. Tyndale, L. Levin, and P. E. Smith.—p. 174.

Effects of Sodium Chloride, Potassium Chloride, Calcium Chloride, and Osmotic Pressure on Frog Heart Rate. C. R. Spaulman.—p. 185.

Blood Potassium in Tetany and Asphyxia. I. J. Mullin, J. Dennis, and D. B. Calvin.—p. 192.

Insulin Convulsions after Removal of Stellate Ganglia. R. A. Phillips and S. B. Barker.—p. 202.

Arsenic in Nutrition of Rat. E. Hove, C. A. Elvehjem, and E. B. Hart.—p. 205.

Factors Affecting Loss of Potassium from Stimulated Muscles. W. O. Fenn.—p. 213.

Metabolism of Calcium and Phosphorus. J. H. Jones.—p. 230.

Reflex Hypertension and Vasoconstriction due to Ischaemic Excitation of Carotid Body. C. V. Winder, T. Bernthal, and W. F. Weeks.—p. 238.

Respiratory Exchange during High Carbohydrate Ingestion. J. H. Talbot, I. S. Coombes, W. V. Consolazio, and L. J. Pecora.—p. 246.

Blood Lactate in Normal and Sympathectomized Dogs. H. T. Edwards, L. Brosha, and R. E. Johnson.—p. 254.

Effect of Surgical Reduction of Amount of Reacting Tissue upon Quantitative Effectiveness of Testosterone Propionate and Oestrone. R. Hertz and B. K. Meyer.—p. 259.

Thermal Tolerance of Resting Dogs as measured by Changes of Acid-base Equilibrium and Dilution-Concentration Effect of Plasma. A. Hemingway and H. G. Barbour.—p. 264.

Chemical Mediators in Aqueous Humour. J. V. Luceo and K. Lissak.—p. 271.

Oxygen Saturation of Venous Blood.—Sixty-three normal subjects in basal rest had an average oxygen saturation of the arm vein blood (antecubital fossa) of 68.2 per cent. and a range of saturation of 25 to 85 per cent.; 30 per cent. of the observations were outside the range 60 to 85 per cent., which is often stated to be the "normal limit." The saturation in normal women tends to be slightly lower and the oxygen yield to the tissues, per 100 c.cm. of blood, tends to be slightly greater than in normal men in the basal state.

Annales de l'Institut Pasteur

Paris vol. 61 September, 1938

*Relapsing Fever due to *Spirochaeta hispanicum* in Algeria. A. Sergent.—p. 217.

Saprophytic *Spirochaetes* of Man (First Memoir). P. Seguin and R. Vinzent.—p. 253.

Five Rat Leprosy Bacilli Suffice to Produce Disease in White Rat. E. Marchoux and V. Chorine.—p. 296.

Function of Centrifugation in Digestion Methods of Demonstrating Tubercle Bacilli. P. E. Davy and J. C. Levaditi.—p. 300.

Differential Serodiagnosis of Syphilis, Gonorrhoea, and Tuberculosis. H. Hecht.—p. 313.

Flocculation of Some Therapeutic Sera in Buffered Media. A. Bontarie and M. Roy.—p. 319.

Spirochaetosis in Algeria.—The late André Sergent describes a study of the characters and mode of transmission of *Spirochaeta hispanicum*, the cause of a severe type of relapsing fever in Spain and Northern Africa. Transmission by the dog tick *Rhipicephalus sanguineus* was demonstrated; possible reservoirs of the infection are the rat, dog, and even man. Most laboratory animals, including guinea-pigs, are susceptible to the infection. Arsenical treatment is useless and even dangerous. In the experimental disease a good curative effect was obtained with the serum of recovered animals.

Archiv für Ophthalmologie

Berlin vol. 139 November, 1938

Corneal Degeneration of Glaucoma. M. Salzmann.—p. 413.

*General Disturbances in Glaucoma. H. Schmelzer.—p. 465.

Pathology of Colour Vision. M. Karbowski.—p. 480.

*Noxious Action of Hepatotoxin and Lientoxin on Eye. S. Matsuda.—p. 503.

Physiology of Accommodation. E. Seidel.—p. 513.

Rare Retinal Lesion in Hereditary General Disease. E. Seidel.—p. 520.

Origin of Cataracta Dermatogetones. A. Winkler.—p. 526.

Transient Squint after Squint Operations. A. Miklos.—p. 532.

Clinical and Histological Investigations on Senile Exfoliation of Anterior Capsule: Study of Eighteen Cases. W. Wiederkehr.—p. 541.

*Influence of Ocular Poisons on Blood Picture of Rabbits. K. Hoshi.—p. 553.

Physical Chemistry of Spontaneous Retinal Detachment. Y. Sugita.—p. 561.

General Disturbances in Glaucoma.—Elaborate biochemical investigations in fifty-five patients with primary glaucoma and in a control series gave essentially negative results, except that the cholesterol content of the blood was high and the xanthoprotein reaction in the serum was almost always positive in the glaucoma patients but not in the controls. The possibility of some liver damage as a cause of primary glaucoma is discussed.

Action of Toxins on Eye.—The view, advanced on experimental evidence, that kidney extract has a selective toxic action on the retina is shown to be fallacious. Similar toxic lesions can be produced experimentally by extracts of spleen and liver.

Ocular Poisons and Blood Picture.—The injection of kidney and liver extracts and of "septojod" produces retinal degeneration in rabbits. The blood picture shows changes suggestive of haemolysis of the red blood corpuscles. The significance of these findings in relationship to the increase of basophil erythrocytes in renal retinitis is discussed.

Archives of Pathology

Chicago vol. 25 September, 1938

- *Giant Follicular Lymphadenopathy with or without Splenomegaly: Its Transformation into Polymorphous Cell Sarcoma of Lymph Follicles and its Association with Hodgkin's Disease, Lymphatic Leukaemia, and an Apparently Unique Disease of Lymph Nodes and Spleen Disease Thus Believed heretofore Undescribed. D. Symmers—p. 693
- Histology of Bone Marrow in Aplastic Anaemia. C. P. Rhoads and D. K. Miller—p. 643
- Incidence of Mild Degrees of Atrophy in Testicles Gravid. D. Duncan—p. 654
- Systemic Proliferation of Reticulo-endothelial System (Reticulo-endotheliosis): Case Report and Comments on Literature. M. S. Sacks—p. 676
- Attraction of Human Polymorphonuclear Leukocytes by Tuberculo-protein. W. B. Wartman—p. 694
- Metchnikoff's Contribution to Pathology. B. M. Fried—p. 709
- Primary Rhabdomyoma of Heart with Sarcomatous Extension. C. P. Larson and J. A. Sheppard—p. 717
- Syphilis of Puerile Skull before 1930. H. S. Danninger—p. 724
- Combined Gram-negative Green-purine Stain for Formaldehyde-fixed Tissue. J. R. Lee—p. 725

Reticulosis.—Symmers describes seven cases of a form of reticulosis to which he gives the name "giant follicular lymphadenopathy." One of these terminated in a condition for which he proposes the term "necrotic folliculitis"; this is said never to have been described before. Details are also given of seven further cases in which this form of reticulosis underwent malignant change, seven in which it was associated with Hodgkin's disease, and four with associated lymphatic leukaemia.

Biochemische Zeitschrift

Berlin vol. 228 September 15, 1938

- Cytochrome Content of Nervous System. St. Huzak—p. 137
- Simple Colorimetric Procedure for Determination by Peltz-Schep Photometer of Sugar Content of Cerebrospinal Fluid. P. Uspahy—p. 141
- Isolation of Prosthetic Group of amino-acid Oxidase. O. Warburg and W. Christian—p. 150
- Detection of Ascorbic Dehydrogenase (Pentose Oxidase) and Catalase in Fustaria. A. Hayashi—p. 169
- Studies of Unextractable Matter in Human Serum. L. Graff—p. 179
- Consumption of Oxygen by Ascorbic Acid: Methods of affecting Consumption. F. Stielgerwaldt—p. 197
- Studies of Urinary Excretion of Histidine. W. Tschopp and H. Tschopp—p. 206
- Effect of Impurities on Hydrolysis of Esters by Lipase and Wildstätter's Co-adsorption Theory. K. Krahling and H. H. Weber—p. 227
- Chemical Constitution of Cytochrome C. H. Theorell—p. 242
- Detoxication of Nicotine by Animal Tissue. T. Werle—p. 268

Berlin vol. 228 October 7, 1938

- Determination of Lactic Acid in Small Amounts of Blood. F. Lauritzen and H. Wahländer—p. 273
- Production of Hydrogen Peroxide in Organism. K. Yamafuji, M. Nishieda, and K. So—p. 293
- Production of Ascorbic Acid by *Bacillus prodigiosus*. G. Bereneci and A. Illényi—p. 295
- Action of Xylase on Gas Metabolism of Bacteria. A. Illényi and G. Bereneci—p. 301
- Distribution of Ascorbic Acid in Potato. K. Paech—p. 307
- Effect of Hydrolytic Substances on Degradation of Utrineogen. L. Juhlinz and L. Wöhlich—p. 312
- Lysopne Series in Swelling and its Extension to Organic, Non-ionized Substances: XIV, Effect of Various Cations; XV, Effect of Organic and Inorganic Acids on Swelling of Starch. I. R. Katz, J. Suterlich, and A. Weidinger—p. 320
- Attempt to Separate Tyrosine, Threonine, 3,5-diiodotyrosine, and Peptides containing Tyrosine. S. J. v. Przylecki and R. Truszkowski—p. 326
- Solubility of Various Amino Acids in Acetic and Butyric Acids. S. J. v. Przylecki and K. Kasprzak-Czykowska—p. 328
- Action of β -rays of Radium on Some Organic Acids, especially Maleic Acid. B. Lustig and H. Wachtel—p. 330
- Relations between Permeability and Metabolism of Yeast Cell. J. Runnström and L. Sperber—p. 340
- Remarks on Yellow Enzyme. O. Warburg and W. Christian—p. 348
- Isolation of New Yellow Enzyme. E. Haas—p. 376
- Colorimetric Determination of Cholesterol and its Esters by Means of Liebermann and Burchard Reaction. E. C. Noyons—p. 391
- Study of Intermediate Reactions in Glycolysis with Help of Radio-active Phosphorus. O. Meyerhof, P. Ohlmeyer, W. Gentner, and H. Maier-Leibnitz—p. 396
- Heat-resistant Enzymic Reactions occurring during Anaerobic Hydrolysis of Carbohydrate. L. Curtius and P. Ohlmeyer—p. 412
- Preparation of Pure Glucose-1-phosphoric Acid (Cori's Ester). W. Klesling—p. 421

- Can Living Yeast Ferment Hexoses Directly? T. Goda—p. 431
- Measurement of Fluorescence with Help of Absolute Colorimetry: II. Clinical Method for Determination of Porphyrin in Urine. A. Thiel—p. 436

Ascorbic Acid in Potato.—The ascorbic acid content of the skin and outer parts of new or stored potatoes is considerably less than that of the inner part.

British Journal of Venereal Diseases

London vol. 14 October, 1938

- Manifestations of Syphilis as Seen in Nose and Throat To-day. F. C. W. Carrs—p. 235
- *Syphilis of Lenz. R. S. B. Pearson and S. de Navasquez—p. 243
- Visceral Manifestations of Erythema of Ninth-day Syndrome. L. Goldman and A. L. Weiner—p. 269
- Dental Disease and its Relation to Anti-syphilitic Therapy. L. G. Crick-shank—p. 280

Syphilis of the Lung.—Two cases are described, one of which was pneumonic in type and the other due to lesions of the trachea and bronchi causing obstruction. A complete account is given of the post-mortem findings in the first case. The authors believe that pulmonary syphilis is always associated with syphilitic aortitis.

Endocrinology

Boston vol. 23 November, 1938

- *Oral Administration of Hormonal Proteins (Thyroid Protein and Insulin). H. Wilson, T. S. Sappington, and W. T. Salter—p. 535
- Effect of Hypothyroidism upon Growth and Chemical Composition of Bone. E. E. Smith and F. C. McLean—p. 546
- Relation of Environmental Temperature to Action of Thyroxine. L. H. Schmidt and I. G. Schmidt—p. 553
- Variations in Structure of Adrenals and Thyroids produced by Thyroxine and High Environmental Temperatures. I. G. Schmidt and L. H. Schmidt—p. 559
- *Syndrome of Infantilism, Congenital Webbed Neck, and Cubitus Valens. H. H. Turner—p. 566
- Influence of Vitaminoses on Weights of Endocrine Glands. B. Sure—p. 573
- Modified and Improved Method for Preparation of Thyroxine Extract. A. Steinberg—p. 581
- Certain Iodine-reducing Substances of Thyroxine Extract (Biological Considerations). L. G. Rowntree, A. Steinberg, N. H. Einhorn, and N. K. Schaffer—p. 584
- Certain Iodine-reducing Substances of Thyroxine Extract (Chemical Analysis of Extract). N. K. Schaffer, W. M. Zietler, and L. G. Rowntree—p. 593
- Effect of Anterior Pituitary Sex Fraction upon Development of Human Uterus. S. A. Payne and E. K. Shellen—p. 595
- Ishaline Granule in Basophil Cells of Pituitary Body not Associated with Basophilism. A. D. Ecker—p. 609
- Comparative Effects of Light Stimulation and Administration of Gonadotropic Hormones on Female Sparrows. G. M. Riley and E. Witschi—p. 615
- Subclinical Adreno-genital Syndrome. S. I. Glass and H. C. Bergman—p. 625
- Insulin-insensitivity: Its Possible Relation to Pituitary Gland. G. Flaum—p. 630
- Juvenile Adiposo-genital Dystrophy: Neurological and Psychopathological Aspects: Results of Orzothotherapy and Psychotherapy. B. Muttelmann—p. 637
- Pituitary Cachexia? E. E. Ozood—p. 655
- *Induction of Premature Puberty with Androgenic Substance. B. H. Kunstadter—p. 661

Oral Insulin.—The inactivation of insulin by proteolytic enzymes *in vitro* is a reaction which may be reversed in whole or in part. This finding suggested that under appropriate conditions the oral administration of insulin might be effective. Oral administration of insulin preparations in mice has consistently produced hypoglycaemic coma or convulsions within two hours of administration. The oral dose of undigested insulin hydrochloride was about ninety times the subcutaneous dose necessary to achieve the same effect. For digested insulin a dose of about forty-five times the subcutaneous dose was necessary. The authors suggest very tentatively that these observations indicate qualitative similarities between thyroglobulin and insulin with respect to the action of proteolytic enzymes.

New Syndrome of Infantilism.—Turner gives detailed accounts of seven cases of infantilism in female patients aged 15 to 23 years. All showed retardation in growth and sexual underdevelopment; webbing of the skin of the neck giving

apparent, though no real, shortening; and a markedly increased carrying angle at the elbow (cubitus valgus).

Premature Puberty.—Kunstadter describes two sexually retarded boys aged $11\frac{1}{2}$ and $10\frac{1}{2}$ years respectively. They were treated by the intramuscular administration of testosterone propionate. The first boy received twenty-one injections over sixteen weeks with a six-weeks rest period after the tenth injection, and the second boy received twenty-eight injections over six months with a two-and-a-half-months rest period after the eighteenth injection. In addition to the establishment of premature puberty in both cases, in the first case abnormal genital hypertrophy resulted.

Journal of the American Chemical Society

Philadelphia vol. 60 October, 1938

*Ineffectiveness of β -aminopyridine in Black-tongue. F. M. Strong, R. J. Madden, and C. A. Elvehjem.—p. 2564. Y. Subbarow and W. J. Dunn.—p. 2565

β -aminopyridine in Black-tongue.—It is now agreed that this substance has no activity comparable with that of nicotinic acid in the treatment of black-tongue in dogs.

Journal of Anatomy

Cambridge vol. 73 October, 1938

Note on Interparietal Groove in Egyptian Skulls. L. R. Shore.—p. 1.
Contribution to Movements of Tongue in Animals, with Special Reference to Cat. Shafik Abd-el-Malek.—p. 15.

Platymeria and Platysemia. L. H. D. Buxton.—p. 31.
*Thalamus of Chimpanzee: IV, Thalamic Projections to Cerebral Cortex. A. E. Walker.—p. 37.

Blood Supply of Heart Valves in Relation to Endocarditis. W. F. Harper.—p. 94.

Tendon of Lateral Pterygoid Muscle. J. A. Harpman and H. H. Woolfard.—p. 112.

So-called Maxillary Antrum of Gorilla. F. W. Jones.—p. 116.

Production of Cortical Lesions by Devascularization of Cortical Areas. S. Sunderland.—p. 120.

Occurrence of Wandering Cells in Cultures of Nervous Tissue *in vitro* and Changes in their Form in Various Media. W. Jablonski and H. Meyer.—p. 130.

Effect of Sex Hormones on Bulbo-urethral Glands of Rhesus Monkeys. O. E. Aykroyd and S. Zuckerman.—p. 135.

Experiments on Development of Proxiphic Duct. R. J. O'Connor.—p. 145.

*Resurvey of Anatomical Features of Piltdown Skull, with Some Observations on Recently Discovered Swanscombe Skull. J. A. Keith.—p. 155.

Morphology of Sphenoid Opening. C. R. Salisbury.—p. 186.

Persistent Opening of Anterior Cerebral Depression. M. Amin.—p. 192.

Sphenoid Artery. Y. H. Aasar.—p. 194.

Left Superior Vena Cava Draining Blood from Closed Coronary Sinus. A. F. Reed.—p. 195.

Thalamus of Chimpanzee.—The retrograde degeneration of cells in the thalamic nuclei has been studied, and the projection from the various nuclei to the cortex and subcortical areas mapped. Illustrations are given showing: (1) the ento-architectural divisions of the cortex, (2) the position and extent of the experimental lesions, and (3) the situation of the degenerated cells in the thalamic nuclei. The significance of the arrangement of the thalamic afferent (somato-sensory) and efferent connexions is discussed from the phylogenetic and functional viewpoints.

Piltdown and Swanscombe Skulls.—This resurvey of the anatomical features of the Piltdown Skull considered in the light of the discovery by Mr. A. Marston of the occipital and left parietal bones of a skull in the 100-foot terrace of the Thames Valley is of great general and scientific interest. Sir Arthur Keith presents a definitive reconstruction of the Piltdown Skull, founded on meticulously careful measurements and orientation of the bones and endocranial casts, which at once commends itself as being the best solution hitherto attempted of this difficult problem. The anatomical resemblance of the Swanscombe Skull to the Piltdown Skull is remarkable, and the author believes that they belong to a type which differs both from the Neanderthal type and from modern man, and which shows certain features which are definitely anthropoid.

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Journal of Biological Chemistry

Baltimore vol. 124 August 1938

Ultracentrifugal Study of Catalase. K. G. Stern and R. W. G. Wyckoff.—p. 573.

Ultracentrifugal Analysis of Aieucia Mosaic Virus Protein. R. W. G. Wyckoff.—p. 585.

Apparent Volume of Distribution of Potassium Injected Intravenously. A. W. Winkler and P. K. Smith.—p. 589.

Effects of Overdosage of Irradiated Ergosterol in Rabbits: Changes of Diphosphoglyceric Acid in Blood Cells. G. M. Guest and S. Rapoport.—p. 599.

Application of Ketone Reagents to Isolation of Ketonic Acids: Isolation of 3-hydroxy-6-ketoalcoholic Acid from Hog Bile. M. Ansel and R. Schoenheimer.—p. 609.

Acetylation of Sulphanilamide *in vitro*. J. R. Klein and J. S. Harris.—p. 613.

Metabolism of β -naphthylamine. F. H. Wiley.—p. 627.

Studies on Serum Phosphatase Activity: VI. Influence of Sera with High Phosphatase Activity on Normal Sera. S. J. Thannhauser, M. Reichel, J. F. Grattan, and S. J. Maddock.—p. 631.

Lead Content of Human Blood. C. E. Willoughby and E. S. Wilkins, jun.—p. 639.

Veratrine Alkaloids: III. Further Studies on Degradation of Cevine: Question of Conifine. W. A. Jacobs and L. C. Craig.—p. 659.

Studies on Photodynamic Action: I. Photo-oxidation of Body Fluids. H. Smetana.—p. 667.

Colorimetric Determination of Equilenin and Dihydroequilenin. W. Marx and H. Sobotka.—p. 693.

Preparation of β -alanine- l -histidine and β -alanine- l -histidine and Investigation of their Effect on Blood Pressure in Comparison with l -carnosine. M. Hunt and V. du Vigneaud.—p. 699.

Studies in Amino-acid Metabolism: V. Metabolism of l -cystine and l -serine in Normal Animals. J. S. Butts, H. Blunden, and M. S. Dunn.—p. 709.

*Anti-black-tongue Activity of Various Pyridine Derivatives. D. W. Woolley, F. M. Strong, R. J. Madden, and C. A. Elvehjem.—p. 715.

Enzymatic Digestion of Wool. J. I. Routh and H. B. Lewis.—p. 725.

Role of Cytochromes in Action of "Indophenol Oxidase." E. Stoltz, A. E. Sidwell, jun., and T. R. Hogness.—p. 733.

Cytochrome c-cytochrome Oxidase Complex. E. Stoltz, M. A. Altschul, and T. R. Hogness.—p. 745.

Studies on Lipid Content of Normal and Dysrophic Rabbits. S. Morgulis, V. M. Wilder, H. C. Spencer, and S. H. Epstein.—p. 755.

Mineral Composition of Muscles of Rabbits on Diet Producing Muscular Dystrophy. S. Morgulis and W. Oshersoff.—p. 767.

Relation between Vitamin B₆ and Unsaturated Fatty Acid Factor. T. W. Birch.—p. 775.

Radio-active Phosphorus as Indicator of Phospholipid Metabolism: III. Conversion of Phosphate to Lipoid Phosphorus by Tissues of Laying and Non-laying Bird. C. Entenman, S. Ruben, J. Perlman, F. W. Lorenz, and I. L. Chaikoff.—p. 795.

Pyridine Compounds and Black-tongue.—From a qualitative study of the power of pyridine and eighteen of its derivatives to cure black-tongue in dogs when administered orally it appears probable that, besides nicotinic acid and its amide, only those compounds possess anti-black-tongue potency which are capable of oxidative or hydrolytic conversion in the body to nicotinic acid or amide. Thus, for example, the α and β isomers of nicotinic acid and methyl-nicotinic acid were inactive, whilst ethyl nicotinate and N -alkyl nicotinamides were active.

Journal of Experimental Medicine

Baltimore vol. 68 September 1, 1938

Effect of Sex Hormones on Renal Excretion of Electrolytes. G. W. Thorn and L. L. Engel.—p. 299.

Propagation of Virus of Human Influenza in Guinea-pig Foetus. O. C. Woolpert, F. W. Gallacher, L. Rubinstein, and N. P. Hudson.—p. 313.

Altered Cutaneous Conditions in Skin of Tuberculous Guinea-pigs as demonstrated with Vial Dye. A. L. Joyner and F. R. Sabin.—p. 325.

Studies on Antigenic Structure of Some Mammalian Spermatozoa. W. Henle, G. Henle, and L. A. Chambers.—p. 335.

*Effect of Pulse upon Formation and Flow of Lymph. R. J. Parsons and P. D. McMaster.—p. 353.

Effect of Pulse on Spread of Substances through Tissues. P. D. McMaster and R. J. Parsons.—p. 377.

Behaviour of Pox Viruses in Respiratory Tract: I. Response of Mice to Nasal Instillation of Vaccinia Virus. J. H. Nelson.—p. 401.

Molecular Weight, Electrochemical and Biological Properties of Tuberculin Protein and Polysaccharide Molecules. F. B. Seibert, K. O. Pedersen, and A. Tivell.—p. 413.

Renal Function as affected by Experimental Unilateral Kidney Lesions: I. Nephrosis due to Sodium Tartrate. T. F. Nicholson, R. W. I. Urquhart, and D. L. Selby.—p. 439.

Pulse and Lymph Flow.—A dye was injected interstitially at a distal point in the isolated rabbit's ear perfused with defibrinated blood and the rate of lymph flow deduced from studying the movement of the colour so produced. Perfusion

at constant pressure caused little flow, but when pulsation was imparted to the perfusing fluid the rate of flow increased. Pulsation in vessels therefore accelerates lymph flow, and the authors believe this to be due to the effect on tissues of rhythmic expansion of the larger vessels in them, and not to the forcing of fluid through capillary walls at each systole. Different rates of lymph flow in cardiac and renal oedema can be explained by a difference in the volume of the pulse in these two conditions.

Journal of Immunology

Baltimore vol. 35 September, 1938

- *Studies on Mechanism of Action of Sulphanilamide. III. Effect of Sulphanilamide in Serum and Blood on Haemolytic Streptococci *in vitro*. I. S. Lockwood.—p. 155.
Specific Protective Property of Serum from Rats Infected with *Cysticercus crassicollis*. D. H. Campbell.—p. 155.
Specific Absorbability of Protective Antibodies against *Cysticercus crassicollis* in Rats and *C. parvulus* in Rabbits from Infected and Artificially Immunized Animals. D. H. Campbell.—p. 205.
Quantitative Studies of Complement-fixation Reaction with Syphilitic Serum and Tissue Extract: Technique of Practical Quantitative Test. A. Wadsworth, F. Maltaner, and L. Maltaner.—p. 217.
Studies in Scarlet-fever Immunity. II. Plummer.—p. 234.

Action of Sulphanilamide.—In experiments on the effect of sulphanilamide on streptococci *in vitro* it was discovered that the presence of peptone interferes with the bactericidal action of this drug; when the cocci were separated from the peptone broth in which they had grown and re-suspended in serum an inoculum which would otherwise have grown was killed. Streptococci are able in the absence of sulphanilamide to utilize the constituents of serum for growth. The action of sulphanilamide in the body may therefore be an interference with the process whereby streptococci can utilize serum proteins for growth; the inactivation of the necessary enzyme would explain such an effect.

Journal of Laboratory and Clinical Medicine

St. Louis vol. 23 September, 1938

Clinical and Experimental:

- Salmonella subsp. enteritidis* Infection. D. B. Cole and W. L. Nally.—p. 1223.
*Ascorbic Acid in Blood and Urine after Intravenous Injection of Sodium Ascorbate. E. S. G. Barron, II, J. Brumm, and G. F. Dick.—p. 1226.
Notes on Nature and Uses of Proteins in Treatment of Diabetes. J. R. Williams.—p. 1237.
Experimental and Clinical Considerations of Actions of Camphoracetate and Metrazol in Schizophrenic Psychoses. D. E. Jackson and H. L. Jackson.—p. 1240.
Biochemical and Morphological Methods for Isolation and Identification of Yeast-like Fungi. C. C. Croft and L. A. Black.—p. 1245.
Yeast-like Fungi Isolated from Normal Skins. C. C. Croft and L. A. Black.—p. 1259.
Glutathione Content of Blood during Puerperium. J. F. Cadden.—p. 1264.

Laboratory Methods:

- Determination of Para-aminobenzenesulphonamide. L. A. MacLachlan, B. W. Carey, and A. M. Butler.—p. 1273.
Observations on Neufeld Reaction (Quellung Test) following Devaccination of Pneumococcus Preparations. H. R. Brown.—p. 1277.
Errors in Erythrocyte Counts due to Hayem's Solution avoided with Gowery's Solution. Ying-Chang Ch'u and C. E. Furker.—p. 1282.
Mouse Holder facilitating Intravenous Inoculations. K. L. Burdon.—p. 1293.
Note on Preparation of Urea Reagent for Wrenn's Method for Determination of Urea in Blood and Urine. D. N. Sabine.—p. 1296.
Improved Tournaquet. J. R. Williams.—p. 1296.
Lantern Slides of Photomicrographs in Colour. W. R. Jones.—p. 1297.
Simplified Method for making Photographic Records of Petri Dish Cultures without Camera. E. Mäler.—p. 1299.
Method for Protection of Microscopical Mounts for Mailing. H. P. Narret and T. Culp.—p. 1300.
Improved Method of Examination of Spinal Fluid for Diagnosis of General Paresis. H. Hecht.—p. 1301.
Microchemical Method for Determination of Manganese by Oxidation with Potassium Persulphate. T. W. Ray.—p. 1304.
Kahn Reactions of Sixty-four Tularaemia Patients. E. C. Brown and N. Naele.—p. 1310.

Ascorbic Acid Excretion.—The degree of vitamin C deficiency was determined in sixty-three patients by administering 10 mg. of sodium ascorbate per kilo of body weight and subsequently studying the rate of its disappearance from the blood and of its excretion in the urine. The advantages of

this method and the interpretation of results obtained by it are discussed. Vitamin C deficiency was observed in a variety of clinical conditions, mainly involving the gastrointestinal tract, which are not generally recognized as being caused or even accompanied by it.

Journal of Pharmacology and Experimental Therapeutics

Baltimore vol. 64 October, 1938

- Experiments with "Antinecrotic" Material prepared from Liver. H. M. Barrett, D. L. MacLean, and E. W. McHenry.—p. 131.
*Effect of Alarm Reaction on Absorption of Toxic Substances from Gastro-intestinal Tract. II. Selye.—p. 138.
Intraneural Activity and Arsenic Content of Cerebrospinal Fluid after Administration of Arsenic Compounds. H. F. Hawkins, T. J. Hennelly, and W. T. Wale; with W. Chinnick and R. E. Barrett.—p. 146.
Spirochaetidal Action of Arsphenamines on *Spirochaeta pallida* *in vitro*. H. Eagle.—p. 164.
Action of Sympathomimetic Amines on Heart-Lung Preparation. J. M. Crismon and M. L. Taunter.—p. 190.
Hydrolysis of Hematropine and Atropine by Various Tissues. F. Bernheim and M. L. C. Bernheim.—p. 209.
*Effect of Autonomic Hormones on Thyrotoxic Heart. B. Wise and H. E. Hoff.—p. 217.
Anesthetic Effects of Chlorine Derivatives of Cyclopropane. V. E. Henderson.—p. 225.
Studies on Cholinesterase Activity: I. Manometric Method of Assaying Cholinesterase Action. M. Rinkel and M. Pijon.—p. 228.
Studies of Morphine, Codeine, and their Derivatives: XIII. Clinical Study of Comparative Effects of Dihydrocodeine and Codeine. L. F. Davenport.—p. 236.

Alarm Reaction.—Selye has shown that substances not normally absorbed to any great extent from the alimentary tract (such as adrenaline and histamine) readily enter the blood stream if introduced into the stomach during an alarm reaction caused by muscular exercise or exposure to cold. He concludes that the increased absorption of toxic substances, such as are usually present in the alimentary tract, probably plays an important part in the causation of the general damage resulting from various non-specific noxious agents.

Thyrotoxic Heart.—The response of the normal and of the thyrotoxic heart to the administration of mechoyl (acetyl- β -methylcholine chloride) and of adrenaline is a physiological one, in which an attempt is made to adjust the disturbed autonomic balance in the cardiovascular system. The response of the thyrotoxic heart to these substances is greatly exaggerated and is considered to be due in part to augmentation of the effect of existing acetylcholine and sympathin in the thyrotoxic heart. Experiments described also suggest the existence in the thyrotoxic heart of increased sensitivity to these two substances.

Journal of Physiology

London vol. 94 October 14, 1938

- Properties of Tonic Contractions produced by Electrical Stimulation of Anterior Retractor of Bypass of *Mytilus edulis*. I. Singh.—p. 1.
Factors in Sexual-Skin Oedema. O. E. Aykroyd and S. Zuckerman.—p. 13.
Effect of High Doses of Androgenic Substances on Weights of Testes, Accessory Reproductive Organs, and Endocrine Glands of Young Male Guinea-pigs. A. C. Bottomley and S. J. Folley.—p. 26.
Influence of Glycotropic (Anti-insulin) Factor of Anterior Hypophysis on Insulin Sensitivity of Hypophysectomized Rabbit. W. H. Newton and F. G. Young.—p. 40.
Undernutrition and Liver Fat. C. H. Best and J. H. Ridout.—p. 47.
Electrical Activity of Cerebellum and its Functional Significance. R. S. Dow.—p. 67.
*Action of Ephedrine. J. H. Gaddum and H. Kwiatkowski.—p. 87.
Reactions of Avian Muscle to Acetylcholine and Eserrine. G. L. Brown and A. M. Harvey.—p. 101.
Chloride Content of Blood Serum and Aqueous Humour: Its Relation to Glaucoma and to Formation of Intra-ocular Fluid. T. H. Hodgson.—p. 118.
Water Balance and Blood Changes following Posterior Pituitary Extract Administration. E. C. Dodds, S. H. Liu, and R. L. Noble.—p. 124.
Action of Nicotine on Spinal Cord. A. Schweitzer and S. Wright.—p. 136.
*Absorption and Excretion of Iron following Oral and Intravenous Administration. R. A. McCance and E. M. Widdowson.—p. 148.
Liberation of Acetylcholine by Perfused Superior Cervical Ganglion. F. C. MacIntosh.—p. 155.
Rate of Adaptation of Quinacous Nerve Endings in Frog. F. Dun and C. B. Finley.—p. 170.

Functional Impairment of Anterior Pituitary Gland produced by Synthetic Oestrogenic Substance 4:4'-dihydroxy- α : β -diethylstilbene. R. L. Noble. —p. 177.

*Nissl Granules in "Fatigued" Nerve Cells. E. M. Scarborough. —p. 184.

Ephedrine.—Low concentrations of ephedrine sensitize the rabbit's ear, the cat's nictitating membrane, and the frog's heart not only to adrenaline but also to stimulation of adrenergic nerves. These actions of ephedrine are attributed to the inhibition of amine oxidase, which oxidizes adrenaline. This inhibition is compared with the inhibition of cholinesterase by eserine.

Iron.—Three men and three women were placed upon diets containing 5.9 to 8.6 mg. of iron a day and shown to be in balance. Then the oral intakes were raised to 12 to 16 mg. of iron a day and the subjects were again shown to be in balance—that is, all the supplementary iron was excreted. Later 7 mg. of iron were injected intravenously every day, the intake by mouth being from 7.6 to 11.7 mg. a day. None of the injected iron was excreted into the gastro-intestinal tract; the intestine has no power of regulating by excretion the amount of iron in the body.

Nissl Granules.—Prolonged stimulation of the autonomic ganglia in cats produces no change in the appearance of the Nissl granules of the nerve cells.

Journal de Radiologie et d'Électrologie

Paris vol. 22 November, 1938

Henri Beclere (1880-1937) Obituary. —p. 529.

Radicular Paralysis of Obstetric Origin and its Treatment. P. Duténil, Mammignat, and Moro. —p. 531.

Radiological Aspects of Almost Generalized Osteoperiostosis associated with Hypertrophy of Palpebral Tarsal Cartilages and of Teguments of Face and Limbs: New Syndrome. J. N. Roy and A. Intrax. —p. 539.

*Radiosensitiveness of Ewing's Tumours. G. C. Leclerc. —p. 550.

Diverticulum of Duodeno-jejunal Angle. G. Dumont. —p. 552.

Diffusely Cystic Maxilla in Senegalese. Castay. —p. 556.

Large Left Femoral Osteosarcoma. Carteret, Dillenseger, and P. Bertrand. —p. 558.

Transnasal Bronchography with Iodized Oil. A. Orley. —p. 560.

***Radiosensitiveness of Ewing's Tumours.**—The immediate response of the tumours to radiotherapy is good, but the patient as a rule dies after a year or so from local recurrences or distant metastases. Only three out of eighteen cases reviewed survived for an appreciable length of time. One of these cases was treated with radiotherapy alone, one with surgery alone, and in the third case surgery was combined with radiotherapy. This last procedure the author advocates as the method of choice.

Klinische Monatsblätter für Augenheilkunde

Stuttgart vol. 101 October, 1938

Simple Uncomplicated Form of Total Colour Blindness. E. Heinsius. —p. 489.

Hemionous Papilloedema of Hall Disk in Partial Optic Atrophy after Unilateral Lesion of Tract. O. Freisberg. —p. 494.

Non-familial Juvenile Corneal Dystrophy. E. Sagher. —p. 507.

Ocular Damage from Sulphuretted Hydrogen. K. Hartmann. —p. 510.

Bacteriological and Chemical Studies on Prevention and Treatment of Infection of Eye. H. Döhmen. —p. 515.

Discussion on Cataract at Heidelberg. A. Vogt. —p. 530.

*Preliminary Report on Treatment of Senile Cataract with Vitamin B₂. H. Wagner, H. Richner, and P. Karbacher. —p. 543.

Chauli Technique of X-ray Treatment of Malignant Tumours of Lid. R. Braun. —p. 557.

Cataract and Vitamin B₂.—An extensive investigation on the effect of the parenteral administration of lactoflavin (vitamin B₂) on the progress of lens opacities proved negative.

Strahlentherapie

Berlin vol. 63 November, 1938 Heft 3

Discovery of Radium and Radio-active Substances and its Significance for Treatment of Carcinoma of Uterus. A. Doderlein. —p. 403.

Thirty Years' Experience in Therapy of Uterine Carcinoma. A. Mayer. —p. 407.

Treatment of Cervical Carcinoma at Women's Hospital of University of Königsberg in 1910-37. F. v. Mikulicz-Radecki. —p. 414.

Results of Treatment of Uterine Carcinoma at Women's Hospital of University of Göttingen in 1925-37. F. Erichsen. —p. 426.

Results of Treatment of Malignant Ovarian Tumours. F. Craiuz. —p. 434.

Would it be Possible to use a Radium Bomb in Vagina for Treatment of Uterine Carcinoma and would such a Technique lead to appreciably Better Distribution of Radiation? R. du Mesnil de Rochemont. —p. 465.

Results of X-ray and Radium Therapy of Carcinoma of Larynx and Hypopharynx. R. Müller. —p. 483.

*Radium Therapy of Haemangiomas. W. Baensch. —p. 496.

*Neutrons. W. Gerlach. —p. 506.

Dosimetric and Biological Tests with Fast Neutrons: I. K. G. Zimmer. —p. 517.

Dosimetric and Biological Tests with Fast Neutrons: II. K. G. Zimmer and N. W. Timofeff-Ressovsky. —p. 528.

Technique of Production of Neutrons and of Artificial Radio-activity. A. Bonwers. —p. 537.

Distribution of Injected Dissolved Radium among Different Tissues in Animals. F. Daels, H. Fajerman, and Van de Putte-Van Hove. —p. 545.

Influence of Products of Disintegration of Albumin on Processes connected with Formation of Cancer. R. Reding. —p. 556.

Radium Therapy of Haemangioma.—The author favours the interstitial application of radium needles and reports favourable results in 230 cases so treated.

Neutrons.—The movement of fast neutrons is slowed down by collision with hydrogen, which is present in practically all the tissues of the body. The slowed-down neutrons adhere to a number of atoms such as those of sodium and potassium; this produces in the body a hard x-radiation. The newly formed atoms are radio-active and emit over a variable length of time (seconds to hours) β rays, which are absorbed in the body.

Zeitschrift für Immunitätsforschung und Experimentelle Therapie

Jena vol. 93 1938 Heft. 5 and 6

Distribution of Group-antigens in Body in So-called "Excretors" and "Non-excretors." G. Hartmann. —p. 385.

Note on Schwartzman Phenomenon. G. Albus and H. Schwarz. —p. 403.

Serological Study of Streptococci from Surgical Infections. R. Takeya. —p. 407.

Serological Tests for Tuberculosis with Post-mortem Blood. L. Dittbelt. —p. 415.

Value and Limitations of Active Immunization against Diphtheria. K. Hofmeier and A. Jansen. —p. 436.

Position of Bacilli of Rhinocleroma in Group of Capsulated Bacteria. W. Kurylowicz. —p. 457.

Constitution of Human Anti-A Agglutinins in Different Anti-A Sera and their Significance in Detection of A in Secretions. P. Dahr. —p. 480.

Immunological Study of Haemolytic Streptococci from Cases of Scarlet Fever. H. Namikawa. —p. 490.

Classification of Tubercle Bacilli by Agglutination. C. Suzuki. —p. 498.

Animal Experiments on Effect of Ultra-violet Light on Bactericidal Power of Blood. W. J. Wenger. —p. 501.

Leptospirosis in Cats in Java. H. Esveld and W. A. Collier. —p. 512.

Immunizing Power of Aoki's Receptors. K. Aoki. —p. 529.

Zentralblatt für Bakteriologie

Jena vol. 142 September, 1938, Abt. I

Studies of Defence Reaction in Infected Skin. H. A. Gins, G. Kroemer, and Th. Link. —p. 225.

Value of Oxidase Reaction for Identifying Meningococci. B. Sacharow. —p. 251.

Effect of Papainase-activating Substances on Breakdown of Gelatin by Bacteria. J. Schollmeyer. —p. 256.

Studies of Japanese Encephalitis Virus. E. Haagen and B. Crndet. —p. 269.

*Action of Trypaflavine on Psittacosis in Mice. G. Maier. —p. 279.

Experimental Transformation of Diphtheria Bacilli into Pseudo-diphtheria Bacilli. M. Waldiecker. —p. 287.

Studies in Chemotherapy and Serotherapy of Experimental Pneumococcal Infection. E. Osterholz. —p. 293.

Differentiation of Acid-fast Bacteria by Means of Agglutination Test. G. Chiti. —p. 303.

Can Avian Tubercle Bacilli be clearly Distinguished from Other Acid-fast Bacilli after Growth in Fluid Medium? G. Chiti. —p. 313.

Culture Media with Soya Bean and Sweet Lupin Meal as Basis. W. Brandt. —p. 316.

Habitat of Blastocystis in Bowel. W. Reyer. —p. 323.

Contributions to Knowledge of Parasitic Nematodes: VIII. New Parasitic Nematodes from Natural History Museum, Basel. H. A. Fries. —p. 329.

Trypaflavine in Psittacosis.—Trypaflavine prolongs the life of mice experimentally infected with the virus of psittacosis, and if the dose of the latter be not too great may even save the life of the animal. The results of such experiments vary with the route of administration both of the virus and of the trypaflavine, which is least effective when given intravenously (presumably owing to rapid elimination). Its action may be either direct or indirect: if the former, its capacity for penetrating cells is likely to be an important factor.

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THE LANCET, October 29, 1938. Pages 983-987

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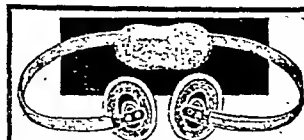
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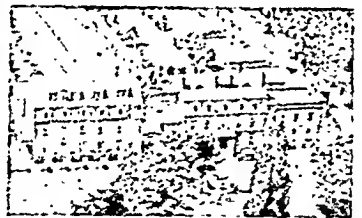


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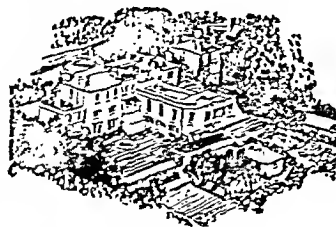
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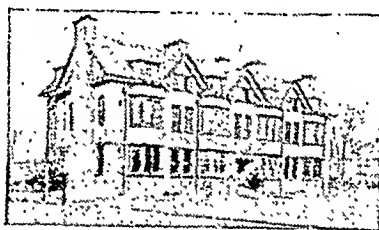
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Newly fitted Balneological, Electro-medical and Small Turkish and Russian Bath sections for recognised forms of Spa, etc., treatment under mild winter climatic conditions.

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The following booklets may also be had post free:—

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RALPH B. CANNINGS, Secretary.

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THE LONDON SCHOOL OF DERMATOLOGY St. John's Hospital for Diseases of the Skin, 5, Lisle Street, Leicester Square, W.C.2

Conducted by the Honorary Staff of the Hospital together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations twice weekly during October and November, and again during January and February, and four times weekly during May. General Practitioners will be welcome as occasional visitors on presentation of their Cards. Clinics daily at 2 p.m. and 6 p.m. Saturdays 10 a.m. only. The Laboratory is particularly well equipped and arrangements can be made for classes, individual instructor or for research work. Enquiries: The Dean or Secretary of the School

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H. C. ORRIS, F.R.C.S., Surgeon's Hall, Edinburgh

Introductory Course in HOMOEOPATHIC THERAPEUTICS

The course will consist of 12 LECTURES dealing with HOMOEOPATHIC PHILOSOPHY, MATERIA MEDICA, and REMEDY SELECTION. The lectures will be given weekly on TUESDAY AFTERNOONS at 4.30 p.m. in the HOMOEOPATHIC HOSPITAL, 1000, Great Western Road, Glasgow, W.2, commencing January 10th, 1939. Lecturer: Dr. H. HENDERSON PATRICK.

In conjunction with the lectures, CLINICAL DEMONSTRATIONS will be given at the GLASGOW HOMOEOPATHIC DISPENSARY, 5, Lynedoch Crescent, Glasgow, C.3, and at the Scottish Homoeopathic Hospital for Children, Mount Vernon.

Fee for complete course, payable in advance to Dr. Ross, Glasgow Homoeopathic Hospital, £3 3s. The course is open to registered medical practitioners only.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, W.2

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A Course of Instruction for the June EXAMINATION will begin on Wednesday, February 1st, 1939, in the following subjects:—

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For further particulars apply to the School Secretary.

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Short Intensive Oral and Postal Revision Courses in preparation for these qualifications.

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BIRKENHEAD EDUCATION COMMITTEE.

ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for the position of Assistant School Medical Officer at a salary of £500 per annum, rising by annual increments of £25 to a maximum of £700. The post is designated under the Local Government and Other Officers' Superannuation Act, 1922, and will carry with it the designation of "Assistant School Medical Officer and Assistant Medical Officer of Health."

In fixing the commencing salary within the scale regard will be paid to previous recognized service. The duties will mainly consist of the inspection and treatment of children attending schools in the Borough.

Applicants must be duly qualified Medical Practitioners with experience and must hold the Diploma of Public Health.

The person appointed will be required to reside within the Borough.

Canvassing, either directly or indirectly, will be regarded as a disqualification.

Particulars of the appointment and form of application may be obtained from Dr. D. Morley Mathieson, Medical Officer, 9, Hamilton Square, Birkenhead, and applications must be delivered not later than January 14th, 1939, to:

G. B. DEMPSEY,

Education Officer, Director of Education.
Hamilton Square, Birkenhead.

CHESHIRE EDUCATION COMMITTEE.

ASSISTANT SCHOOL MEDICAL OFFICER (Woman).

Applications are invited from qualified single women for a whole-time post as Assistant School Medical Officer, to reside at Altrincham.

Candidates must have had at least three years' practical experience in their profession and be not more than 45 years of age.

Commencing salary £500, rising by £25 annually to £700 (less 5 per cent. for superannuation). Travelling expenses on County scale.

Forms of application, containing full particulars of appointment, may be obtained from the undersigned and must be received, duly completed, not later than January 9th, 1939.

JAN MACKAY, M.B., Ch.B.,

School Medical Officer.

24 Nicholas Street, Chester.

UNIVERSITY OF DURHAM.

King's College, Newcastle-upon-Tyne.

ASSISTANT BACTERIOLOGIST IN PUBLIC HEALTH LABORATORY.

Applications are invited from qualified medical men or women for the above post. Postgraduate experience in the routine methods of a bacteriological laboratory is desirable. The appointment is a temporary one in the first place, but a permanent appointment will shortly be made. The person will be required to take up duty at the earliest possible date. Salary at the rate of £400 per annum. Applications should be lodged as soon as possible with the undersigned.

W. G. B. OLIVER,

Registrar.

GUY'S HOSPITAL DENTAL SCHOOL.

Applications are invited for the WHOLE-TIME POST OF DENTAL RESEARCH FELLOW, the appointment to begin as soon after January 1st, 1939, as possible. Preference will be given to a biochemist who is prepared to undertake work on dental diseases. The appointment will be for two years in the first instance with the possibility of reappointment. The stipend will be at the rate of £400 per annum.

Applications, accompanied by the names of three persons to whom reference may be made, should be submitted not later than December 31st, 1938, to the Dean, Guy's Hospital Medical School, S.E.1, from whom further particulars regarding the appointment may be obtained.

CITY OF BIRMINGHAM.

Dudley Road Hospital. (926 Beds.)

Applications are invited from fully qualified Medical Practitioners for whole-time appointment as JUNIOR MEDICAL OFFICER (male) at the Dudley Road Hospital, Birmingham. The appointment will be for a period of six months, but may be extended for a further period of not exceeding six months. Salary at the rate of £200 per annum, and full residential emoluments.

Further particulars may be obtained from the Medical Superintendent at Dudley Road Hospital, to whom applications, stating age, experience, and qualifications, with copies of recent testimonials, should be forwarded not later than Thursday, December 29th, 1938.

ROYAL NAVAL MEDICAL SERVICE

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry at the end of March, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

Officers who leave the Service at the end of the initial period of three years will be eligible for a gratuity of £400, and those who leave at the end of five years for a gratuity of £1,000.

At the end of five years' Short Service, permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list. Marriage Allowance is paid under the same conditions as for other Naval Officers.

Opportunities are available for officers on the permanent list for postgraduate study, to specialise, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances and retired pay, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1939.

SURREY COUNTY COUNCIL PUBLIC HEALTH DEPARTMENT.

EPSOM COUNTY HOSPITAL. (330 Beds)

RESIDENT ASSISTANT MEDICAL OFFICER (Male)

Applications are invited for the appointment, which will be vacant on February 1st, 1939, of Resident Assistant Medical Officer at the Epsom County Hospital.

Applicants must have held a previous resident hospital appointment and should preferably have had experience in maternity work and minor surgery.

The appointment is for a period of six months, renewable for a further period of six months, and the salary is at the rate of £250 per annum, together with full residential emoluments valued at £125 per annum.

Applications, stating age, qualifications, and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the Medical Superintendent, Epsom County Hospital, Dorking Road, Epsom, so as to be received not later than December 31st, 1938.

DUDLEY AUKLAND
County Hall, Kingston-upon-Thames.
December 16th, 1938. Clerk of the Council.

CITY OF LEICESTER.

RESIDENT MEDICAL OFFICER.

Resident Medical Officer (male) required for the CITY ISOLATION HOSPITAL AND SANATORIUM, Groaty Road.

Appointment for a period of six months, renewable if service is satisfactory for a further period of six months.

Salary at the rate of £300 per annum, with the usual residential emoluments. The officer appointed must be required to assist with Infant Welfare work.

Applications, on forms to be supplied, to be sent to the undersigned not later than January 11th, 1939.

Health Offices, E. K. MACDONALD,
Grey Friars, Medical Officer of Health
Leicester, December, 1938.

BOROUGH OF ROMFORD.

WOMAN ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER.

Applications are invited from duly qualified and registered medical practitioners for the post of whole-time Woman Assistant Maternity and Child Welfare Medical Officer experienced in Ante-Natal work, Midwifery and Children's Diseases. Preference will be given to applicants who hold a Diploma in Public Health or State Hygiene. The selected candidate will be required to hold consultations at the Ante-Natal and Maternity and Child Welfare Centres of the Council, and to perform such other duties as may be required of her. She will be a member of the staff of the Medical Officer of Health, and will work under his control and direction.

The salary will be £590 per annum, rising by annual increments of £25 to a maximum of £700 per annum.

The person appointed will be required to devote the whole of her time to the duties of her office and will not be allowed to engage in private practice.

The post is subject to superannuation deductions, and the selected candidate will be required to pass satisfactorily a medical examination.

Applications, stating age, qualifications, and previous experience, accompanied by copies of not more than three recent testimonials, should be endorsed "Assistant Medical Officer," and delivered to me not later than Saturday, January 7th, 1939. There are no forms of application. Candidates in any form will disqualify.

Town Hall,
Romford.
December 14th, 1938.

J. TWINN,
Town Clerk.

CLAYTON HOSPITAL WAKEFIELD

CASUALTY OFFICER in charge of Fracture Clinic. Previous practice and plaster technique essential. Required February 1st, 1939, for minimum period of one year. Candidates should be of British nationality, male, and single. Salary £250 p.a., with board, residence, etc.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the undersigned by December 31st, 1938.

T. F. W. MACKEOWN,
Superintendent and Secretary.

COUNTY BOROUGH OF BLACKBURN.

ASSISTANT SCHOOL MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH (Male)

Applications are invited from registered medical practitioners for the post of Assistant School Medical Officer and Assistant Medical Officer of Health (male) to act under the supervision of the Medical Officer of Health, who is also the School Medical Officer.

The person appointed must devote the whole of his time to the service of the Corporation.

The duties of the office are general, although they will consist largely of work in the School Medical Department. Preference will be given to candidates holding a Diploma in Public Health who have held resident appointments in general and infectious diseases hospitals.

The salary will be at the rate of £600 per annum, increasing by annual increments of £25 to a maximum of £700 per annum.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Forms of application and further particulars of the duties and conditions of the appointment may be obtained from the Medical Officer of Health, Victoria Street, Blackburn.

Completed forms, together with copies of three recent testimonials, must reach me by Friday, January 6th, 1939, and should be endorsed on the envelope "Assistant School Medical Officer."

Candidates, either directly or indirectly, will be disqualified.

Town Hall, CHAS. S. ROBINSON,
Blackburn. Town Clerk.

THE BUCHANAN HOSPITAL, St. Leonards-on-Sea. (103 Beds)

HOUSE SURGEON (female) required to commence duties early in January. Salary £125 per annum, experience.

Candidates must be duly registered Medical Practitioners, and applications, which should include three copies of recent testimonials, should be sent to the undersigned immediately.

FRANK HART,
Secretary.

CITY OF LEEDS. PUBLIC HEALTH DEPARTMENT. St. James's Hospital. (1,330 Beds.) RESIDENT MEDICAL OFFICER (Male).

Applications are invited for the above appointment, the duties of which are entirely medical. Candidates must be single, and should have had considerable experience in general medicine and possess one of the higher qualifications. The position offers excellent opportunity for extensive experience in medicine. The person appointed will be required to work under the direction of the Medical Superintendent and in association with the Visiting Physicians. He will also have the supervision of the immediate clinical work of four House Physicians.

Under the present scale of salaries of the Corporation the commencing salary for the post is £350 per annum, and the maximum £450 per annum, with annual increments of £25, subject to satisfactory service. The first increment will take effect on April 1st, following the completion of twelve months' service. Board, residence, and laundry are provided, these emoluments being valued for superannuation purposes at £120 per annum.

The person appointed will be required to pass a medical examination and to contribute to the Superannuation Fund established under the Local Government and Other Officers' Superannuation Act, 1922.

The appointment will be terminable by one month's notice.

Applications, on a form to be obtained from the undersigned, together with copies of three recent testimonials, and endorsed "Resident Medical Officer," must be received at the Public Health Department, 12, Market Buildings, Vicar Lane, Leeds 1, not later than 10 a.m. on Monday, January 9th, 1939.

Canvassing in any form, either directly or indirectly, will be a disqualification.

J. JOHNSTONE JERVIS,
Medical Officer of Health.

ESSEX COUNTY COUNCIL. JUNIOR RESIDENT MEDICAL OFFICER.

The County Council of the Administrative County of Essex invite applications for the appointment of a Junior Resident Medical Officer at the Oldchurch County Hospital, Romford.

The appointment is for a period of one year, and the salary will be at the rate of £250 per annum, together with the usual indoor emoluments valued at £160 per annum. The successful candidate will be required to pass a medical examination, and will be subject to the Council's sick pay rules and regulations, a copy of which will be forwarded on application.

Applications on the prescribed form obtainable from the undersigned should be addressed to me, and delivered at the County Hall, Chelmsford, not later than 10 a.m. on Saturday, December 31st, 1938.

County Hall, E. S. HOLCROFT,
Chelmsford. Clerk of the County Council,
December 13th, 1938.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Class 1).—Salary £350-£25-£425, with board, lodging and washing.

(a) ST. GILES' HOSPITAL, St. Giles' Road, Camberwell, S.E.5.—Surgical experience desirable.

(b) ST. JAMES' HOSPITAL, Ouseley Road, Balmam, S.W.12.—(Two positions.) (1) Surgical duties. (2) Obstetric and gynaecological duties.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, 2, County Hall, Westminster Bridge, S.E.1, returnable by January 2nd. Canvassing disqualifies.

SOMERSET COUNTY COUNCIL. APPOINTMENT OF ASSISTANT (TEMPORARY) MEDICAL OFFICER

Applications are invited for the above appointment from registered medical practitioners (men or women). The duties will be concerned mainly with school medical inspection, and the probable duration of the appointment will be six months.

Salary £500 per annum. Travelling and subsistence allowances according to County scale.

Applications, stating age, qualifications, and experience, with copies of recent testimonials, should be sent immediately to the undersigned.

J. F. DAVIDSON,

County Medical Officer of Health
Health Department,
County Hall, Taunton

COUNTY OF BRECON. APPOINTMENT OF DISTRICT MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of District Medical Officer of Health for the combined areas of the Borough of Brecon, the Urban Districts of Builth Wells, Hay, and Llanvrttyd, and the Rural Districts of Brecknock, Builth, and Hay (360,216 acres, population about 25,000), from April 1st, 1939.

Applicants must be registered in the Medical Register as the holder of a Diploma in Sanitary Science, Public Health, or State Medicine, and must not be over 45 years of age at the date of application.

The person appointed will be required to perform all the duties imposed on a Medical Officer of Health by Statute and by any Orders, Regulations, or directions from time to time made or given by the Minister of Health and by any by-laws or instructions of the Local Authorities concerned in the appointment applicable to the office, and to devote the whole of his time to the duties of his office.

In addition he will be required to undertake the organisation of the Medical services of the above districts forming part of the Air Raid Precautions Scheme for the County under the general directions of the County Medical Officer of Health and the County Co-ordinating Officer, and he may be required to undertake a certain amount of work in connexion with the medical services provided by the County Council.

Salary £800 per annum, together with an allowance of £100 per annum for travelling, subsistence, provision of office accommodation, and clerical assistance.

The appointment is subject to the approval of the Minister of Health and is pensionable under the provisions of the Local Government Superannuation Act, 1937.

Applications, giving age, medical qualifications, and previous experience (if any), together with copies of three recent testimonials, must be received by me not later than January 14th, 1939.

ALBERT JOLLY,

County Hall, Brecon. Clerk to the Breconshire County Council,
December 16th, 1938.

COUNTY BOROUGH OF DERBY. ASSISTANT MEDICAL OFFICER (Male).

Applications are invited for the post of Assistant Medical Officer in the Public Health and School Medical Department. Salary £500 per annum, rising by annual increments of £25 to £700 per annum.

Applicants must be duly qualified registered Medical Practitioners, and should possess the Diploma of Public Health.

The duties of the post are the medical inspection of school children, the supervision of treatment of minor ailments, the carrying out of work under the maternity and child welfare scheme, and such other duties as may be required by the Council.

The officer appointed will be required to devote his whole time to the duties of the post, to act under the supervision and control of the Medical Officer of Health, and to reside within the Borough.

The successful candidate will be required to contribute to the Council's Superannuation Fund, and for this purpose must pass the necessary medical examination. Age of applicant must not exceed 40 years.

The appointment will be held during the pleasure of the Council, and is terminable by two months' notice on either side.

Applications, stating age, qualifications, and previous experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than Wednesday, December 28th, 1938. Application forms are not provided. Envelopes must be endorsed "Assistant Medical Officer."

Canvassing, directly or indirectly, will be a disqualification.

F. C. SMITHARD,
Secretary to the Education Committee.
Education Offices,
Becket Street, Derby.

COUNTY BOROUGH OF BRIGHTON. APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

The Council invite applications for the appointment of Medical Officer of Health at a salary of £1,250 per annum, rising by annual increments of £50 to a maximum of £1,750.

Forms of application, together with the qualifications, duties and conditions required or attached to the position may be obtained from me.

Applications (with copies of three recent testimonials) and endorsed "Medical Officer" must be delivered at my Office before 10 o'clock in the forenoon of Tuesday, January 10th, 1939.

Canvassing, either directly or indirectly, will disqualify.

Town Hall, Brighton.
J. G. DEW,
December 19th, 1938. Town Clerk.

MIDDLESEX COUNTY COUNCIL.

(1) DISTRICT MEDICAL OFFICER.
HORNSEY MEDICAL RELIEF DISTRICT.
Qualified Medical Practitioner* required for above appointment. Salary £300 p.a., plus cost of expensive drugs, fees for attendance at confinements and for services of another medical practitioner to administer short anaesthetics for minor operations (e.g. septic fingers, abscesses).

The officer appointed will be required to carry out his duties in accordance with the Public Assistance Order, 1930, of the Minister of Health, to reside in the district unless the Council otherwise determines, and to name to the Council some duly qualified medical practitioner who will, in the case of his absence or other hindrance to his personal attendance, act in his place.

(2) PUBLIC VACCINATOR.
HORNSEY VACCINATION DISTRICT.
Qualified Medical Practitioner* required for above appointment. Will be required to produce to the Council a certificate of proficiency in vaccination, except in a case in which such certificate was required as a condition of obtaining any diploma, licence or degree which he possesses. He will be required also to enter into a contract with the Council in accordance with the Vaccination Order, 1930, of the Minister of Health. The contract will provide for the payment of the scale of fees laid down by the County Council.

(3) ASSISTANT DENTAL OFFICER.
Fully qualified and registered Dental Surgeon required for pensionable staff, subject to medical examination. Duties include dental inspection and treatment of school children and of women and young children under Maternity and Child Welfare Scheme. Whole-time duties under supervision of County Medical Officer and Senior Dental Surgeon. Private practice not allowed. Salary £500 p.a., £25-£700, with out-of-pocket travelling expenses whilst on duty.

*No superannuation rights under Council's Scheme in these cases.
Applications, stating date of birth, qualifications and experience, with copies of not more than three recent testimonials, must reach the undersigned by January 7th, 1939 (Dental Officer, January 10th). Envelopes must be endorsed either "District Medical Officer—Z," "Public Vaccinator—Z," or "Dental Officer—Z." No application forms. Canvassing, direct or indirect, disqualifies.

C. W. RADCLIFFE,
Guildhall, Westminster, S.W.1.
Clerk of the County Council.

COUNTY BOROUGH OF MIDDLESBROUGH.

ST. LUKE'S MENTAL HOSPITAL.
Grove Hill, Middlesbrough.

The Committee of the County Borough of Middlesbrough invite applications for the appointment of an OFFICER and INTENDENT (male) for the above-mentioned Hospital.

Candidates must be fully qualified and duly registered, and preference will be given to one who has held a resident appointment in a General Hospital.

The age of applicants, unless with previous Mental Hospital service, should not exceed 35 years.

Salary £500 per annum (no emoluments), rising by four annual increments of £25 to a maximum of £600, plus an extra payment of £50 per annum to holders of, or who may later obtain, the D.P.M. Unfurnished house on the estate provided, for which a sum of £50 per annum will be deducted from the salary to cover rent, rates and water.

The appointment is whole time and subject to the provisions of the Asylums Officers' Superannuation Act, 1909. The appointment will be terminable by two months' notice on either side. The successful candidate will be required to undergo a medical examination.

Canvassing will disqualify.

Applications, accompanied by copies of three recent testimonials, should be sent to the undersigned not later than January 4th, 1939, endorsed "Assistant Medical Officer and Deputy Medical Superintendent."

PRESTON KITCHEN,
Town Clerk and Clerk to the
Town Clerk's Office, Committee of Visitors
Middlesbrough
December 7th, 1938

THE BABIES' HOSPITAL. Newcastle-on-Tyne.

NON-RESIDENT MEDICAL OFFICER
required February 1st.

The duties are those of a Resident Physician, and the post offers opportunities for study and research work. The appointment is for six months, which may be extended to twelve months. Salary £160 per annum.

Applications, with two testimonials and particulars of previous appointments held, must be lodged by January 4th with the Secretary, Babies' Hospital, West Parade, Newcastle-on-Tyne.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

| Town or District | Town or District | Town or District |
|---|---|--|
| CONTRACT PRACTICE | CONTRACT PRACTICE—(contd.) | CONTRACT PRACTICE—(contd.) |
| ABERTYSWG MEDICAL AID SOCIETY. (Medical Officer.) | MID-RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer.) | OAKDALE, MON. (Medical Officer for Medical Aid Association.) |
| BLAENAVON MEDICAL SOCIETY (Medical Officer.) | NEATH AND DISTRICT (Medical Aid Association.) | PUBLIC HEALTH |
| GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme.) | OGMORE VALLEY, GLAMORGAN. (Wyrtham Colliers Medical Aid Society.) (Workmen's Medical Scheme.) | HEREFORDSHIRE COUNTY COUNCIL. (Assistant County Medical Officer.) |
| LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme.) | | WIGTOWN COUNTY COUNCIL. (Assistant Medical Officer of Health.) |

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

| Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch | Town or District | Hon. Sec. of Division or Branch |
|---|---|---|--|---|--|
| NEW SOUTH WALES (All Friendly Society Appointments.) | The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W. | VICTORIA (All Institute or Medical Dispensaries.) | The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria. | WESTERN AUSTRALIA (Contract and Lodge Practices.) | The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia. |
| QUEENSLAND (Brisbane Associate Friendly Societies Institute.) | The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B 17 | | | | |

December 20, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

COVENTRY AND WARWICKSHIRE HOSPITAL, COVENTRY.

Main Hospital: 307 Beds
Convalescent Hospital: 40 Beds

Applications are invited for the post of OPHTHALMIC REGISTRAR and OPHTHALMIC CLINICAL ASSISTANT.
Candidates must have had previous Ophthalmic experience.

Applications, to be made to the undersigned, to be received not later than the first post on Saturday, December 31st, 1938.

S. CECIL HILL,
House Governor and Secretary.
December 12th, 1938.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.

(84 Beds.)

Wanted, January 16th, 1939, a RESIDENT HOUSE PHYSICIAN (Lady) Salary £130 p.a. The appointment is for six months, but may be extended by mutual arrangement. Applicants must be fully qualified. Applications, with three testimonials, to be sent to the undersigned forthwith.

The Hospital is recognized by the Conjoint Board for the purpose of the Diploma in Child Health.

ARTHUR N. WHISTON,
Secretary.

DUNDEE MENTAL HOSPITAL, WESTGREEN.

Applications are invited for the post of JUNIOR ASSISTANT MEDICAL OFFICER (male) to the above Hospital. Salary £300 per annum, with board, lodging, and laundry, subject to deductions under the Asylum Officers' Superannuation Act.
Applications, stating age and experience, with copies of three recent testimonials, to be forwarded to the Medical Superintendent.

ANCOATS HOSPITAL, MANCHESTER. 4.

ASSISTANT PATHOLOGIST.—Lady or gentleman whole-time appointment, no private work allowed. Salary £400 per annum; five out. Luncheon and tea provided. The appointment is for twelve months and is renewable.

Applications for the above post, stating age and particulars of qualifications and experience, to be forwarded to the undersigned on or before January 4th, 1939, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAVIDRNE,
Gen. Supt. and Secretary

ROYAL UNITED HOSPITAL, BATH.

HOUSE PHYSICIAN required for January 1st, 1939. Resident Staff of two House Physicians and three House Surgeons.
Duties include some Casualty. Salary £150 per annum, board, residence and laundry. The appointment is for six months, and candidates must be male, unmarried, and of British nationality.

Applications, with copies of three testimonials, to be addressed to the undersigned by December 27th.

J. LAWRENCE MEARS,
December 13th, 1938. Secretary-Superintendent.

ROTTERHAM GENERAL HOSPITAL. HONDRARY OPHTHALMIC SURGEON.

The Hospital Committee invite applications for the post of Honorary Ophthalmic Surgeon at the above Institution.

Prompt replies to this advertisement are desirable, and full particulars can be obtained from the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE.

Withington, Manchester, 20.

Applications are invited for the post of RESIDENT SURGICAL OFFICER at the above Hospital, to commence duties early in January.

The appointment is for a period of six months, but will be renewable. Previous resident appointments essential.

Salary at the rate of £150 per annum, plus residence, board, and laundry.

Applications, with full details of previous experience, together with copies of testimonials, should be sent to the undersigned immediately.

PERCY N. GLASS,
Superintendent and Secretary.

HARROGATE RYDAL BATH HOSPITAL. (A National Hospital for Rheumatic and Allied Diseases.) (150 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male), to commence duties beginning of February, 1939. Salary £200 per annum, with board, residence and laundry. Exceptional facilities for research or preparation of thesis.

Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned.

E. P. L. DIXON, M.A., Secretary.

THE LAWN, LINCOLN. ASSISTANT MEDICAL OFFICER REQUIRED

Medical woman, with mental hospital experience or working for D.P.M. preferred. Salary £300 per annum, with emoluments. Apply, Medical Superintendent, The Lawn, Lincoln.

(Appointments continued on p. 34)

CHARGES for ADVERTISEMENTS

CIRCULATION OF THIS ISSUE—41,750 COPIES

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ADVERTISEMENT MANAGER, BRITISH MEDICAL JOURNAL,
B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

EUSon 2111

NOT CLASSIFIED

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TOBACCO GOOD SMOKES at a low price, quality guaranteed. Box of 50 for 25/-, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

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THESE luxurious deliciously satisfying smokes. 50's or 100 at 6/3 per 100; 58/6 per 1,000, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

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THE finest combination ever discovered of Choice Natural Tobaccos. Every pipelut an indescribable pleasure. 12/6 per 1 lb. tin, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

TYPEWRITING, DUPLICATING, TRANSLATIONS.—Experts in Medical work. TESTIMONIALS, THESES, etc., accurately copied in style that commands attention.—WOBURN BUREAU, Drayton House, Gordon Street, London, W.C.1 (close B.M.A. House). EUSon 1775.

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ASSISTANCIES

WANTED IN JANUARY.—LADY DOCTOR as ASSISTANT for Sanatorium. Previous experience not necessary.—Address, No. 1030, B.M.A. House, Tavistock Square, W.C.1.

WANTED EARLY JANUARY. OUTDOOR ASSISTANT in small country town (with Forest), N. Wales. Pleasant agricultural locality. Work very light. Able to drive car.—Address, No. 1112, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY. INDOOR AND Outdoor ASSISTANTS for Town and Country Practices, with and without view to Partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED. ASSISTANT FOR PRACTICE near Lake District, preferably with experience of general practice. Salary £500, with free furnished house and £50 car allowance. Good prospects to energetic man.—Address, No. 1111, B.M.A. House, Tavistock Square, W.C.1.

WANTED. OUTDOOR ASSISTANT. MUST be strong, energetic, and experienced. English or Scottish Protestant; abstainer. Newcastle-on-Tyne. Dispenser kept. Good salary and prospects.—Address, No. 1109, B.M.A. House, Tavistock Square, W.C.1.

WANTED. INDOOR MALE ASSISTANT FOR private and panel practice. London. Previous experience advantageous. Initial salary £300 p.a. Usual bond. Give age, experience, references.—Address, No. 1102, B.M.A. House, Tavistock Square, W.C.1.

WANTED. YOUNG OUTDOOR MALE ASSISTANT, single, Protestant, for general practice, west coast Scotland. £400 and £50 car allowance per annum.—Address, No. 1116, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT WANTED FOR GENERAL practice in N. London. Salary £400 p.a., and partnership one-third share at first in three months' time. The income of the practice is £3,000 p.a., and there is a panel of 4,500.—Address, No. 819, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT, OUTDOOR, LADY OR GENTLE-man; Midland town. Salary £350 all found. Car kept or allowance. References essential. Reliable; energetic; experience G.P.: are about 30. Partnership later to suitable person.—Address, No. 1105, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP REQUIRED BY YOUNG energetic Doctor. Well qualified. Excellent hospital and G.P. experience. Preferably semi-rural or north-west coast.—Address, No. 1107, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WITHIN EASY REACH OF London offered to young man desiring Permanency. Salary commencing £300, all found, and use of car. Protestant and abstainer preferred.—Address, No. 1118, B.M.A. House, Tavistock Square, W.C.1.

PRELIMINARY ASSISTANTSHIP REQUIRED by young (30) energetic Doctor. Excellent hospital and G.P. experience. Good qualifications. Abstainer. Married. Free in January. Own car.—Address, No. 1106, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS

WANTED IMMEDIATELY. LOCUM FOR OPHTHALMIC PRACTICE. D.O. or D.O.M.S. preferred. North of England.—Address, No. 1113, B.M.A. House, Tavistock Square, W.C.1.

M.B., CH.B. AVAILABLE JANUARY AND February. Usual terms.—Address, No. 1117, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS

WANTED, IN OR NEAR LONDON, POS-t in private MENTAL HOME, with consulting and all other possibilities, by highly qualified doctor, with 15 years' foreign and home experience. Will take full charge if necessary.—Address, No. 1005, B.M.A. House, Tavistock Square, W.C.1.

WANTED. RESIDENT MEDICAL SUPERIN-TENDENT for small mental hospital. Work light.—Address, No. 1008, B.M.A. House, Tavistock Square, W.C.1.

A COURSE OF TRAINING IN DISPENSING and Pharmacy is given at GORDON HALL SCHOOL OF PHARMACY FOR WOMEN, and Secretary-Dispensers can be supplied to Doctors. Sessions: January, April, and September.—Apply, Principals, School of Pharmacy, Drayton House, Gordon Street, W.C.1. Phone: Euston 3920.

A LADY DISPENSER BOOKKEEPER SUP-plied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparations for Examinations.—Write, wire, or phone (Bayswater 0969) Secretary, 7, Westbourne Park Road, W.2.

DISPENSING CAREER FOR YOUNG LADIES. FULL TRAINING for Apothecaries Hall Certificate. Enrolments every three months.—Apply, The Principal, Central School of Pharmacy, 28, Moreton Street, London, S.W.1. Telephone: Victoria 1641.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeur-Dispensers, are invited to write, wire, or phone Temple Bar 5858, THE DISPENSER'S BUREAU, 3, Linsday House, 171, Shaftesbury Avenue, London, W.C.2.

DOCTOR, M.D., F.R.C.S.E., RETIRED FROM African Colonial Service, desires LIGHT WORK, preferably in or near Edinburgh, but any proposition would be entertained.—Address, No. 1031, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR REQUIRES LADY SECRETARY (possibly part-time). Must be young, smart. Public School education, interested in medical work.—Address, No. 1108, B.M.A. House, Tavistock Square, W.C.1.

FREE ACCOMMODATION AND SMALL remuneration offered to post-graduate or semi-retired practitioner in RETURN for occasional NIGHT CALLS. North London. Easy access to all hospitals. Night suit Indian doctor.—Address, No. 1032, B.M.A. House, Tavistock Square, W.C.1.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Leckington Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

Date.....

EAST RIDING MENTAL HOSPITAL,
Beverly

The Visiting Committee of the East Riding Mental Hospital invite applications from registered medical practitioners for the appointment of **DEPUTY MEDICAL SUPERINTENDENT** (male) of the Hospital at a commencing salary of £600 per annum, increasing by annual increments of £25 to a maximum of £700 per annum, together with emoluments concerning unfurnished house (rent and rates free) and garden produce. The appointment will be subject to the provisions of the Asylum Officers' Superannuation Act, 1929.

Applicants must have had previous mental hospital experience and be not more than 40 years of age.

Applications must be made on forms to be obtained from the undersigned, to whom they must be returned, together with copies of three recent portraits, not later than January 14th, 1939.

GODFREY MACDONALD,
Clerk of the Visiting Committee.
County Hall, Beverley.
December 19th, 1938.

HOSPITAL OF ST. JOHN & ST. ELIZABETH,
69, Grove End Road, N.W.8

Applications are invited for the post of **RESIDENT HOUSE PHYSICIAN** (male). The post is recognised for the degree of M.D. London University. The appointment will be for six months from February 1st, 1939. Salary at the rate of £100 per annum, with full board.

Applicants, together with copies of three testimonials, should reach the undersigned by December 31st. Applicants will be required to attend a meeting of the Medical Committee at 8.30 p.m. on January 3rd, 1939, at the Hospital.

F DUDLEY HOBBS, B.A.,
Secretary

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST
Brompton, S.W.3.

The Committee of Management invite applications for the post of **HOUSE PHYSICIAN** (for which there are three vacancies). The duties include work in the Out-patient Department as well as in the wards. The appointment is for six months commencing February 1st, with an honorarium of £50.

Applicants, with copies of three testimonials, must reach the undersigned not later than Saturday, January 7th, 1939.

F. G. ROUVRAY,
Brompton, S.W.3.
December, 1938.
Secretary

THE HOSPITAL FOR SICK CHILDREN,
Great Ormond Street, London, W.C.1.

An **OUT-PATIENT MEDICAL REGISTRAR** (part-time and non-resident) is required as early as possible in January. Salary £150 per annum.

An **OUT-PATIENT AURAL REGISTRAR** (part-time) is required as early as possible in January. Salary £175 per annum.

These appointments are tenable in the first instance for one year but may be held for a period of two years, subject to re-election.

Candidates must possess a local qualification to practise and have held a responsible position as appointments at a general hospital.

Applications must be received by noon on Monday, January 2nd, 1939, and candidates must be prepared to attend for interview by the Joint Committee at 4.45 p.m. on Wednesday, January 4th, 1939.

Full instructions and forms of application are obtainable from the undersigned.

HERBERT F. RUTHERFORD,
December, 1938.
Secretary.

THE ELIZABETH GARRETT ANDERSON HOSPITAL,
Lecton Road, N.W.1

Applications are invited from qualified medical women for the following posts:—

HOUSE PHYSICIAN, FIRST, SECOND, and THIRD HOUSE SURGEONS, OBSTETRIC ASSISTANT.

The posts are for six months commencing February 1st 1939.

Remuneration at the rate of £50 per annum, with board, residence, and laundry. Further particulars of the posts may be obtained from the undersigned, to whom applications should be sent, with copies of three testimonials, not later than Friday, December 30th, 1938.

JEAN R. MURRAY,
Secretary.

CHARING CROSS HOSPITAL

Applications are invited for the post of **HONORARY CLINICAL ASSISTANT** in the X-Ray and Electrotherapy Department. Honorarium £50 per annum.

Candidates should have by preference the qualification of D.M.R.E.

Applications, together with copies of three recent testimonials, should be sent to the undersigned not later than January 2nd, 1939.

GEORGE J. JONES,
Charing Cross Hospital, W.C.2.
Secretary

THE LONDON CHEST HOSPITAL,
Victoria Park, E.2.

(Bus. Tram and Rly. Cambridge Heath, L. and N.E. Rly.)

SURGICAL REGISTRAR (Male)
(Part-time).

Applications are invited for the above post. Four sessions, 2 weeks, Tuesday and Friday mornings essential. Appointment is for one year. Honorarium £160 per annum.

Applications, with copies of three testimonials, should be sent to the undersigned on or before January 3rd, 1939.

THOMAS BROWN, Secretary.

LONDON CHEST HOSPITAL,
Victoria Park, E.2.

(Bus. Tram and Rly. Cambridge Heath, L.N.E. Rly.)

REGISTRAR Ear, Nose and Throat Dept. (male)
(Part-time)

Applications are invited for the above post. The appointment will be for a period of one year. Honorarium £50 per annum.

Applications, with copies of three testimonials, should be sent to the undersigned on or before January 3rd, 1939.

THOMAS BROWN, Secretary.

HOSPITAL FOR DISEASES OF THE SKIN,
Blackfriars.

Applications are invited for the appointment of **HONORARY ASSISTANT PHYSICIAN** to the above hospital. Candidates should be either Members of the Royal College of Physicians (London) or Fellows of the Royal College of Surgeons (England).

Applications, with testimonials in support, must be sent before January 9th, 1939, to L. Menzies, Secretary to the Hospital for Diseases of the Skin, 71, Blackfriars Road, S.E.1, from whom any further information may be obtained.

KING EDWARD VII HOSPITAL, WINDSOR.
(200 Beds.)

A vacancy occurs on the Honorary Medical Staff for an **HONORARY ASSISTANT OPHTHALMIC SURGEON**.

Applications, stating qualifications and experience, to teach the Secretary at the above Hospital by December 31st.

A SPECIALIST PUBLICATION OF THE BRITISH MEDICAL ASSOCIATION

ARCHIVES of DISEASE in CHILDHOOD

Edited by

CHARLES HARRIS, M.D., F.R.C.P., and ALAN MONCRIEFF, M.D., F.R.C.P.

DECEMBER, 1938

CONTENTS:

The determination of glucose tolerance. By C. Wallace Ross, M.B., B.S., D.C.H.

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The causative organisms of broncho-pneumonia in infants in Egypt. By A. K. Abdel-Khalik, A. M. Askar, and Mohamed Ali.

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Congenital mitral stenosis. By C. Elaine Field, M.D.

Published March, June, September and December

Yearly subscription (4 numbers), 25/-. To members, 20/-. Single number, 7/6.

Applications with remittance should be addressed to:

Archives of Disease in Childhood, B.M.A. House, Tavistock Square, London, W.C.1

CONNAUGHT HOSPITAL, E.17.
(118 Beds. With 4 Resident Medical Officers.)

SENIOR RESIDENT SURGICAL OFFICER (male) required. Salary £200 p.a., with residence, board, and laundry.

Appointment for six months from January 9th, 1939. Candidates must have their Primary Fellowship or be a Fellow of one of the Royal Colleges.

Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, should be received on or before December 31st, 1938.

R. HALTON HARRISON,
Secretary.

BATTERSEA GENERAL HOSPITAL.
(85 Beds), London, S.W.11.**RESIDENT HOUSE PHYSICIAN.**

Applications are invited for the appointment of Resident House Physician (male or female) for a period of six months commencing February 1st, 1939. Salary £130 per annum, with board, residence and laundry.

Applications, stating age, nationality, qualifications and experience, with copies of three recent testimonials, to be sent to the Secretary at the Hospital not later than December 30th, 1938.

BATTERSEA GENERAL HOSPITAL.
(85 Beds), London, S.W.11.

HONORARY ANAESTHETISTS. Applications are invited for the appointments of two Junior Anaesthetists.

Applications, with full particulars of age, qualifications and experience with copies of two testimonials should be sent to the Secretary at the Hospital not later than December 30th, 1938.

The duties will probably include the giving of Dental Anaesthetics. Applicants are asked to state on what days and hours they could attend.

ROYAL EYE HOSPITAL.

Applications are invited for the following combined post. **MEDICAL OFFICER** for Children's Orthopaedic Clinic, Monday mornings, salary £80 per annum. **Clinical Assistant**, Wednesday afternoons, honorarium £20 per annum. Applications to Secretary. Closing date January 4, 1939.

SPRINGFIELD MENTAL HOSPITAL.
Upper Tooting, S.W.17.

MEDICAL SUPERINTENDENT required to commence duty March 1st, 1939. With this appointment is combined that of psychiatrist to Westminster Hospital, London. Applicants must be registered under the Medical Act, possess the D.P.M., and be either Members or Fellows of the R.C.P. Age to be stated. Previous mental hospital experience is essential, and the appointment is subject to the terms of the Asylum Officers' Superannuation Act, 1909. Salary commences at £1,200 per annum, rising by £50 p.a. to £1,500 per annum, together with emoluments—unfurnished house, fuel, light, laundry, and farm and garden produce—valued £200 per annum. The appointment will be subject to three months' notice on either side. Applications, accompanied by copies of three recent testimonials, to be addressed to the Medical Superintendent and received not later than January 7th, 1939. Canvassing in any form will disqualify the applicant.

ROYAL CHEST HOSPITAL.
City Road, E.C.1

(Royal Northern Group of Hospitals).

Applications are invited for the following post: **HOUSE PHYSICIAN** (male). Vacant February 1st for a period of six months. Salary at the rate of £100 per annum with board, residence and laundry.

Applications, with copies of testimonials, should be sent by December 30th to the undersigned, from whom the necessary forms of application and rules can be obtained.

GILBERT G. PANTER,
Royal Northern Hospital,
Holloway, London, N.7. Secretary.

METROPOLITAN HOSPITAL.
Kingsland Road, London, E.8.**Appointment of
SECOND AURAL SURGEON**

Applications are invited for the above post. Candidates must be Fellows of the Royal College of Surgeons, England.

Applications (24 copies), with recent testimonials, must be received by January 10th, 1939, addressed to the undersigned, from whom further particulars may be obtained.

FRANK JENNINGS,
House Governor and Secretary.

THE DOCTOR IN PRACTICE OR ABOUT TO ENTER THEREIN SHOULD BE ADEQUATELY PROTECTED BY INSURANCE IN RESPECT OF

**HIS LIFE
HIS HEALTH
HIS HOME
HIS PRACTICE
AND
HIS CAR**

**FOR ALL THESE
CONSULT**

The
Medical Insurance Agency
(Limited by Guarantee),
BRITISH MEDICAL ASSOCIATION HOUSE,
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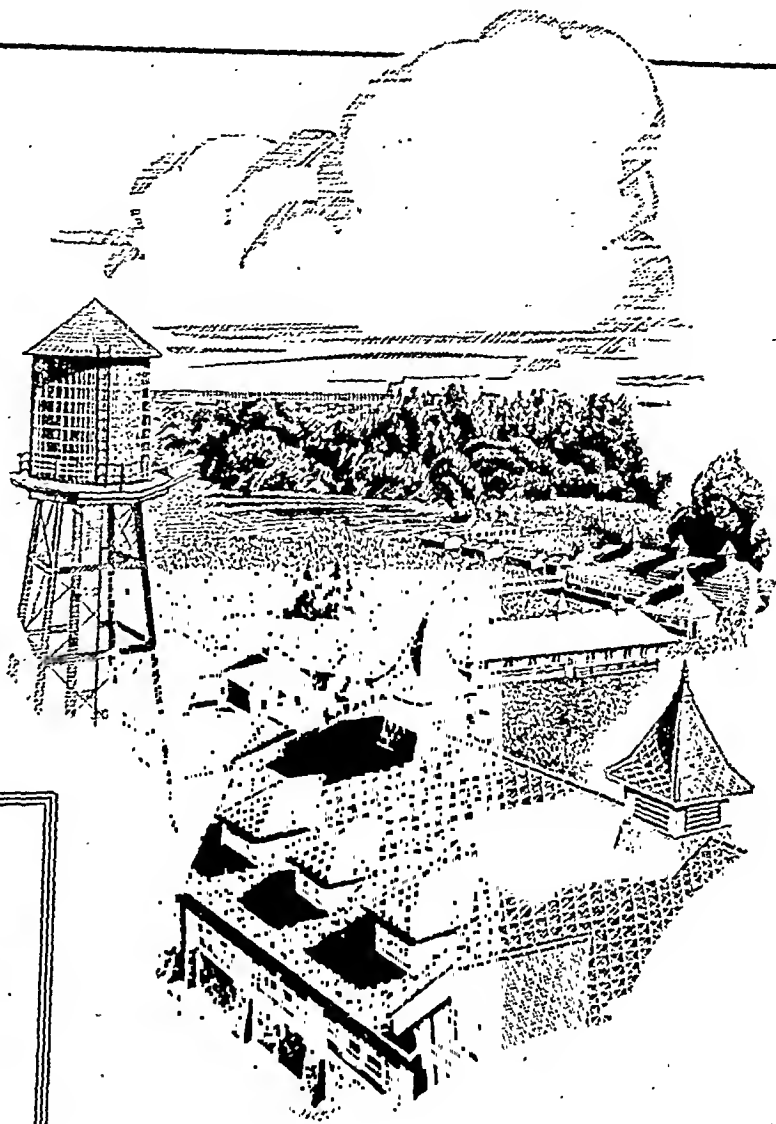
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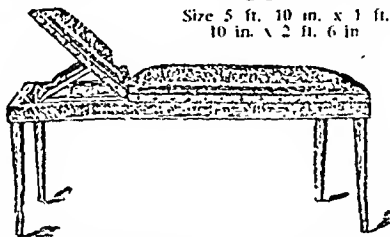
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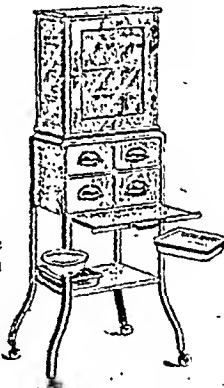
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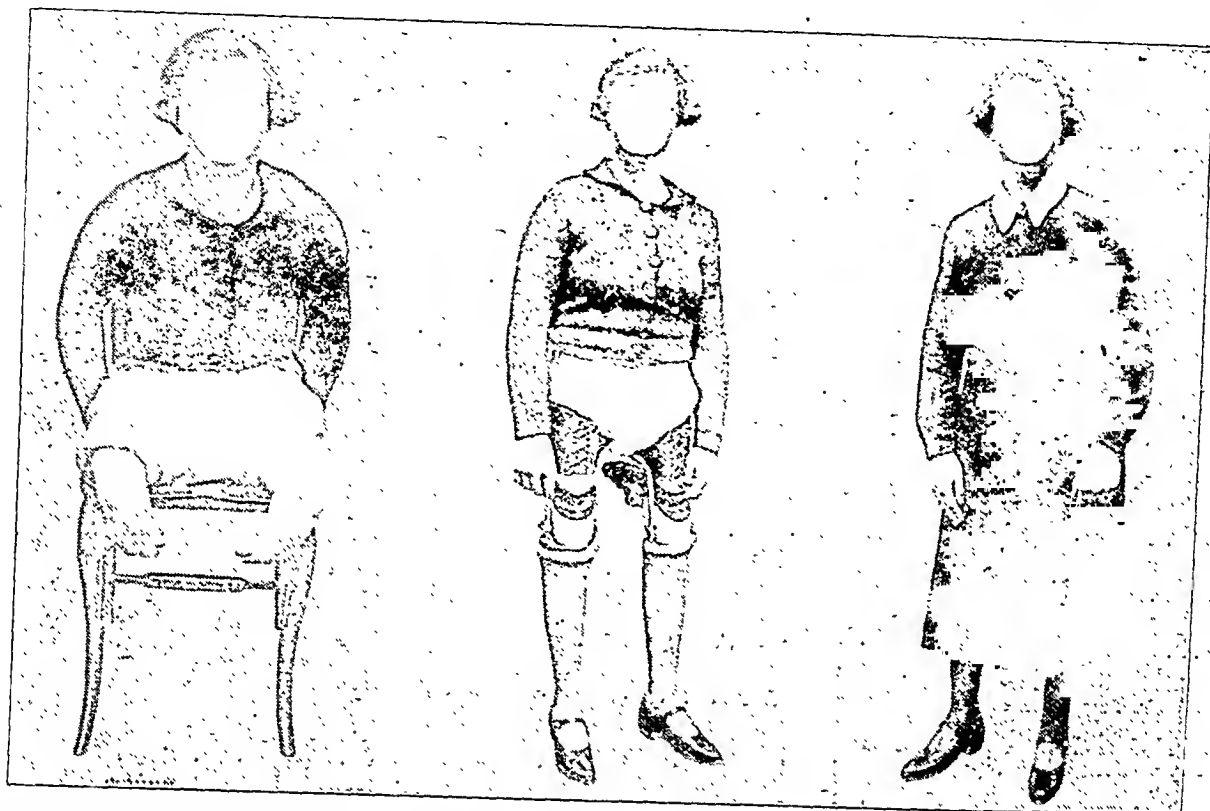
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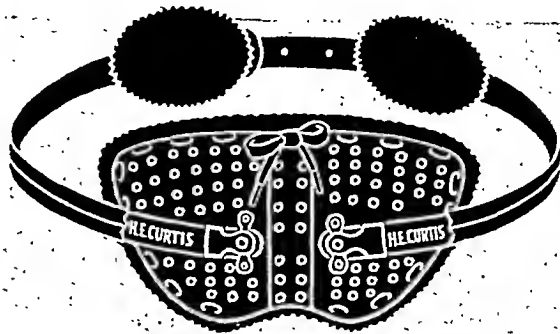
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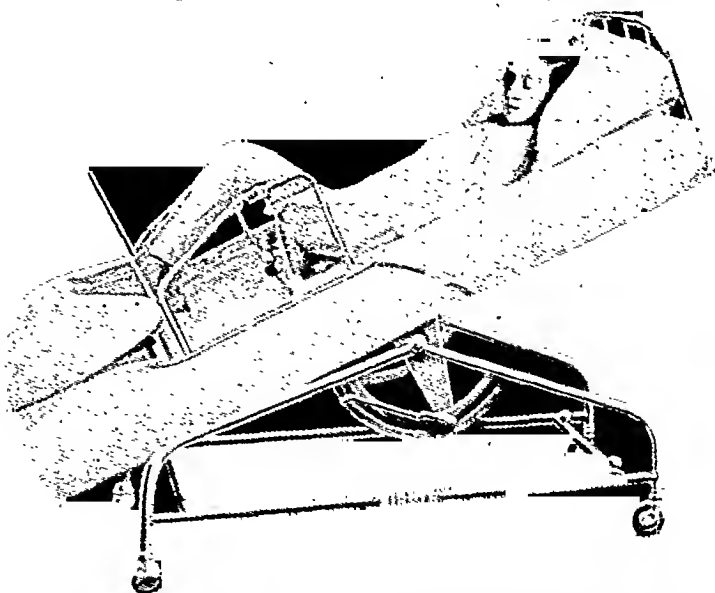
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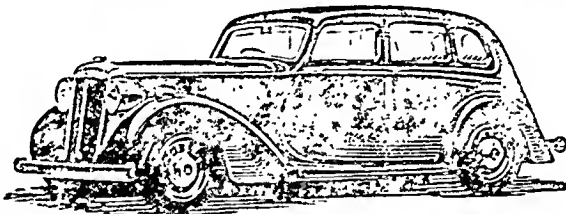
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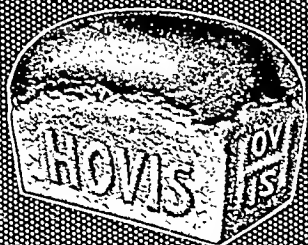
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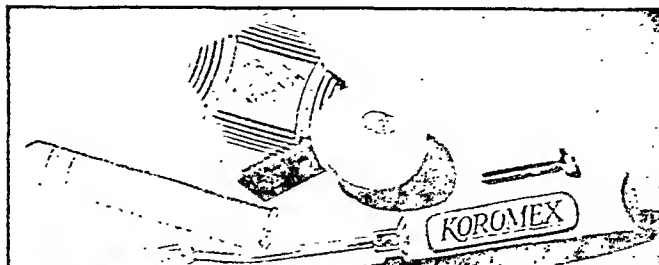
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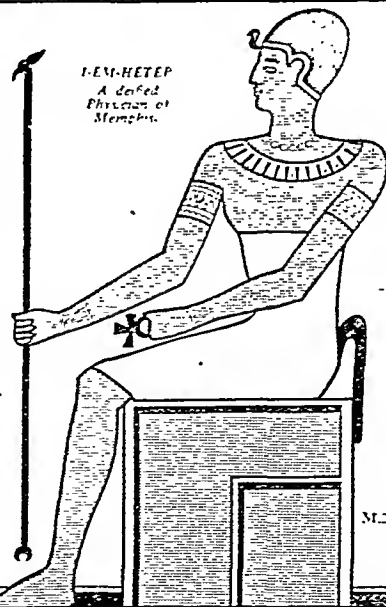
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It has been demonstrated repeatedly by clinical trials and in the ordinary routine of general practice that Contramine is an exceedingly useful product for the treatment of chronic rheumatism, whether it is of gonococcal origin or not. Chronic cases which have withstood other forms of treatment have shown marked improvement after a series of injections of Contramine.

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For years unfavourable reactions after Intravenous Therapy were looked upon as a natural accompaniment to surgery. Not any more. Safe Solutions have changed all that. To-day thousands of Surgeons know that Baxter's Intravenous Solutions in the "Vacoliter" container are unquestionably safe—and that they never produce unfavourable reactions.

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A Menstrual Regulator...

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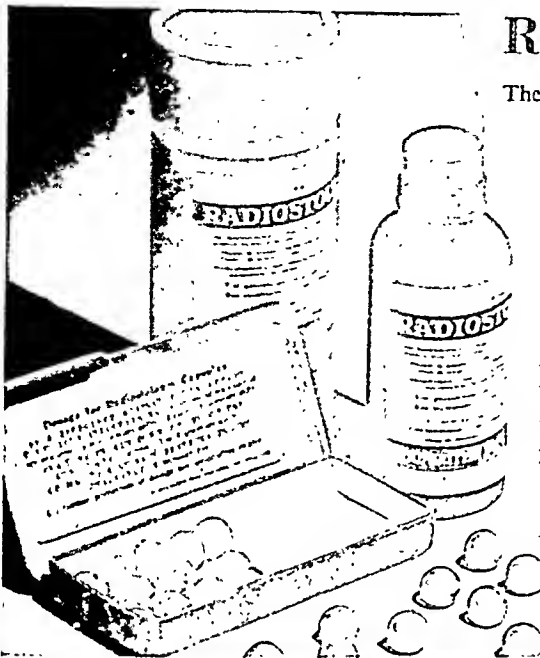
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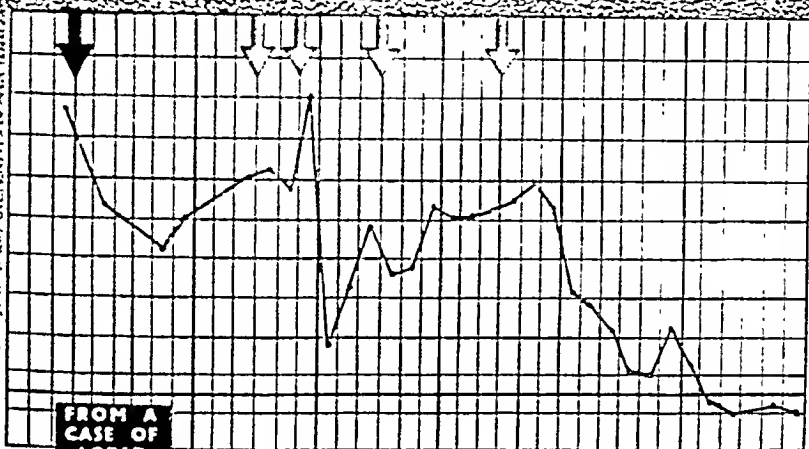


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Shows moderate
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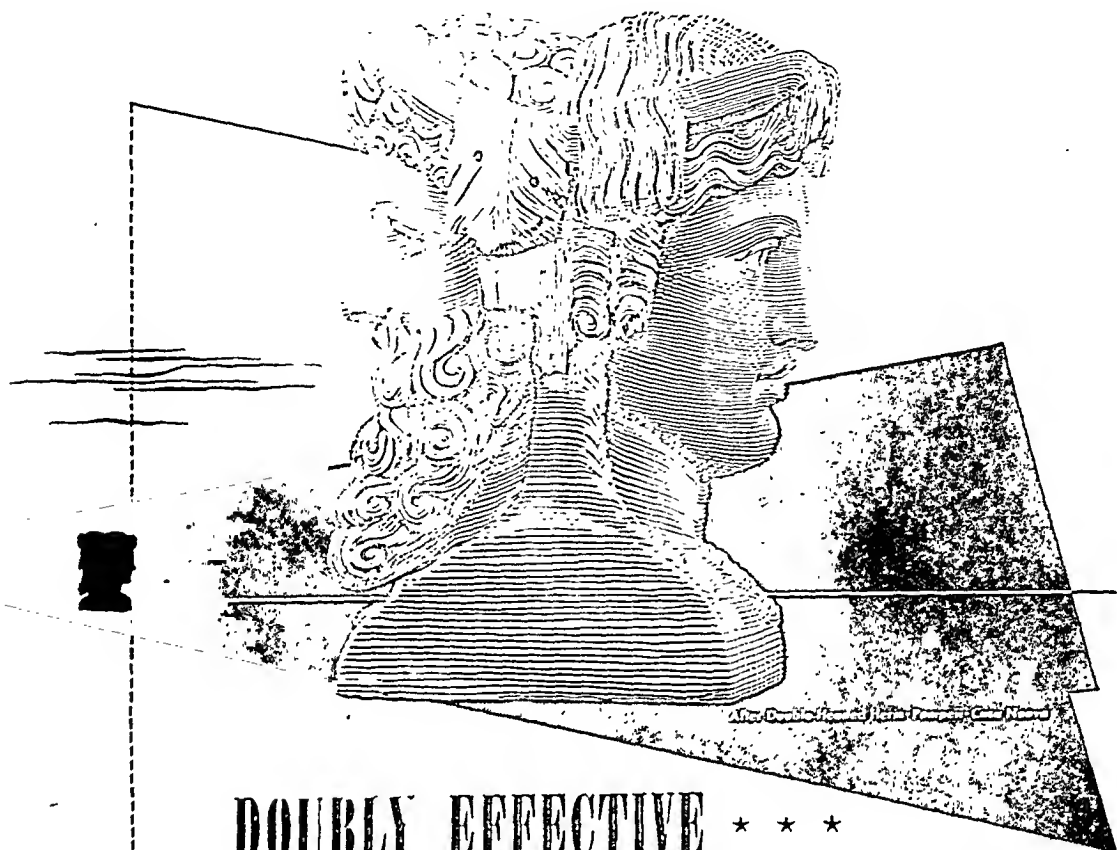
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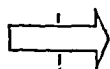
• This combination of antiseptic and

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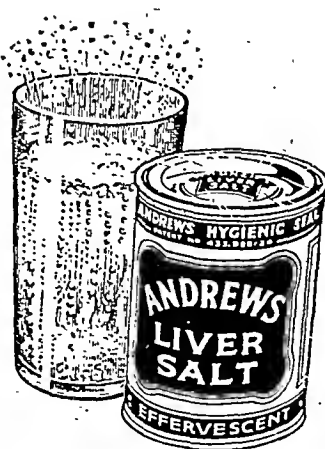
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When, as frequently happens, the Physician is called upon to prescribe a laxative for prolonged personal use by the patient, Andrews Liver Salt merits special consideration. The main characteristics of this tonic laxative, listed below, suggest its wide range of suitability.

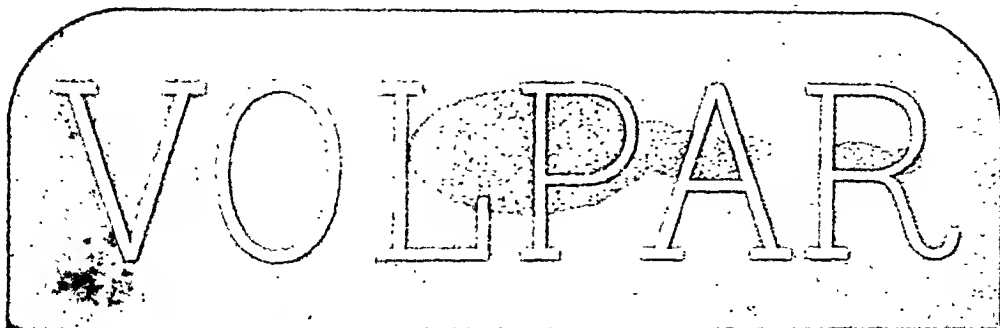
- 1 Andrews is pleasant-tasting. All ages take it readily.
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- 5 Andrews creates no dependence on artificial aid, but can be discontinued when the need for it ceases.

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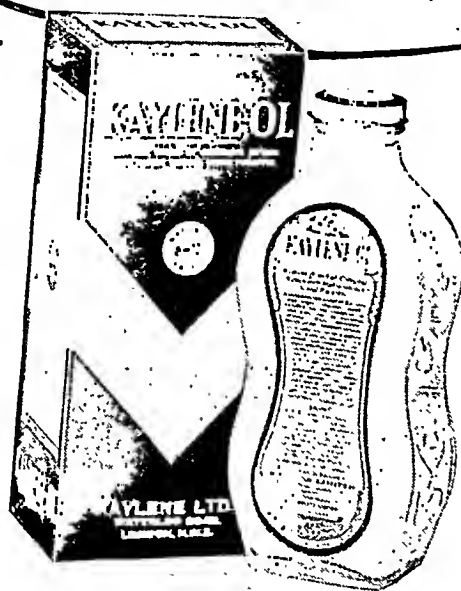
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*Particulars with regard to these sera are
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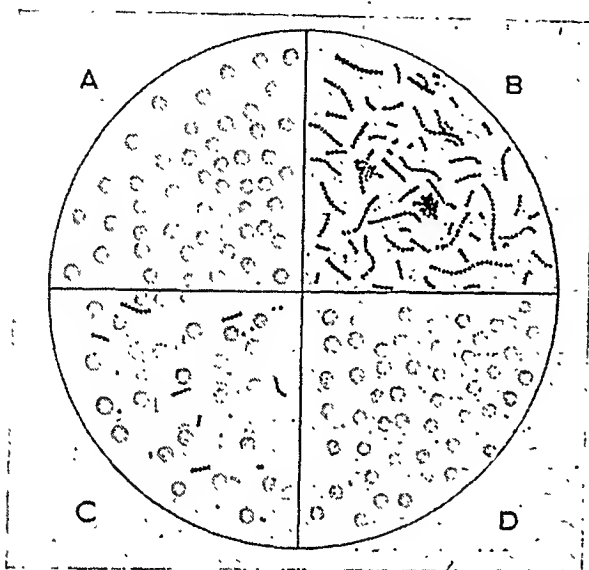
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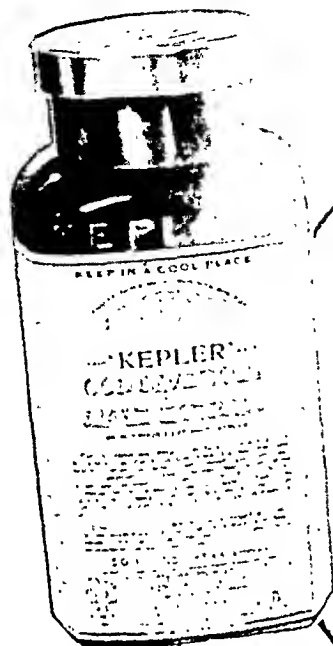
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by

E. R. CULLINAN, M.D., F.R.C.P.

Physician in Charge of Out-patients St Bartholomew's Hospital, Physician, Woolwich Memorial and Gordon Hospitals

Ulcerative colitis was described by Hale-White in 1888 and Allchin in 1885, and discovered at necropsy by Samuel Wilks in 1875. It seems to have been known to Sydenham, who in 1669 described the "bloody flux." Although the disease has definite clinical and anatomical features, there is still controversy about the symptoms and treatment, and the cause has remained particularly obscure. It was the purpose of the present investigation to see, by studying the clinical aspects of a fairly large series of cases of ulcerative colitis, whether fresh light could be thrown on any of these points. The material consisted of forty unselected cases of "idiopathic ulcerative colitis." One additional case in which the illness had started with dysentery many years previously was excluded for reasons which will be explained later. The clinical examination included a carefully dated life history. The appearances of the colon were studied with the sigmoidoscope. The stools and blood were examined. Whenever possible, radiographs were taken both by barium meal and by barium enema, and test meals were made.

Definition

In idiopathic ulcerative colitis there is severe inflammation of the mucosa and submucosa of the colon, generally with superficial ulceration. The deeper layers are rarely affected. Although the whole colon is often involved, the lesion almost without exception predominates in its lowest part, and also in the upper part of the rectum, the lower portion of which is often normal. Clinically the disease is characterized by the frequent passage from the bowels of blood, mucus, and often pus. It tends to pursue a chronic course lasting many years, marked by a succession of relapses and remissions. An attempt was made, by considering the features in each case, to divide the disease into three groups: those where the lesion is localized to the recto-sigmoid region (the so-called granular proctocolitis); those where it starts in the recto-sigmoid region but later becomes diffuse throughout the colon; and those where it is diffuse from the start. It was found that no such real distinction could be made. Not only are all gradations of the one disease process seen in different patients, but often the type appears to change in an individual patient.

Incidence

The disease is one of early adult life. The illness in the present series started between the ages of 11 and 20 in nine cases, and in twenty-one others between the ages of

21 and 30. The youngest was a girl of 10 and the oldest a man of 61. There were approximately twice as many women as men. The sex had no relation to the age of the onset or to the type or severity of the disease. Most of the patients were sedentary and not manual workers, and were of a higher educational standard than the average hospital class.

Onset of Disease

The onset may be insidious (fourteen cases), but is more often sudden (twenty-six cases). The first symptoms are usually diarrhoea and the passage of blood and mucus. Occasionally there is constipation. Of the forty cases the onset occurred with diarrhoea (thirteen with blood) in twenty-seven, constipation (six with blood) in seven, and normal bowel actions, with blood, in five. Another common symptom is pain in the lower abdomen, relieved by opening the bowels. Although the onset is often abrupt, the initial illness is seldom acute. Only two of the patients had fever. In spite of the diarrhoea and the passage of blood and mucus from the bowels, the general health often remains at first surprisingly good. More than half the patients did not seek medical advice during the first month of their illness and five waited over a year. When asked the reason for the delay they said it was because they had felt relatively well and had taken little notice of the state of their stools. It is a common experience to see patients who have not reached an acute stage and later, during remissions, passing the most horrible stools and yet remaining in apparently good health.

It has been said that ulcerative colitis sometimes results from mucous colitis. This is not our experience, either in this series or elsewhere. This agrees with the opinion of Spriggs (1934) and others. Mucous colitis is a syndrome, which incidentally one sees far less often than some years ago, associated with chronic constipation and the misuse of purgatives. The nature of the onset has no relation to the subsequent severity of the disease. The most banal beginnings can herald the most serious symptoms.

Symptoms

General Symptoms.—Either at the onset, or after a period of mild initial symptoms lasting for weeks or years, the patient may become gradually or quite suddenly extremely ill. Then, after an illness continuing perhaps for months, in which the patient sometimes becomes

almost moribund, there is a remission, with recovery. Again after an interval varying from weeks to years there may be a further relapse, and so on. The profound loss of weight and strength during a severe attack is one of the outstanding features of the disease. In spite of this, as was pointed out by Hardy and Bulmer (1933), there are few diseases in medicine in which a patient may reach such a stage of exhaustion and emaciation and yet rapidly make so spectacular a recovery. During a remission the patient may feel quite well. Although, as has been explained, it is not really possible to differentiate between the various forms of the disease, it may be said that when the lesion seems diffuse throughout the colon the illness is often more severe and is characterized by grave constitutional symptoms such as fever and rapid emaciation. On the other hand, when the disease appears to be localized mostly to the recto-sigmoid region (abnormal sigmoidoscopic appearances but normal radiographs) the illness is often of long duration, milder in degree, and marked more by anaemia from haemorrhage than by severe general symptoms.

Fever (seventeen cases).—In severe cases there is fever. It may be continuous or intermittent, and may last for weeks or months. It is always accompanied by a worsening of the patient's condition. It is seen more in the diffuse cases than in those where the lesion seems localized to the recto-sigmoid region.

Abdominal Pain.—Abdominal pain is a common symptom (twenty-five cases), but is seldom severe. It is of several types:

(a) Pain in the lower abdomen, which is often colicky. It gradually becomes worse before passing a motion, which relieves it. The pain may be worse when the patient moves about.

(b) A sensation of a lump in the rectum or pain in the lower part of the sacrum.

(c) A discomfort in the rectum, with a desire to open the bowels, but often not relieved by so doing. This symptom is seen particularly in cases where blood and mucus are passed many times a day without any faecal material.

(d) Tenesmus, is relatively uncommon, although the patient often has an unfinished sense, without pain, after passing a motion.

Other Gastro-intestinal Symptoms.—Flatulence, borborygmi, and a feeling of abdominal distension are common. During severe attacks there is often loss of appetite, nausea, and vomiting. Otherwise the appetite remains good.

Nervous Symptoms during the Course of the Disease.—It is an old saying that affections above the diaphragm tend to optimism and those below to pessimism. Ulcerative colitis is no exception. In severe cases there is marked prostration, depression, and anxiety. It is a matter of common clinical experience that the degree of this mental disturbance is related not only to the intensity of the physical disturbance but also to the previous personality of the patient. Although no clear distinction has commonly been made between the psychological characteristics and symptoms which precede and those which follow the bloody diarrhoea, those who have studied the condition have almost invariably noticed in these patients the presence of grossly abnormal mental symptoms. These points are discussed further in the following paper by Dr. Wittkower.

Bowels.—Diarrhoea is a common symptom. In some this is more marked after food and in others more in the morning and evening. Thirty patients in our series of forty stated spontaneously that emotional factors such as

startling events, anticipation of embarrassing situations, or even fear of the symptom brought on attacks of diarrhoea. There may be as many as forty stools a day. When the lesion appears to be affecting the whole colon the stools are frequent, offensive, fluid, thin, and soup-like, consisting of faecal material closely admixed with blood, mucus, and often pus. On the other hand, when the disease appears to be confined to the recto-sigmoid region, blood and lumps of blood-stained mucus and also pus may be passed many times a day separate from the motion or without any faecal material at all. Half the patients in this group were actually constipated, and although their bowels might be opened ten to fifteen times a day faeces would only be passed every second or third day. Ten of the forty cases in this series were constipated, although some of them had occasional attacks of diarrhoea. Nearly all the patients complained of urgency of defaecation. They all feared incontinence, but only five had any loss of control throughout the course of the disease.

Physical Signs

Considering the gravity of the disease the physical signs are slight. They are:

Abdomen.—The abdominal wall is often thin. Although there is a sense of fullness on palpation, visible distension is seldom seen. Occasionally there is retraction. Rigidity is rare. Tenderness, when present, is mostly in the lower part of the abdomen and along the course of the large bowel, particularly over the descending colon. The colon, usually the caecum or descending colon, was palpable in thirteen cases. The descending colon sometimes feels contracted and mobile.

Blood Pressure.—During the severe phase the blood pressure is often low, and the systolic pressure may be under 100.

Per Rectum.—The sphincter is often contracted, and digital examination painful to the patient. The mucous membrane may feel velvety and later rough.

Stools

Blood and mucus were always present in our series and pus less often. Frank pus is evidence of ulceration. The stools were carefully examined for parasites and organisms. Parasites and their products were never seen. Abnormal organisms were found in sixteen cases. They were thought to have little significance, as they differed from each other and belonged to types which are not normally pathogenic. They included *B. asiaticus*, *B. alkaligenes faecalis*, *B. lactis aerogenes*, and haemolytic *B. coli*, but were mostly unclassifiable non-lactose-fermenting coliform organisms of no known pathogenic group. Dysenteric organisms were never found. Anaerobic cultures for Bagen's coccus were seldom made, for reasons which will be later explained.

Blood

Most cases throughout the disease show a moderate anaemia, which becomes more marked during a relapse and recovers again with a remission. The anaemia tends to be greatest when the recto-sigmoid region is the part most affected. Only once did the haemoglobin fall below 40 per cent. The particular instance illustrates the great powers of recovery in the disease: the haemoglobin fell to 28 per cent. during a relapse and rose to 90 per cent. in the following remission. In half the cases there was no leucocytosis. During a severe relapse

the figure may rise to 12,000 or 15,000 per cmm., but only in one case was it ever higher than 20,000. The differential count is either essentially normal or shows an increase in polymorphonuclear cells when the total white count is raised. Gross eosinophilia was not noticed.

Sedimentation Rate.—This was examined in twenty-one cases. The highest recorded figure was 43 mm. in the hour (Westergren), but the average was 16 mm. Owing to the anaemia and loss of fluid these figures must be regarded as inaccurate. They are surprisingly low, however, if the disease be regarded as a primary infection.

Agglutinations.—Occasionally agglutinins to various organisms, including dysenteric organisms, are found in low and insignificant titre in the blood (for example, Flexner Y: 1 in 25). It is possible that they are produced by the secondary invasion of the ulcers in the colon by organisms which may have acquired mildly pathogenic qualities.

Sigmoidoscopic Appearances

The mucous membrane of the upper part of the rectum and the lower part of the sigmoid has a reddened granular appearance and bleeds easily wherever the instrument touches it. Blood and mucus are seen coming down from higher in the bowel. The condition was found without visible ulceration in eighteen cases. In others the mucous membrane is more oedematous, and superficial ulcers appear (seven cases) which at first are tiny but later run together and form larger ulcers, often covered with a mucus-purulent exudate. In more chronic cases there are callous ulcers with oedematous mucous membrane between. Less often the mucous membrane has a "cobblestone" appearance. During remissions healing ulcers may be observed with normal intervening mucous membrane, and in some there are linear or three-pointed scars of healed ulcers. It should be recognized that the presence or absence of visible ulceration bears no relation to the extent of the lesion or the severity of the disease. Furthermore, the mucous membrane is quite capable of healing. In two cases a perfectly normal mucosa was seen where previously there had been a granular appearance with superficial ulceration. Rectal strictures were observed in two cases of long standing.

X-ray Examination

Whenever possible, radiographs were taken before and after the evacuation of a barium enema and nine hours after the ingestion of a barium meal. The rectum is often small. The passage of the enema round the colon is sometimes very rapid, the barium reaching the caecum in twenty seconds and in some instances going a short way into the ileum. The caecum is often large and baggy. In mild stages of the disease, apart from this quick passage, there may be no other gross abnormality. The colon is usually irritable. Nine hours after a meal, in some cases, nearly all the barium will have been expelled, and in others, although the passage may be slow, parts of the colon will contain little barium.

The most characteristic feature is the complete lack of haustration seen in the distal part and sometimes in the whole colon. This tubular appearance is often found in mild cases, but if there is also narrowing the disease is usually severe. In such cases the bowel has a streaky appearance after evacuation. In parts of the bowel the outline may be spiky and irregular. When the disease is severe there may be a fine granular mottling of the bowel shadow and sometimes a moth-eaten, marbled effect, with numbers of translucent areas of various shapes

and sizes. The appearances alter in individual cases according to the stage of the disease. Thus in one instance the whole colon was irregular and streaky, and six months later, when the patient had improved, it was smooth and tubular.

Test Meals

Fractional test meals were taken in twenty-three cases. In five there was complete achlorhydria, in four slight hypochlorhydria, seven were normal, and seven showed a high content of free hydrochloric acid. These findings conform with those of Spriggs (1934) and Hurst (1935), and do not lend support to a theory that the disease is usually associated with acidity. However, four of the patients who had achlorhydria or gross hypochlorhydria showed, by radiographs or carmine, that food passed rapidly through the gastro-intestinal tract. In three of these a long period of diarrhoea had preceded the appearance of blood in the stools. It is an interesting speculation as to whether in these cases and some others the constant arrival in the colon of imperfectly digested food from higher up may give rise to a secondary colitis.

Evolution of the Disease

Ulcerative colitis pursues a chronic course, usually with a succession of relapses and remissions. The disease is of long duration. It had started more than a year ago in thirty-four of the cases, more than five years ago in thirteen, and more than ten years ago in nine. In one instance the disease had existed for thirty-four years. Twenty-eight of the forty patients had relapses, mild or severe. It is often thought that as time goes on the remissions become shorter and relapses more grave. This is not our experience. Remissions and relapses might last for days or years. The length of remissions was quite irregular, and bore no relation to the number or severity of previous relapses. Moreover, the severity of a relapse was not influenced by the length and severity of former ones. Of the twenty-eight patients who relapsed, twenty-three were well during their remissions—fourteen completely, six save for constipation, and three except for occasional diarrhoea. Others had looseness of the bowels with occasional blood in the stools, but otherwise remained in good health.

Causes of Relapse

It is generally recognized that a relapse may be brought on by an acute infection such as tonsillitis, an error of diet, a change in the weather, and so on. It is not, however, generally conceded that nervous factors play much part. Thus Hurst (1935) says that "relapses tend to occur with acute infections . . . and, much less frequently, fatigue from mental or physical overwork"; and Spriggs (1934) states: "In one patient any emotional stress at home would be followed by bleeding from the bowel." In our experience nervous factors play a large and important part in bringing about a relapse. This aspect will be dealt with later in greater detail, but it is interesting to record here those factors which the patients themselves considered responsible and how many times they regarded nervous factors as the cause.

Table showing Causes of Relapse according to the Patient

| Cases | | Cases | |
|-----------------------|---|---|----|
| Food indiscretion | 4 | Menstruation | 3 |
| Fruit | 4 | Menopause | 1 |
| Hot drinks | 1 | Emotional factors (shock, worry, anxiety) | 20 |
| Purgatives | 1 | Violent denial of emotional factors | 2 |
| "Colds" | 2 | | |
| Change of temperature | 2 | | |

Complications

The complications in this series were few, although I have seen most of them from time to time in other cases. The direct complications may be severe or fatal. Severe haemorrhage, perforation (rare and often difficult to diagnose), perirectal suppuration, polypoid conditions, strictures, and malignant change are well known. The more remote complications are arthritis, septicæmic conditions, severe lesions in the mouth, and eye troubles. In the present series pseudo-polypoid conditions in the large bowel were sometimes seen. Two cases had rectal strictures. Iritis was present in one. Occasionally there was ulceration of the mouth. Two had arthritis synchronous with the colitis. None of the cases showed any evidence of pyelitis or cystitis, which is in agreement with the findings of Ball (1926-7).

Diagnosis and Prognosis

The diagnosis is seldom difficult if the investigation is thorough. It cannot be stressed enough that all cases of chronic diarrhoea, and especially those with blood in the stools, must be thoroughly investigated. Apart from piles and fissure there are no mild causes of bright blood in the stools, and patients may often ascribe blood as coming from piles which in reality is coming from higher up. In the course of routine sigmoidoscopy we have recently seen two operable malignant new growths, one in a woman thought to be suffering only from simple mucous colitis.

The prognosis of an individual case is difficult to assess, and must of course be reserved. We believe that it is not nearly so serious as regards life as is generally supposed. As has been said, there are few diseases in which a patient may become so ill and emaciated and yet recover. The number and severity of previous relapses has little relation to the prognosis. Hospital wards give an exaggerated idea of the gravity of the condition, as only the severe cases are seen. Many of the cases are much milder than these, particularly when the lesion appears to be localized to the recto-sigmoid region rather than diffused throughout the colon. At the present time all the patients in this series are alive and most of them in moderately good health. Some—and these include cases which have been very severe—seem almost to have recovered. Among the milder cases there was one woman who had had the disease for fifteen years. During all this time she had had diarrhoea, with occasional blood in the stools. Six months ago the diarrhoea stopped and she has been perfectly well since. However, complete recovery from the disease with no liability to future breakdown is probably uncommon.

Pathogenesis

As to the cause of this disease many theories have been advanced but none is satisfactory. In the present series only one patient admitted to a dietary indiscretion at the time of the onset. There was no evidence of lack of vitamins, of focal sepsis, or of allergic response. There was nothing important in the past or in the family histories, except that as children the patients did not appear to have been strong. Eight tended to have diarrhoea, four of them whenever nervous, and seven tended to be constipated, but there was seldom any history of long-standing diarrhoea or constipation preceding the disease. Only nine of twenty-three patients tested had subacidity of the gastric juice. Only one had a previous rectal lesion—a perianal abscess ten months before.

There is no convincing evidence that the disease is the result of a primary infection of the colon. Neither the histological findings nor the clinical picture suggest it. No proved organism has been found. Bargén's coccus may be present in the ulcers, but it is not generally accepted that this organism is responsible for the disease. It appears to be a normal inhabitant of the bowel. Professor Garrod (1938) tells me that he found it not only in the stools of eleven out of seventeen patients with ulcerative colitis but also in the normal stools of fourteen out of twenty-six people not suffering from the disease. It is said that when obtained from the ulcers this organism is capable of producing a colitis when injected into rabbits; but this applies to other organisms similarly obtained, such as those described by Buttiaux and Sévin (1931), and Gallart-Mones and Sanjuan Domingo (1935). The probable explanation is that Bargén's coccus and other normal organisms enter the ulcers as secondary invaders. It is of course possible, when secondary invasion has taken place, that organisms which are normally benign may acquire more pathogenic qualities and still further add to the existing inflammation. Another argument advanced in favour of Bargén's coccus is the response of the patient to specific treatment. This is no guide as to the specificity of the organism, as it will be shown later that a wide variety of treatments can produce admirable results in the same patient.

There is considerable evidence that these cases were not caused by dysentery. One case of proved dysentery was deliberately excluded from the series. The disease was not contagious, infectious, or epidemic. It often began insidiously without fever. There was no history of dysentery in the past. Only four of the patients had ever left the country—three to the Continent and one to Palestine to recoup from a relapse of her colitis. Only three patients related that other members of the family had ever had bloody diarrhoea. The organisms were never found in the stools, though carefully looked for. Hurst (1935) suggests that dysentery bacilli are seldom found, as the cases are already chronic when the stools are first examined. I saw two patients, however, one week and three weeks from the onset of their symptoms, and in neither of these was Professor Garrod, after repeated examination, able to demonstrate the organisms in the stools. We believe that the reason so much stress has been laid on dysentery as a causative factor has been that many of the published series of cases were near the time of the great war, when dysentery was so common. The patients in the present series, however, had not had war experience, having mostly been too young. If the disease were due to dysentery the history should be easy, the organism should be found in early cases, and the disease would be more widespread.

For a long time I had a growing conviction that, apart from the nervous symptoms developed in the course of the disease, emotional disturbances superimposed on an unusual or abnormal personality frequently preceded the onset. For this reason I asked Dr. Wittkower to examine the emotional background of these patients. As this aspect of the disease is unfamiliar his findings are given in some detail in the paper which follows. The results are interesting. He states that in thirty-seven of the forty patients psychological abnormalities, well beyond the range of individual differences of the average population, antedated the colitis, and, further, that in twenty-eight cases clear-cut emotional trauma, serious enough to be regarded as a precipitating agent, immediately preceded the onset of the disease.

To summarize: while not suggesting that an emotional upset is the sole cause of the disease (it is not), we do suggest that it is a most important factor in the aetiology. The mechanism remains obscure. It may be that with these people the bowel is particularly prone to the lesion, and that a similar emotional disturbance in others would produce, perhaps, simple diarrhoea. Once the disease is established, invasion of the mucosa by organisms secondary to the ulceration still further complicates the picture.

Treatment

Nearly all patients with ulcerative colitis, even when they appear almost moribund, will respond well to careful treatment. It is fair to say that no specific therapy has as yet been devised. The success of a particular remedy is no proof of its specificity. Individual patients may respond in an astonishing way to many and varied treatments, and it seems that suggestion plays a large part in their success. There are many examples in the present series, but a few will serve as an illustration.

Case 1.—First attack; recovery with general treatment. Second attack (very severe, and patient almost moribund). "During moments of consciousness the Rabbi came to see me and told me that I was being very selfish and making my parents ill. It was then that I wanted to get better and really did get better." Weight went up three stone. Third attack (following a mental upset): Recovery with appendicostomy. Now keeps well by passing catheter into the opening.

Case 2.—Recovered from six attacks. The first with general treatment; the second with wash-outs; the third with wash-outs and iron; the fourth with serum; the fifth with autogenous vaccine; the last with general treatment.

Case 3.—Recovery followed operation for a hernia.

Case 4.—First attack relieved by an appendicostomy; the second by reopening it; the third by stopping the appendicostomy wash-outs; the fourth and fifth by general treatment.

Symptomatic Treatment

Various treatments were used with these patients, but the following seem to us the important points:

1. Rest in bed and warmth whenever there is fever or general illness.
2. In the acute stage the diet should be bland and simple, but later, although it is important that it should have a low residue, the diet should be nourishing and high in caloric value. Seasoned foods, spices, and hot or effervescent drinks should be avoided. Large quantities of milk are seldom well borne.
3. Vitamins should be added to the diet—for example, radiostoleum (10 minims twice a day), marmite, and orange juice, or, if preferred, ascorbic acid (100 mg. a day) by mouth.
4. Iron should be given for the anaemia. Even in large doses by mouth it seldom seems to aggravate the condition of the bowel. Thirty grains of ferri et ammon. cit. thrice daily or dry ferrous salts are useful. Iron combined with liver, as in some of the proprietary capsules, is often valuable.
5. Adsorbents such as kaolin, kaylene-ol, lacteol, and charcoal are given when the stools are offensive. Two or three teaspoonfuls of "carbantren" (composed of iodochloroxyquinoline-bismuth 10 grammes, pectin 20 grammes, active charcoal 70 grammes) may be administered twice a day in water. We have given this preparation an extensive trial and are pleased with the results.
6. Wash-outs should be used with caution; they often do more harm than good. When there is much pus in the stools saline wash-outs gently given may occasionally be of value. When there is much haemorrhage from a "weeping" mucous membrane 0.5 per cent. tannic acid may be used.

7. Atropine or tincture of belladonna may be given when there is spasm of the colon. Opium may be necessary, but should, if possible, be avoided. When there is achlorhydria, half a drachm of dilute hydrochloric acid made up in half a pint of orange drink may be sipped slowly with meals. In the less acute stages patients should be given general tonics such as strychnine and glycerophosphates.

8. Two special measures, as part of the general treatment, are sometimes of considerable value:

(a) **The Raw Apple Diet.**—The patient is given twelve pounded raw apples without core, pips, or skin each day with a little water to drink but nothing else to eat. This is continued for several days. It often greatly improves the stools, and any improvement will show itself within two days.

(b) **Cod-liver Oil Retention Enema.**—At the end of the day 4 oz. of crude cod-liver oil are injected slowly and gently into the rectum. The patient wears a towel and retains the oil, if possible, throughout the night. Best (1938) advises that a 20-oz. normal saline enema should precede the injection. When the saline has been expelled the oil should be run in with the patient in the knee-chest position. The treatment may be continued daily, or on alternate days, for a period of three to six weeks.

9. Agar, normocol, and isogel are sometimes helpful in giving bulk to the stools.

10. Patients who are constipated should take liquid paraffin indefinitely.

11. Blood transfusions are not only of great value as an emergency measure when there is severe anaemia, but also small transfusions (250 c.cm.) serve as useful tonics during the more severe phases of the disease.

12. Of the various surgical treatments, ileostomy seems to us the rational operation. Only by this operation can the colon be put at complete rest. The decision, however, should be made with great care, for not only do the most severely ill patients frequently recover with careful medical treatment but the mortality from this operation is probably still in the region of 50 per cent.

Dr. Wittkower's results suggest that selected cases might be amenable to psychotherapy. Two patients who had had the disease for many years practically recovered after relating the story of their difficulties.

In conclusion, it may be said that the secrets of successful treatment depend upon the meticulous consideration and care of each individual patient, the symptoms being treated as they arise. Specific methods have been successful in the hands of enthusiasts and less so in the hands of others, and this implies that suggestion plays a powerful part in the remission of the disease. An optimistic attitude is essential, and it is necessary that both the doctor and the patient should have complete faith in the efficacy of the treatment.

Summary

The clinical aspects of forty unselected cases of idiopathic ulcerative colitis have been studied.

The lesion is nearly always greatest at the recto-sigmoid region, and no sharp distinction can be made between those cases in which it is localized to this region and those in which it is diffused throughout the colon.

The disease mostly affects sedentary workers under the age of 30—women more than men.

The onset may be mild or severe. The disease does not follow mucous colitis.

The symptoms and signs are described. When the lesion is diffuse there is often severe illness, with fever and emaciation; when the lesion is localized the disease tends to be milder and characterized more by anaemia

from haemorrhage. In the latter type constipation is not uncommon.

Pathogenic organisms were never found in the stools.

The blood picture is discussed.

The sigmoidoscopic appearances of the bowel are recorded. The presence or absence of visible ulceration bears little relation to the severity or the extent of the disease. Healing is sometimes observed.

The radiological appearances are characteristic. The passage of a barium enema throughout the colon is usually rapid: the rectum is small. Lack of haustration in the colon may be seen in mild cases; if there is also narrowing the disease is usually severe. Other appearances in severe cases, such as fine granular mottling or "marbling," are discussed.

Achlorhydria is infrequent. It is possible that very occasionally the colitis may be secondary to achlorhydria and the rapid passage of food through the stomach and small intestine.

The disease runs a chronic course, with remissions and relapses. The relapses occur at irregular intervals and bear no relation in their severity or duration to previous ones. They are often precipitated by emotional traumata.

Complications in this series were few.

Diagnosis is not difficult if all patients who are passing blood in the stools are thoroughly examined.

Prognosis must be reserved; but the disease is not so serious as regards life as is generally supposed. Occasionally there is complete healing of the lesion.

The pathogenesis is discussed. Although it is obvious that there is secondary infection of the colon, evidence that the disease is caused by a primary infection is unconvincing. While not suggesting that an emotional upset is the sole cause of the disease, it is suggested that this is a most important factor in the aetiology.

Methods of treatment are described. Meticulous care of each patient and an optimistic attitude on the part of both patient and physician are essential.

I am grateful to Professor Garrod, Mr. Naunton Morgan, and Dr. J. V. Sparks for their aid in a number of the examinations of the stools, the sigmoidoscopies, and the radiographs. Some of the patients were under the care of my colleagues at St. Bartholomew's and the Woolwich Memorial and Gordon Hospitals, and we thank them for their courtesy in allowing us to examine these patients.

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The friends and pupils of Dr. Laignel Lavastine, professor of the history of medicine in the Paris Faculty, have decided to offer him a medal on the occasion of his election as member of the Académie de Médecine. Subscriptions should be sent to the publisher, Georges Masson, 120, Boulevard Saint-Germain, Paris, VI.

ULCERATIVE COLITIS: PERSONALITY STUDIES

BY

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In continuation of previous psychosomatic researches, I gladly accepted the invitation of Dr. E. R. Cullinan of St. Bartholomew's Hospital to investigate the relative significance of physical and personality factors in what is known as ulcerative colitis.

Ulcerative colitis is a comparatively rare disease, characterized by bloody diarrhoea, with a typical proctoscopic and x-ray picture. There is a tendency to relapse and remit, and a bad prognosis; in contrast to dysentery, ulcerative colitis has been described as "non-specific" colitis. It was chosen for the present study because such patients commonly refer its onset and relapses to "worry," and often appear mentally abnormal even to the casual observer.

Material and Method of Examination

A biographical study was made of forty unselected patients with ulcerative colitis, physically examined by Dr. Cullinan. Usually the patients were submitted to two or three interviews, each of two or three hours' duration. If necessary, the data were checked by an objective anamnesis, obtained from relatives. A detailed report on each patient has been kept available. The ages of the patients at the time of examination were from 12 to 65, the onset mainly between 20 and 40. Fifteen were men, twenty-six women. As compared with the average hospital class, they were better educated.

Findings

In the majority of the patients studied psychological abnormalities and disorders far beyond the range of individual differences in the average population were found to antedate the initial onset of the colitis. In relation to other investigations control groups of patients have been examined by methods which are identical with those used in the present research. In the ulcerative colitis patients the degree of difference from average individuals was so gross as to make a special control group unnecessary. A dated clinical history and a dated life history, taken independently and verified from relatives, showed that disturbing events in the patient's life had preceded the onset, return, and increase of symptoms more often than can be due to chance.

Personality of Patients suffering from Ulcerative Colitis

CHILDHOOD ADJUSTMENT

As will be shown below, in their characteristics as children these patients showed clearly psychological patterns which in adult life became intensified to an unmistakably abnormal degree. The patients did not fall into any one psychological group. An attempt was made to clarify the diverse symptoms present by a study of the childhood characteristics, since these might be expected to be simpler. As these at first sight showed no obvious common factors a simple statistical approach was used. A chart was prepared on which was marked

for each patient the presence or absence of thirty-seven numbered character traits. The columns were numbered and not named after character traits and mathematical examination allowed an unbiased division of the patients into certain groups. Selecting a column obviously belonging to a frequent characteristic this was repeatedly correlated with columns indicating other characteristics. Three groups of associated characteristics slowly emerged. On decoding these from numbers to the character traits, they signified the groups to be as follows:

Group I.—This group comprises seventeen patients who had described themselves as over-conscientious and/or over-scrupulous children. Correlated with this more than ten were shy, timid, over-sensitive, and withdrawn. They shunned games and parties and preferred reading. At school they worked very hard, were exceedingly ambitious, and worried unduly about their achievements. They were accurate, reliable, clean, and tidy. A fair number stressed spontaneously their horror of dirt. The following abstracts may illustrate some of these features:

C. H.; 12 years old.—Mother's report: "Connie is very clean and tidy in her habits and very conscientious and extremely ambitious in her school work. She cannot bear to see anyone better than herself. If there was someone better, she used to say: 'I do want to beat her.' She is prone to under-estimate her own abilities. At school she always used to wonder if she would pass her examinations. Connie is not a very good mixer. She would rather read than play; it has always been difficult to get her out to play."

Group II.—Twelve patients described themselves as excitable in childhood. Seven of these were obstinate, stubborn, argumentative, cantankerous, and overtly aggressive. In general they were jolly, happy-go-lucky, and did not care very much about their appearance or achievements. At school they were often noisy and up to mischief—frequently the dread of their teachers. In contrast to Group I, they had "heaps" of friends, liked to perform, and enjoyed "showing off." They were prone to display their emotions and apt to produce explosive affects when frustrated. A typical instance is given in the following:

A. S.; 23 years old.—"From the day I was born until I was over a year old I never stopped crying. Later on I was obstinate, argumentative, quarrelsome, always up to mischief, always getting into trouble. I ran up and down stairs and made a terrible noise to annoy the others. At school I was a great nuisance. I was inattentive, fidgety, and used to talk when I was not supposed to, and would whisper, giggle, throw notes, or eat sweets during lessons. I hated going to school, and made many excuses to stay away. Often I pretended to be ill or deliberately hurt myself to find an excuse."

Group III.—This group embraces six cases. Their common characteristics were their quiet, unassuming, accommodating behaviour in childhood. They were polite, courteous, and respectful, and extremely anxious not to hurt anybody's feelings. They kept in the background as much as possible and blushed on the slightest occasion. Their feeling of inferiority prevented them from association with other children. They were apt to take offence easily, and would brood over an often imaginary slight for days without showing it outwardly. The group is typified by the following example:

L. S.; 34 years old.—This patient was shy and retiring as a child. She never liked going to parties and felt uncomfortable with a lot of other children. She always let others go first: she preferred to keep back, and if she was called in front of others she would go red. If anyone said anything harsh to her she would brood over it for days.

There remained five cases of the total which did not fit in with any of the above three groups, and which are here classed as Group IV.

ADULT ADJUSTMENT

In the patients as adults, the groups seen in childhood remained unchanged in composition and often showed an accentuation of the differentiating characteristics.

As adults, the majority of patients in Group I were energetic and efficient. Their facial expression was often hard, determined, tense, and sometimes drawn, sullen, and dissatisfied. As a result of unreasonable feelings of inferiority and an acute sense of their obligations, their sole aim in life was to achieve safety and security, working long hours and finding it difficult to relax during their rare holidays. Despite this they were often dissatisfied with their achievements. Reliable and over-conscientious, they were always anxious to set an example, and tended to expect from others the same standards as they set for themselves. Most commonly they were over-careful with money and unable even to owe "a penny"; a few were foolishly generous or oscillated between these two attitudes.

Their attitude to religion and sexuality was unusually stern and rigid, and lapses, whether trivial or severe, brought disproportionate and prolonged feeling of guilt. Metaphysical problems similarly appealed strongly to them. Their high principles could be seen in their dogmatism, tectotalism, and their abhorrence of bad language and the "dirty" joke.

Over-orderedly, they liked everything to be done by method and could not bear to see things out of place. They were careful about their belongings and apt to keep things of little value. Thus a 52-year-old patient still kept his toys and school books, "which contained material which is very well written and spelled." They were sticklers for punctuality, and often arrived unnecessarily early for appointments in case they might be late. The majority were unusually neat, clean, and tidy in their appearance even if this strained their finances. Characteristically, one man, a clerk, invariably polished his boots whenever he went into his house. On the other hand, two of them were definitely dirty by any standards. Two others conspicuously broke down at one point by wearing a dirty collar or through dirty finger-nails.

A common feature of all members of the group was a failure to express emotion. They "bottle up" emotions and "worry inwardly." In their rare emotional moments by far the commonest feeling expressed was anger. As a result, in their social relations they were unable to adapt themselves to others and tended to live for the most part in a world of their own. Some were shy, timid, and self-contained. They disliked social gatherings, preferring reading or sitting in a corner and thinking about the conditions of the world. Others were resentful, obstinately sullen, or openly defiant. They were self-willed, and unable to admit that they were wrong. "I stick to my guns," a patient told us, "even if I think the other is right."

Grossly abnormal attachment to one parent was common. Considering their age and income, relatively few were married. In any case, their moral code was of such a nature as to interfere with normal sexual functioning, in many cases even to the point of sexual disorders.

Fourteen out of the seventeen members of this group displayed certain features which are grossly pathological—obsessional thoughts, fears, impulses, and actions. In

three cases these characteristics were floridly displayed as a severe obsessional neurosis which had been treated in a mental institution, a split schizoid personality and a schizophrenia with hallucinations and paranoid ideas.

Group II—made up entirely of women—by contrast consists of patients who are well in touch with reality, less harassed by conscience conflicts, and apt to display freely their stormy and transient feelings. They react emotionally with disproportionate intensity even to trivial situations, are impulsive, impatient, and moody, oscillate in rapid succession between moods of gaiety and despair, and may burst into tears or uncontrollable fits of laughter without obvious reason. Under hospital conditions most of them are noisy, petulant, and argumentative; incapable of falling in with the routine and unable to get on with the other patients. In their descriptions they tend to be theatrical, and their long and eventful life-histories abound in dramatic incidents in which they usually play a heroic part. Often they recite rather than give an account of their life-history. They often look younger than their age and are sometimes babyish in their speech and mannerisms. A woman of 23 wore a baby-ribbon in her hair and had a doll sitting by the bedside.

Like Group I, they were clean and neat, but by contrast they were often dressed loudly or were overdressed. They were anxious to attract the examiner; this was exemplified in one patient who at three interviews on three successive days wore three different nightdresses, without other justification. They wish to attract attention and to be cared for, praised, and spoilt. They are apt to magnify minor physical ailments, are prone to alarm those around them, and tend to make accusations of wilful neglect if they do not receive the amount of sympathy they demand.

More than usual the patients are suggestible both before and during their disease, as may be seen from an instance where one patient completely failed to improve in a hospital in which she complained that she was not being taken care of enough; in the second hospital, of which she said that "they were very much nicer," she showed a temporary loss of her diarrhoea, beginning on the day of admission. Another patient, who was thought to be *in extremis*, rallied and temporarily lost her symptoms when the rabbi pointed out that she was alarming her parents.

Superficial and labile in their interests, these patients are relatively inefficient in their occupations. They mix easily, but have acquaintances rather than friends. Over-enthusiastic friendships may turn into bitter enmity from one day to another. They enjoy social life so long as they dominate the stage. Violent fits of temper and numerous conversion symptoms are a common response to frustrations.

In their relations with men they have "heaps of admirers," but are incapable of loving deeply as a result of their own deep love of themselves. Their married life as a rule is stormy. On the surface, in comparison with Group I, their sexual activities in the narrow sense appear relatively normal; close inspection, however, reveals immature features and often an absence of deep interest or satisfaction. As one patient remarked, "I am in love with the sex and not with the man." Undue attachment to one parent, often openly ambivalent in its nature, is even more common than in Group I. Five out of the twelve members of the group displayed gross hysterical symptoms, such as hysterical abasia, astasia, shaking fits, shell-shock, screaming fits, hysterical vomiting, etc.

Group III comprised individuals whose psychological abnormalities were most obvious as social anxiety. Five out of the six in this group were shy, quiet, and depressed in their manner, and almost terrified of transgressing the rules of social behaviour. Without exception all of them gave a history of severe and lifelong difficulties, particularly in relation to their family, finance, and work.

Group IV was made up by the residue—five patients not falling into any of the other three groups.

To sum up, it has been shown that in thirty-seven of the forty patients studied the colitis was antedated by psychological abnormalities or definite psychological disorders well beyond the range of the normal. No uniform personality type could be established. Among the various psychopathological structures observed, two well-defined main groups—Groups I and II—are prominent.

The Emotional Factor

Further investigation concerned the importance of disturbing events in the patients' life-histories in relation to the onset, increase, and return of symptoms. Physicians familiar with the disorder unanimously agree that "excitement and worry" often bring on attacks of diarrhoea. Twenty-eight out of the forty patients examined reported relapses of their disease. In seventeen of these twenty-eight patients one or more relapses coincided with disturbances in their lives. Frequently each relapse of an individual case was connected with some external event, as in the case of a woman who had her first attack of colitis during a period of severe financial stress, when her husband, a drunkard, was out of work; her second attack when he got into serious debt; her third attack when he blackmailed her and robbed her of all her savings; the fourth attack when she discovered that he had been unfaithful to her; and the fifth when he left her for good under very distressing circumstances. Sometimes the patients notice a decline of their mental symptoms during the period of their increased bodily symptoms.

In twenty-eight out of our series of forty patients a clear-cut emotional trauma, serious enough to be regarded as a precipitating agent, immediately preceded the onset of the colitis. In eleven cases acute, in seventeen cases prolonged, emotional stress ushered in the disease. The remaining twelve contained on the one hand the most severe cases of psychological disorders, and, on the other, patients in whom no precipitating situations were to be found—through lack of co-operation, through failure of the interview method, or through genuine absence of an emotional disturbance.

In seven cases serious occupational difficulties, in four cases severe financial stress, preceded the onset of the colitis. Two patients broke down under the strain of a forthcoming examination. In six cases domestic difficulties and in two cases highly dramatic love affairs had a precipitating effect. Sexual conflicts of a grossly immature type played an important part in four cases. In three patients the colitis started in the course of pregnancy; in one of them obviously in relation to fear of labour.

As might be expected, internal precipitating conflicts were predominantly found in Group I, whereas dramatic external events prevailed in Group II. Precipitating disturbances related to self-preservation and security showed in Group II. Problems of personal relations and sexuality were in marked excess in Group II. The sexual problems of Group I were of an infantile type—for instance, excess-

sive masturbation guilt; and of an adult type in Group II—for instance, fear of labour. A few examples may illustrate the precipitating life situations.

1. A policeman, aged 48, a typical member of Group I, over-conscientious, over-scrupulous, over-ill, and with obsessional doubts, got into a panic during his last year in the police force. "It was always on my mind whether I should manage to carry through and get my pension—whether he would do something wrong and get caught or whether he would get into trouble and not get his full pension. During his last six months in the police force, at the peak of his anxiety, he had bloody diarrhoea.

2. A typist of 20, timorous, emotional, and broody since early childhood, had a severe nervous breakdown before her matriculation, with fear of insanity, fear of failure, fear of dying, free floating anxiety. She sat for the examination but failed. Six months later she tried it again. I still felt frightened; I was always conscious of myself that I was there. I was always with myself, always thinking about myself, nervous of myself." This time she passed her matriculation, but at the time she heard the result she had her first attack of bloody diarrhoea.

3. An addressograph operator, aged 36, a shut-in spinster, over-conscientious, over-clean, over-tidy, manifestly over-attached to her mother, developed a number of nervous symptoms—depression, crying fits, etc.—when, for the first time in his life, her father was taken seriously ill at Christmas, 1933. "In February, 1934, in the middle of the night, they rang us up from the hospital and told us that father was worse, and when we got there he was very ill. The next day I felt shaky and worked up to a pitch. In the course of the day very violent bloody diarrhoea started." A week afterwards she was admitted to the same hospital as her father.

4. A secretary, aged 25, available, pleasure-loving, fond of showing off, fell in love with her chief when she was 18. He was a ladies' man, and took advantage of her. Another girl appeared on the scene, and three months later he told her he was going to marry this other woman. "Immediately my inside turned over and I had diarrhoea." Tormented by jealousy, she continued to work for the man, but some months later married a man she did not love. Her husband went abroad and her jealousy slowly increased; at the peak of her resentment bloody diarrhoea set in. The onset of her severe symptoms waning from her former lover's sympathy, a confession of love, and blood for a transfusion. "It was a great sacrifice for him. I am sure that his blood did me more good than anybody else's, because I loved him and I felt I would like to have his blood in me."

The Precipitating Life Situation in Relation to the Total Personality

Similar precipitating events would not lead to this symptom in other individuals. Personality factors, somatic as well as psychological, are likely to predispose to the intensity and nature of the psychosomatic disturbance in emotional reactions. This may be illustrated by the more detailed history of a case.

When this patient was 2 years old his father deserted his mother, who went as a companion-nurse. He saw her only in the holidays, and lived with a foster-father, a narrow intolerant man of very strict religious principles.

The patient, a strong and healthy boy, was quiet, shy, and retiring, preferring to read and study nature. He took a special interest in the obvious methods of reproduction in flowers. "I was interested in the make-up of everything. I was never satisfied with being told that a thing was so. Many a time I was told I was born with a question mark in my mouth." He was afraid of transgressing the family code.

At school he was a fair scholar, enjoyed sport, and if chosen for a team felt unduly conscious of what was expected of him. He might have two or three motions on the day of a race. "A little time before I was ill we were swimming without

clothes, and were surprised by some girls who were rowing and who laughed and treated it all as a joke. I was very disturbed, and some little time after I had an urge to expose myself. I knew many suitable places. When a girl passed I made no attempt to cover myself. Almost without exception after each exposure I had attacks of bloody diarrhoea. I recollected the things I was taught and I had a natural understanding that I shouldn't do it. I think that the mental side gave me the pleasure of a feeling of well-being and at the same time gave me a mental punishment which took the form of upsetting the nerves. I think that the feeling of guilt has caused the colitis. I feel quite confident, in myself, that if I could get out of the tangle the physical side would respond to treatment."

Comments and Conclusions

Evidence has been given to demonstrate that ulcerative colitis is a disease of the mentally ill or maladjusted. Almost all the patients showed character disorders, obvious neuroses, or psychoses. As will have been recognized from the description above, Group I, characterized by over-conscientiousness, over-scrupulousness, orderliness, cleanliness, obstinacy, etc., was made up of obsessionals; Group II, characterized by emotional lability, temper tantrums, childishness, self-centredness, and suggestibility, consisted of hysterics, whereas Group III, less well defined than the others, contained some schizothymes and depressives. The classification in groups was less rigid than might appear from the description. Groups I and II overlap considerably. More than half the patients examined displayed well-marked obsessional characteristics; in more than two-thirds signs of a psychosexual immaturity were present. The precipitating conflict situations, although fairly uniform within the various groups, showed no universally common similarities.

If we assess the relative significance of somatic and psychological factors in the aetiology of ulcerative colitis very little can be said in favour of a primary bacteriological or dietetic origin. Numerous micro-organisms, Bagen's diplococcus, virulent *coli* bacilli, streptococci, dysentery bacilli, and many others have been suspected as aetiological factors. This aspect has been dealt with in the previous paper by Dr. Cullinan, and, as has been shown, the bacteriological origin could not be substantiated. With most observers, we regard the infection as secondary to ulceration. Among the various factors suggested as possibly of aetiological importance, in our observations the psychological factor seemed the most constant.

The relevant literature is scanty. C. D. Murray, Sullivan, Chandler, and others in a comparatively small number of cases discovered an "amazingly close chronological association between emotional episodes and the onset of bloody diarrhoea." Very few cases of ulcerative colitis have been submitted to psycho-analytical examination. Murray's case—the only one reported in some detail—was that of a woman who showed warping of her emotional development. Similarly, on examination of a number of patients with so-called spastic colitis, persistence of an infantile attitude and pattern of behaviour could be discovered (Alexander, 1934; Bell, 1933; Daniels, 1934; Levine, 1934; Wilson, 1934). In the presence of severe external difficulties the infantile attitude of these patients developed a greatly increased prominence as an expression of their resentment against an environment which they felt had betrayed them (Sullivan). Alexander studied six such patients, contrasting their surface attitudes with those of the deep unrecognized background. Among the latter are commonly found strong demanding and possessive tendencies incompatible with the ideals of the individual, producing deep unrecognized guilt which has led to

diarrhoea; the diarrhoea could be shown to have expiatory value. As well as satisfying an unrecognized need for restitution, the diarrhoea was observed to be used as an expression of hate. Alexander reports his findings with a reserve as to the general validity of his observations. Whether this same deep pattern applies to ulcerative colitis is unknown at the present stage; if so, a comparative study of spastic and ulcerative colitis should reveal an even more intense conflict situation and strong masochistic components in the latter.

The riddle of the aetiology of ulcerative colitis is still far from being solved. The psychological background described is not necessarily the cause of the obscure disorder, but is certainly an important aetiological factor in this severe organic disease. Many problems in relation to the physical and psychological aspects of the disorder await discovery.

Summary

1. A series of forty unselected patients suffering from ulcerative colitis was submitted to psychological examination. In thirty-seven of the forty patients studied the colitis was antedated by psychological abnormalities or definite psychological disorders well beyond the range of the normal.

2. No uniform personality type could be established. Among the various psychopathological structures observed, obsessional and hysterics were prominent.

3. The emotional factor as precipitating onset, relapses, and individual attacks of ulcerative colitis was examined in relation to the personality affected.

4. These findings appear to justify an attempt at psychotherapy for selected early cases of ulcerative colitis.

This investigation has been conducted during the tenure of a Fellowship endowed by the Sir Hailey Stewart Trust, to whom I am grateful for the opportunity. The access to cases has been arranged through Dr. E. R. Cullinan, to whom I am deeply indebted for the co-operation which has made this investigation possible.

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G. Olin (*Bull. Off. internat. d'Hyg. publ.*, 1938, 30, 2230) records an epidemic of 115 cases of tularaemia which broke out in Sweden in July, 1937, and continued until the following October, the peak being reached at the end of August and beginning of September. Apart from the fact that there were only five cases under 10, all ages up to 70 were almost equally represented. Fifty were in males and sixty-five in females. The following types of the disease were noted: ulcero-glandular, 101; glandular, nine; oculo-glandular, one; and typhoid, four. The primary lesion was situated on the lower extremities in fifty-seven, on the upper extremities in fifteen, and on the face and neck in twenty-five cases. With a few exceptions the diagnosis was established by serological examination. In 107 cases there was a positive agglutination reaction for *B. tularensis*, in three this organism was grown from the primary or the glandular abscess, and in the remainder the diagnosis was made by the typical clinical picture. As in the two previous epidemics of tularaemia in Sweden, the outbreak was preceded by an epizootic among hares and other rodents.

APICAL BRONCHOGENIC CARCINOMA

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The early clinical manifestations of primary carcinoma of the lung are notoriously protean, ranging as they do from local signs of bronchiectasis or pleural effusion to cerebral tumour. These variations of behaviour depend to a certain extent upon the precise anatomical site of origin of the carcinoma, and of recent years attention has been drawn to the peculiarities of those arising in the periphery and, in particular, at the apex of the lung. We have seen several cases of this kind lately, and because of the conflicting views expressed in the literature concerning them we feel justified in presenting and discussing our findings.

In 1924 Pancoast reported four cases of tumour in the region between the root of the neck and the apex of the lung in which there was a peculiar clinical syndrome resulting from involvement of the brachial plexus and of the sympathetic cervical chain. This comprised motor and sensory disturbances in the shoulder and arm of the affected side, atrophy of the hand muscles, and Horner's syndrome—unilateral miosis, ptosis of the eyelid, enophthalmos, and anidrosis of the face and neck. In 1932 Pancoast republished these cases, added four others, and propounded the theory that the tumours arose from embryonal rests in the fifth pharyngeal pouch. He gave them the name of "superior pulmonary sulcus tumour," and claimed that they could be recognized radiologically, since they produced sharply defined shadows at the apex of the lung, destruction of one or more of the upper three ribs posteriorly, and some erosion of the transverse processes and bodies of the corresponding vertebrae. Pancoast's theory was based upon no more than two brief histological reports on biopsy specimens, but he did a service in drawing attention to a condition which does not seem to have been mentioned since it was described in detail by Hare in 1838. Unfortunately Hare made no reference in his necropsy report to the condition of the lungs, and he was evidently of the opinion that his tumour arose in the neighbourhood of the brachial plexus.

It is clear that any lesion of the parietal pleura at the root of the neck which involves the brachial plexus and the sympathetic chain may produce the characteristic neurological disturbance—apical tuberculosis involving the pleura (Fried, 1934) has been responsible—and should the lesion be a neoplasm it may well bring about destruction of the adjacent bony structures. It is therefore not surprising to find reports of cases where such tumours as the following have been responsible: carcinoma of thymus (Browder and DeVeer, 1935), intrathoracic sympathoblastoma (Frost and Wolpaw, 1936), and metastasis from gastric carcinoma (Tobias, 1932).

Under the title of "sterno-clavicular branchioma" Fried (1935b) described two cases of men, aged 54 and

46, in whom there were tumours in the root of the neck on the left side and no evidence at necropsy of involvement of any other part of the body. These were both squamous-cell cancers, and did not appear to arise in the lung, the dome of the lung being adherent in one case and the pleura separating the tumour from the lung in the other. Graef and Steinberg (1936) subscribe to Pancoast's theory of the origin of such tumours from a branchial cleft, and describe the case of a man of 47 who had a tumour on the right side attached to a yellowish plaque on the pleura which did not extend into the parenchyma of the lung, although on histological examination the carcinoma cells, of mixed squamous and alveolar types, were seen invading the lung septa. Kelman and Schlezinger (1937), in describing another case of an obscure squamous-cell tumour, discard the hypothesis of its bronchiogenic origin, since fifth and sixth branchial clefts have never been definitely proved to exist in the mammalian embryo; they do not describe the appearance of the lung at necropsy, but remark that it was definitely excluded as a possible site of origin.

A Survey of the Literature

In the literature we found reports of nineteen cases coming to necropsy (Browder and De Veer, 1935; Clarke, 1934; Connolly, 1935; Davidsohn and Feldman, 1937; Fried, 1934, 1935a; Jacob, 1934; Jacob and Baker, 1937; Ryce, 1938; Stein, 1937; Steiner and Francis, 1934; Tobias, 1932) in which the tumours were demonstrably bronchiogenic carcinomata arising at the apex of the lung, extending direct into the ribs and vertebrae, and involving the brachial plexus and sympathetic chain. A further eight cases have been diagnosed clinically, with or without a histological examination of a biopsy specimen (Jacob, 1934; Stein, 1937; Steiner and Francis, 1934; Tobias, 1932). It is interesting to note that of the cases where the relevant data were recorded all were males, ten were on the left side and thirteen on the right, and the histological types were as follows: squamous twelve; adenocarcinoma five; undifferentiated or oat-cell two; unrecorded in the remainder.

We have found references to five further cases of bronchiogenic carcinoma of the apex of the lung in which adjacent ribs were involved, but the tumour did not happen to involve the nerves in such a manner as to produce the full syndrome of motor, sensory, and sympathetic disturbances (Fried, 1935a; Mareil and Crawford, 1936; Pancoast, 1932; Stein, 1937). All five of these were males—three of them on the left side and two on the right. Histologically one was an anaplastic round-cell type of carcinoma, two were squamous, and one an adenocarcinoma; in the fifth there was no histological report. It is just possible that one of the cases in this group described by Fried, and one of those in the last paragraph reported by the same author, may be an oat-cell type, since Fried (1935a) states that he considers this type of tumour to be squamous and apparently does not differentiate between them.

We wish now to report four cases of apical bronchiogenic carcinoma in which there was the full clinical syndrome described by Pancoast and three in which it was absent.

Case I

This patient was a man aged 46, by occupation a railway checker. In March, 1936, he had pain in the right shoulder and down the inner side of the arm, at first only at night, but later becoming a constant dull ache. Acute exacerbations radiated down the arm, chiefly on the inner aspect to the little and ring fingers. In October, 1936, he noticed weakness and wasting of

the right hand; this rapidly progressed and involved the fore and upper arm. Three weeks later he developed weakness of the legs, and was admitted to Bootle General Hospital on November 4. No cough, expectoration, or haemoptysis.

Examination.—Pupils unequal, right being myopic. Both reacted to light and accommodation. Slight right-sided ptosis and enophthalmos. The left pupil was large and the left half of the face was sweating profusely. Fundi and cranial nerves normal. Right arm flaccid, and wasting very marked in all muscles of arm and small muscles of hand. Typical right "claw-hand." Analgesia of inner aspect of right forearm, otherwise sensation in the arms was normal. The abdominal reflexes and knee- and ankle-jerks were absent. Both plantar responses were extensor. Sensation in the lower limbs and trunk was normal. Retention of urine. Chest: impaired percussion note over right apex posteriorly, otherwise no abnormal physical signs. Heart and abdomen: nothing abnormal. Urine: trace of albumin. Wassermann negative. Cerebro-spinal fluid: pressure 80 mm.; fluid clear and colourless; the pressure did not rise on compression of jugular veins, but a rapid rise was seen with abdominal pressure. The specimen tube was broken in transit to the laboratory.

X-ray Report.—There is loss of translucency in the extreme right apex due to a small shadow with a rounded base which appears to be eroding the lateral surfaces of the first and second dorsal vertebrae and is causing erosion of the posterior aspect of the second and third ribs.

The patient died on November 16.

Necropsy.—A hard circular tumour about 5 cm. in diameter and 1.5 cm. thick is present at the thoracic inlet on the right side, overlying and eroding the first, second, and third ribs near their spinal articulations. The apex of the lung is adherent to the mass. At its superior aspect the tumour extends into the neck, invading the brachial plexus and eroding the bodies of the sixth and seventh cervical and first and second dorsal vertebrae. It enters the spinal canal through the intervertebral foramina, and is found in this situation to be a soft mass surrounding the eighth cervical and first dorsal segments of the spinal cord, but it is not adherent to the dura, and the spinal cord is removed with its coverings intact to the naked eye. On section of the right lung it is seen that the tumour is within the lung parenchyma at the apex, and the line of the pleura cannot be recognized; it is therefore impossible to say just how far beneath the pleura the tumour extends. The region of attachment of the lung apex to the chest wall is well defined, and the tumour has extended in nodular masses over the parietal pleura beyond this attachment for a distance of 5 or 6 cm. The tumour has also spread medially alongside the trachea. No metastases or other pathological changes are present in the lungs or elsewhere.

Histological Report.—Carcinoma simplex with a considerable fibrous tissue reaction; parts of the tumour are of a scirrhous type.

Case II

A tram driver aged 48 was admitted to Liverpool Royal Infirmary on April 21, 1938, complaining of severe pain along the ulnar border of the right forearm and weakness of the right hand of six months' duration. He had noticed a swelling above the right clavicle for two months.

Examination.—Evident gross generalized wasting and marked pallor of skin and mucous membranes. Hard fixed tumour, size of orange, in right side of neck extending behind clavicle. Nothing abnormal found in lungs, heart, or abdomen. No enlargement of thyroid or lymphatic glands. Right pupil myopic; ptosis of right eyelid. Wasting of all muscles of right forearm and "claw-hand." Anaesthesia of ulnar nerve distribution. Wassermann negative.

X-ray Report.—There is a rounded opacity of the extreme right apex, the lower border of which is extending down to the fourth rib posteriorly. There is almost complete destruction of the first rib, and early destruction of the second rib, with a pathological fracture about an inch from the angle. The appearances are those of an apical lung tumour.

Operation April 22: chordotomy for relief of pain. Patient died on April 26.

Necropsy (twenty hours after death).—Emaciated, with a large fixed mass above the right clavicle. Wasting of right thenar and hypothenar eminences. The nasal sinuses, mouth, and pharynx are healthy. Both pleural cavities contain a little turbid fluid. There is a muco-purulent bronchitis and a bilateral basal pneumonia. A large mass of growth, involving and apparently arising from the extreme apex of the upper lobe of the right lung, has eroded the first and second ribs posteriorly and laterally. The greater part of the mass, which is 9 cm. in diameter, is situated above the clavicle, covered by the sterno-mastoid muscle and the cervical fascia. The brachial plexus is seen entering the mass from above, and reappears superficial to it at the level of the clavicle. It is not possible to find the sympathetic chain in the tumour. The right transverse processes of the lower two cervical vertebrae are eroded by the growth. The clavicle and scapula are not invaded. There is no glandular enlargement on either side of

extensors of the right wrist and fingers. Complete loss of power of the flexors of the wrist and all small muscles of the right hand and some loss of power in flexion of the fingers. The brachioradialis is unaffected, and the biceps and brachialis anticus are relatively strong. Deltoid and scapular muscles are normal, but there is winging of the right scapula. Impaired percussion note and deficient air entry right apex. Heart normal. Liver, spleen, and kidneys not palpable. Wassermann negative. No tubercle bacilli found in sputum.

X-ray Report.—There is an opacity in the extreme right apex which has a rounded lower margin extending towards the hilum of the lung. The shadow of the soft swelling extends up into the supraclavicular triangle, and there is early erosion of the third rib posteriorly. The appearances are those of apical bronchial carcinoma (Fig. 2).

Operation (March 16, 1935).—Portion of first, second, and third ribs excised posteriorly. The tumour was found to be attached to and arising from the apex of the lung. The whole of the tumour, together with a portion of the apex of the lung, was removed.

Pathological Report.—The tumour is a bronchial carcinoma showing the not unusual admixture of oat-cell structure, im-



FIG. 1.—Case II. The large apical tumour is firmly attached to the ribs and soft tissues at the root of the neck. A metastasis is present in the opposite lung.



FIG. 2.—Case III. Opacity in the right apex due to apical bronchial carcinoma

the neck or in the axilla. The tumour mass, on section, presents a yellowish-white appearance with some pinkish areas (Fig. 1). There are a few small cavities in the portion of the lung involved by the tumour, and these appear to be emphysematous bullae. There is a spherical blood-borne metastasis, 2.5 cm. in diameter, in the middle of the left lung. The paratracheal lymph nodes alongside the tumour contain tumour, but no metastases are present in any other organs.

Histologically the main tumour mass, which is very necrotic, is a carcinoma simplex. The pulmonary metastasis is better preserved and is in parts a definitely squamous-cell carcinoma.

Case III

A man aged 59, a forwarding clerk, was admitted to Liverpool Royal Infirmary on February 25, 1935. For six weeks he had had pain in the right shoulder, extending down into the hand, with "pins and needles" in the fingers. He had noticed drooping of the right eyelid for the last three months at least.

Examination.—There is a hard fixed mass in the right supraclavicular fossa, and the subclavian artery is more superficial than on the left side. No enlargement of thyroid or lymphatic glands. Definite ptosis of the right eyelid and a contracted right pupil. Complete loss of power of the triceps and

perfect papillary process formations, and incomplete alveolar arrangement.

The patient died on March 19, 1935. No post-mortem examination.

Case IV

A butcher aged 49 was admitted to Liverpool Royal Infirmary on July 25, 1932. Two months previously, after lifting a quarter of beef, he noticed stiffness of the right shoulder and found he had a lump above the right clavicle. During the following week he suffered from pain in right shoulder, right upper arm, and region of right breast. There was no history of cough, expectoration, or dyspnoea. He had lost about 1½ stone in weight in two months.

Examination.—Pallor of skin and mucous membranes and evident generalized wasting. Right palpebral fissure narrowed and right pupil contracted. Ptosis of right eyelid and right enophthalmos. No localized wasting. Tumour under right sterno-mastoid, about size of a walnut, extending behind clavicle. Dullness to percussion over right apex and diminished movement of apex with increased vocal fremitus and resonance and bronchial breathing. Two small glands in right axilla. Nothing abnormal found in heart or abdomen. Wassermann negative. No tubercle bacilli found in sputum.

August 4, 1932: Radium needles inserted into supraclavicular tumour—1,680 mg.-hours.

the liver, suprarenals, and nearly all the bones. The proptosis is due to a tumour in the orbital plate and zygoma. *Histologically* it is a well-differentiated columnar-cell carcinoma with large alveoli full of mucinous secretion.

Discussion

Apart from the interest these tumours have aroused among pathologists and radiologists, they are of great importance clinically, because in most cases no symptoms of pulmonary disease are present. Of the seven cases recorded above only one (Case V) complained of cough and expectoration, and in this the tumour was situated in the apex of the left lower lobe, and, moreover, there were complications—pleural effusion, emphysema, bronchiectasis, and terminal pneumonia. Again, there is a striking paucity of physical signs in the chest in most instances, and this is no doubt explicable by the position of the tumour and the absence of bronchial obstruction and complications commonly found in lung tumours that are not situated peripherally.

When there are symptoms and signs of involvement of the brachial plexus and cervical sympathetic chain one should consider the possibility of an apical lung tumour. In Cases I to IV the patients consulted their doctors because of pain in one or other upper limb, and they all had signs of brachial plexus and cervical sympathetic paralysis. The sequence of events in Case I is of particular interest, starting with neuritis of the right arm, followed some months later by wasting of the limb and claw-hand, and terminating with a compression paraplegia due to invasion of the spinal canal by the tumour mass via the intervertebral foramina.

The most remarkable feature of the radiological findings in these cases of peripheral bronchial carcinoma is the comparative smallness of the lesion compared with the severity of the symptoms. They are recognizable as rounded opacities at the periphery of the lung fields, with a convexity towards the hilum. In lateral and oblique views they are in direct contact with the chest wall, and in most cases, to a greater or lesser degree, they involve and cause destruction of the adjacent overlying ribs; this destruction is most marked when they are situated at the apex of the lung, and may so far progress as actually to involve and erode the lateral surface of the spine, a condition present in the late stages of Cases I and IV. These are the only points which characterize such lesions radiologically. They do not interfere with the chest and lung expansion except secondarily, nor do they show any characteristic defect with lipiodol beyond failure of that substance to enter the opaque area, and some associated compression of the surrounding lung field.

The observation that our four cases of carcinoma of the apex of the upper lobe and all the twenty-six recorded in the literature occurred in males is of no significance, since carcinoma arising in any part of the lung is very much more common in males than in females. Only two of the last twenty-eight cases of bronchogenic carcinoma encountered at necropsy at the Liverpool Royal Infirmary have been those of females.

The average age of the previously reported cases with the full Pancoast syndrome is 47, with extremes of 31 and 62. Our four cases were aged 46, 48, 49, and 59. The average age of the last twenty-eight cases of hilar bronchogenic carcinoma we have seen at necropsy was 50, with extremes of 31 and 75. There is thus no difference in the age incidence of apical and hilar cancer.

Little indication has been observed that one lung is more often affected with apical carcinoma than the other.

It is true that our first four cases, in which the upper lobe was affected, were right-sided, but of twenty-eight in the literature fifteen were right and thirteen left: the difference is not statistically significant.

There are no histological features of the apical carcinomata to differentiate them from those arising in bronchi near the hilum of the lung. Geschickter and Denison (1934) make a surprisingly definite statement in this connexion. They analysed sixty cases of bronchogenic carcinoma and divided them rigidly into two classes: those arising at the hilum, which are squamous, basal-cell, or oat-cell in type; and those arising in the periphery of the lung, which are "adeno-columnar, adeno-mucoid, or adeno-cubical." Our experience has been very different. In the last twenty cases of hilar carcinoma coming to necropsy nine were oat-cell, six squamous, four mixed oat-cell and squamous, and one columnar-cell; and of six of the peripheral carcinomata that we now report one was oat-cell, two squamous, one spheroidal-cell, one a columnar-cell adenocarcinoma, and one a mixed oat-cell and columnar-cell type. Samson (1935) reported ten cases of bronchogenic adenocarcinoma, of which only one was peripheral, the remainder arising at the hilum; and Tuttle and Womack (1934) remark that most of the well-differentiated tumours in their series were at the hilum. There is therefore a striking lack of agreement.

We have included Cases V, VI, and VII in this series because they were examples of peripheral tumours which did not happen to be at the exact apex of the upper lobe. In Case V the tumour was at the apex of the left lower lobe and had directly invaded the seventh rib and the corresponding thoracic vertebra. Old adhesions were present in the pleural cavity. The tumour behaved in exactly the same manner as the apical tumours, but failed to produce the same symptoms because of anatomical differences. In Case VI the tumour was sub-apical, there were no pleural adhesions in that region, and the growth had not invaded the chest wall; the presence of tumour in the ribs was a result of blood-borne metastasis. In Case VII also the tumour was subapical, there were dense pleural adhesions, and the growth had infiltrated the parietal pleura without, however, grossly invading the adjacent ribs. We should like to suggest that the presence of old organized pleural adhesions in the region where a peripheral carcinoma happens to develop may well favour direct invasion of the chest wall by the tumour; and since adhesions at the apex are more common than elsewhere it is not surprising that apical carcinomata so constantly behave in this manner.

In conclusion, we claim to have shown that the peculiar clinical syndrome associated with tumours at the apex of the lung can be fully explained on anatomical grounds, and there is no reason for considering such tumours to be different in other respects from bronchogenic carcinomata arising elsewhere in the lung. It is well to bear in mind, however, the possibility of other types of tumour, primary or secondary, at the root of the neck producing a similar syndrome.

Summary

The previously reported cases of tumours at the apex of the lung are discussed.

Seven new-cases of apical or subapical bronchogenic carcinomata are presented.

The clinical, radiological, and pathological features are discussed.

We acknowledge with thanks the kindness of the following gentlemen who have allowed us access to their case notes or

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AN OUTBREAK OF SONNE DYSENTERY

BY

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On January 31, 1938, the bailiff of a farm in the Preston rural district gave information that some of the consumers of the milk produced there had been troubled with diarrhoea. The farm was visited forthwith and the following facts were elicited:

Particulars Concerning the Outbreak

1. The outbreak had started on January 26, and was characterized by diarrhoea and slight abdominal pains. The stools were slimy, but no blood was visible.
2. The cases were few, were limited to the consumers of the milk produced at the farm, and not all the consumers were affected. Among those affected were the four farm employees concerned with the production and delivery of the milk.
3. The quantity of milk produced was eight gallons daily. Four gallons of this were distributed. The remaining four gallons were mixed with milk from other farms and made into cheese.
4. No person at the farm had previously suffered from a similar illness.
5. The water supply to the farm was from two sources: (a) A shallow well: this water was used for washing the milk utensils. (b) A spring: this water was used for drinking purposes.
6. There had been no addition to the cattle for more than a year.

It was clear that the outbreak was milk-borne, and after consideration of the main features it was thought to be probably due to the Sonne dysentery organism. The following steps were accordingly taken:

(a) Distribution of the milk was prohibited for a period of two weeks in order that investigations could be made. Use of the milk on the farm was not prohibited providing it was boiled before use. No action was taken with regard to the cheese which had been made. The proportion of contaminated milk used in its manufacture was very small, and, further, it was known that conditions during "ripening" are so unfavourable that pathogenic organisms of the type under consideration do not survive.

(b) A list of consumers was obtained from the bailiff. (The list was subsequently shown to be incomplete, and this fact accounts for the delay in taking specimens in some cases.) Four of the households supplied with milk lived in the adjoining Garstang rural district. By arrangement with the medical officer of health of that district they were investigated by officers of the Preston rural district.

(c) Each household taking the milk was visited. Inquiries were made, specimens of faeces were taken where it was considered necessary, and instructions were given as to the disinfection of the hands, soiled clothing, and faeces of affected members.

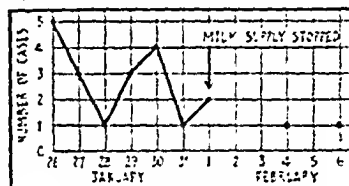
(d) Samples of water from the well and spring were taken for bacteriological and chemical examination.

(e) All doctors practising within the area were notified of the occurrence of the outbreak.

The milk was supplied to twenty-four households, but only twelve were affected by the outbreak. Eighty-six persons were at risk, but only twenty-one became ill.

The graph shows the daily distribution of the cases, five occurring on the first day.

It is interesting to speculate as to the number of cases that were "primary" and the number "secondary"—that is, the number which resulted from the consumption of milk that was in a contaminated state when received, and the number which were infected by members of their own households. It must be accepted that the cases occurring on January 26 and 27 were "primary" cases, and it is clear that those occurring on February 4 and 6 were "secondary," because the milk supply had been stopped on February 1. The position with regard to the cases which occurred from January 28 to February 1 inclusive is not clear. It is possible that all these were primary, and due to a common continuing source of infection. On the other hand, in all cases except one there was in the household an infected member of at least forty-eight hours' standing, and in the exceptional case there was abundant opportunity for it to be infected secondarily. The possibility of "secondary" infection cannot therefore be dismissed. The advent of secondary cases indicates that the instructions given to members of affected households were not efficiently carried out.



Graph of the outbreak, showing the daily distribution of cases.

The Water Supply

Samples of water were taken from both the shallow well and the spring, and were submitted to bacteriological and chemical examination. The bacteriological examination gave the following results:

| | Shallow Well (Washing Water) | Spring (Drinking Water) |
|---|------------------------------------|-------------------------------|
| Bacterial colonies per c.c.m.: | | |
| Agar 37° C., 48 hours | 450 | 60 |
| Presumptive <i>B. coli</i> : | | |
| Calculated number of organisms of <i>coll.-aerogenes</i> group per | | |
| 100 c.c.m. | 1,600 | 70 |
| <i>B. dysenteriae</i> Sonne could not be isolated. | | |

The figures show that both samples were markedly polluted, and that they were unfit for domestic use. The chemical examination also showed that the water was unfit for use. The results are expressed in parts per 100,000.

| | Shallow Well (Washing Water) | Spring (Drinking Water) |
|---|---------------------------------|----------------------------|
| Total solids in solution | 22.8 | 48.8 |
| Oxygen absorbed from permanganate in 15 minutes | 0.144 | 0.028 |
| Oxygen absorbed from permanganate in 3 hours | 0.291 | 0.058 |
| Ammonia | 0.015 | 0.004 |
| Albuminoid ammonia | 0.038 | 0.0165 |
| Nitrogen as nitrates | 0.18 | 0.008 |
| Nitrogen as nitrites | 0.0022 | Nil |
| Combined chlorine | 2.3 | 3.2 |

As soon as the significance of the results of the examination of the water was communicated to the farmer he ceased to use it. He is now using for all purposes wholesome water carried from another farm, and he is considering the question of having the public water supply laid on.

Results of Examinations of Faeces

Bacteriological examinations, the results of which are given in the accompanying table, confirmed the suspicion that the outbreak was due to the Sonne dysentery organism. Several features are worthy of notice. The general tendency in this outbreak was for the organism to be present in the faeces for seven or eight days after

Table showing the Results of the Bacteriological Examination of Faeces

| Initials | Date of Onset | Result of Examination of Faeces on | | | | | | | | | | | |
|-------------------------------|---------------|------------------------------------|------|------|------|------|------|-------|------|------|------|-----|------|
| | | February | | | | | | March | | Ap. | | Nov | |
| | | 3 | 4 | 5 | 9 | 16 | 21 | 28 | 7 | 21 | 4 | 24 | |
| 1 Mrs. P. . . | Jan. 26 | | | | Neg. | Neg. | | | | | | | |
| 2 Miss C. . . | " | Pos. | | | " | " | | | | | | | Neg. |
| 3 Miss R. W. . | " | | | | " | " | | | | | | | |
| 4 Miss J. W. . | " | | | | | | Neg. | | | | | | |
| 5 Master A. W. . | " | | | | " | Pos. | " | | | | | | " |
| 6 W. S., jun. (Delivers milk) | Jan. 27 | | | | " | " | " | Neg. | Neg. | | | | " |
| 7 Mr. A. S. . . | " | Pos. | | | " | Neg. | | | | | | | " |
| 8 Master R. M. . | " | | | | " | " | | | | | | | " |
| 9 Mrs. C. . . | Jan. 28 | | | | | | | " | | | | | |
| 10 Miss A. M. . | Jan. 29 | | | | | " | | | | | | | |
| 11 Mr. G. S. . . | " | | | | | | " | | | | | | |
| 12 Master F. J. . | " | | | | " | " | | | | | | | |
| 13 W. S., sen. (Bailiff) | Jan. 30 | | | Neg. | " | | " | | | | | | |
| 14 Miss D. C. . . | " | | Pos. | | Pos. | Pos. | " | Pos. | Pos. | Neg. | Neg. | " | |
| 15 Mr. J. C. . . (Milkster) | " | | Neg. | | Neg. | Neg. | " | " | Neg. | " | " | " | |
| 16 Miss J. G. . . | " | | | | Pos. | " | " | | | | | | " |
| 17 Mr. H. C. . . (Milkster) | Jan. 31 | | Pos. | | Neg. | " | " | Neg. | | | | | " |
| 18 Miss P. . . | Feb. 1 | | | | " | " | | | | | | | |
| 19 Mrs. D. . . | " | | | | " | " | | | | | | | |
| 20 Mr. J. . . | Feb. 4 | | | | Pos. | " | " | | | | | | " |
| 21 Mr. P. . . | Feb. 6 | | | | " | Pos. | Pos. | Pos. | Pos. | | | | " |

the attack, and to be absent after fourteen days. Exceptional behaviour, however, was shown by one or two cases. Thus Case 14, which began on January 30, was still excreting the organism on March 7, and Case 21,

starting on February 6, was also excreting the organism on March 7. Case 15 (a milkster) was exceptional in that negative results on February 4, 9, 16, and 21 were followed by a positive result on February 28, and this by four negative results.

Release of the Milk

On February 17 the question of releasing the milk was discussed, and it was decided to permit the distribution of the milk subject to certain safeguards:

(a) The continued use of the wholesome water for the washing of milk utensils.

(b) The suspension from duty for an indefinite period of the boy who delivered the milk: he was still excreting organisms on February 16 (Case, 6).

(c) Scrupulous attention to personal cleanliness by the bailiff and his two milkers.

(d) Further examinations of the faeces of the bailiff and the two milkers at weekly intervals. The bailiff (Case 13) and Case 15 had been consistently negative. With regard to Case 17, two negatives had succeeded the positive of February 4.

(e) The households taking the milk to be kept under observation.

It is particularly fortunate that (c) and (d) were insisted upon, because on February 28 one of the milkers (Case 15) was found to be excreting the Sonne organism. He was therefore prohibited from handling milk. Following negatives on March 7 and 21 he was allowed to resume work.

The Origin of the Outbreak

Though it seems clear that the outbreak was milk-borne, it is not clear as to the manner in which the milk became contaminated. On the one hand, it is possible that the polluted water which was used for washing the milk utensils was at fault. On the other hand, the milk might have been contaminated by one of the farm servants who handled it. There was, however, no history of any previous attack, and all of them were affected in this outbreak. The boy who delivered the milk can be excluded because he had not been connected in any way with the milk supply of three of the infected households.

Summary

An outbreak of Sonne dysentery due to contaminated milk has been described. About a quarter only of the persons exposed to infection suffered.

It was not found possible to determine the source of the contamination.

Administrative action was followed by a prompt cessation of the outbreak, except for two "secondary" cases.

The outbreak demonstrates the importance of repeated examination of the faeces of those infected if secondary cases are not to occur through a person's ignorance of the fact that he is still excreting the organism long after he appears to have recovered.

It also shows that it is particularly important during an outbreak of this type that repeated examinations should be made in the case of persons actually handling milk, and that they should be scrupulous in their personal cleanliness.

Our thanks are due to Dr. J. H. Cooke of the Preston Royal Infirmary, and Mr. J. R. Stubbs, the county analyst, for carrying out the bacteriological and water examinations.

RHEUMATIC HEADACHE

87

JAMES CYRIAN, M.D.

Little recognition has been given in recent years to the once well-known fact that headache can be caused by rheumatic infiltration of the muscles of the neck and scalp.

Historical Note

A rather hasty search in the old literature reveals that rheumatic headache was probably first described by Schönaich in 1615. His paper refers to headaches brought on by cold, arising in the pericranium and associated with tenderness there, and responsible for pain in the eyes and eyelids. Morgan (1769) remarked that headache might be rheumatic, and was then due to spasm of the cranial musculature, with resultant ischaemia. Weatherhead (1835) stated that rheumatic headaches took origin from the aponeurosis of the temporal and occipito-frontalis muscles, and drew attention to a variety in which pain was set up in an eye otherwise normal. Wright (1856) pointed out that the patient's sensations were not to be trusted, since tenderness was not restricted to the painful areas; that the pain might shift from the back of the head to the forehead, face, teeth, neck, and shoulder; that such headaches were apt to complicate attacks of acute rheumatism; and that they might be relieved by a mustard plaster on the neck. Norström (1902) described headaches due to inflammatory deposits in the neck and puffiness of the scalp, and drew the analogy of gluteal rheumatism giving rise to sciatica. He strongly recommended massage. Peritz (1906) infiltrated tender areas in the upper end of the sterno-mastoid muscle with 2 in 100 saline—first, to elicit muscle pain, and, secondly, as a method of treatment, thereby relieving a patient of a temporal headache. Whereas in the treatment of recent injury it is almost certainly the procaine, I am doubtful whether in the treatment of chronic myositis it is not the bulk of the saline solution that is the therapeutic agent; hence Peritz appears to have practised the very methods of provoking muscle pain and of treating it that are now regarded as the latest innovation. Yawger (1909) drew attention to indurations in the scalp which he termed the commonest and least-known cause of headache; he too advised massage. White (1912) seems to have been the first to notice that a pain in the ear might be caused by a distant myositis. Maverick (1913) pointed out that rheumatic headache might last for years and, if massage failed to bring relief, favoured excision of the nodules or injecting chromic acid into them. Hartenberg (1914) found that pain from the nape of the neck was perceived in the occipital region, and from the temple in the forehead and eyes. Patrick (1918) drew attention to the surprising lack of response to aspirin, and advocated massage or, if it failed, scarification of the scalp with the thermocautery. Glasscheib (1927) suggested injecting the nodules with a novocain-glucose solution.

The effect of all this information is to deprive the views about to be expressed of most of their supposed originality; nevertheless restatement of these facts seems timely in view of the oblivion into which rheumatic headache has fallen during the last twenty years.

Theoretical Considerations

The fact that pain in certain parts of the head might originate from distant points had long been apparent to me

clinically as a result of the search for the spots massage of which relieved the patient's headache. However, not until the publication of Sir Thomas Lewis's (1938) way of producing muscular pain artificially was I able to co-ordinate these clinical impressions and put them on an experimental basis. The method of injecting hypertonic salt solution described by J. H. Kellgren (1938) turned out to be most helpful, and gave confirmation and precision to the rough clinical findings. Injections of 0.1 c.c.m. of a 4 per cent. solution of salt were made at various points into the occipital, the temporal and the upper parts of the posterior and lateral cervical muscles, and into the epicranial aponeurosis. There was always pain at the site of injection, with reference to a distant area unless the fluid was faultily placed—for example, on to the periosteum. Irritation of fibres of the posterior cervical muscles close to their occipital insertion, and of the occipitalis itself, gave rise to a pain running forwards like a band half encircling the head and reaching its maximum intensity in the temple and forehead over the eye. From punctures between one and two inches below the occiput the pain radiated up the back of the head to the vertex, from punctures below this point the pain did not go beyond the upper end of the cervical muscles. From punctures at the upper end of the sterno-mastoid muscle the pain was referred to the temporal region, and stimulating a small area over the lower central part of the parietal bone gave rise to pain felt in the pinna and, in one case, in the external auditory meatus. Injection into the temporal muscle caused a pain in the cheek and jaws. Injections into the epicranial aponeurosis set up pain referred to the eyes—behind the eyes, in the eyeball, in

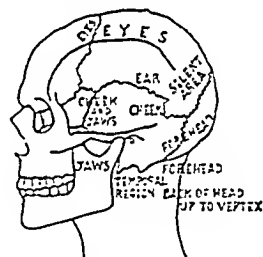


Diagram showing the areas of origin of pains referred about the head and face.

the eyelids. Over the posterior part of the parietal bone appeared to lie a "silent area" whence pain was referred only a short way. In no case did the pain cross the mid-line. The accompanying diagram shows, albeit roughly, the main areas of origin of pains felt in the head. In every case the referred pain was felt right inside the head and bore no resemblance to what the patient might have supposed would be caused by so superficial a lesion.

I had believed that the aponeurosis joining the occipitalis and frontalis muscles was analogous to a tendon, and was therefore surprised to find that irritation of the aponeurosis set up the remote pain characteristic of muscle rather than one restricted to the much smaller ambit of reference from tendon. An explanation, however, was to hand in the fact that embryonically the occipito-frontalis is a continuous sheet of muscle, whose central portion later becomes fibrous; hence the aponeurosis may well retain some of the properties of muscle. Thus rheumatic headache can be brought into line with other well-known pains of undoubtedly muscular origin—for example, "sciatica," "brachial neuritis"—in all of which the quality of the pain is the same. Furthermore, I feel sure that the head-

ache that accompanies a sore throat is referred from the pharyngeal muscles, but I did not go so far as to try to inject them with saline.

Clinical Considerations

By consideration of the following points it is not difficult to distinguish rheumatic from other kinds of headache.

History.—The patient has often had previous attacks of rheumatism, and may even come correctly self-diagnosed. The headache has usually been preceded by influenza or a cold, or a streptococcal disease like scarlet fever, and there is often a complaint of a neck still, or recently, stiff.

Symptoms.—The position of the continuous indefinable ache is difficult to ascertain, since the patient feels it to be right inside the skull. If pain is referred to the region of the eye there is no interference with vision, or optical hallucinations, or nausea, as in migraine. As a rule the headache is present on waking, and bending down with the neck rigid does not aggravate the pain, contrary to experience in other kinds of headache. If the patient sits still bent over a book for some time a headache comes on, and the neck feels stiff and may give out cracks on movement. Moving the neck may hurt the head, and the patient may be free from pain with the head supported; or the scalp in the occipital region may be so tender that the patient cannot bear the pressure of a pillow there at night. The pain is not sharp or momentary as in "neuralgia." Large doses of aspirin hardly abate the headache at all.

Signs.—Rheumatic headaches may conveniently be separated into two categories: pain in the head referred from the cervical muscles, and pain in the head due to changes in the scalp. Obviously the signs will differ according to which kind of headache is present, and the two not seldom occur together. Pain elsewhere may or may not be referred, but in rheumatism pain in the forehead does not seem ever to originate there.

Pain Referred from the Cervical Muscles.—There is a diminished range of movement in the neck, with pain on attempted movement which radiates to where the headache is felt. There is tenderness of the posterior or lateral cervical muscles in their upper part, where the grating and stringiness typical of long-standing rheumatism are often palpable. If the condition is at all acute the referred pain can be elicited or aggravated by rubbing the tender spot in the muscle firmly. The diagram above will give a rough indication of where to look for muscular tenderness, from a consideration of the place to which pain is referred.

Pain due to Changes in the Scalp.—In really bad cases there may be pitting oedema with fibrous nodules in the scalp over the occipital and parietal bones; such patients have had many years of constant severe headache. Usually, however, there are some slightly thickened grating areas no bigger than a sixpence and barely perceptible to the examining finger. They are tender, and as a rule are placed symmetrically, or nearly so, on the two sides of the head. Favourite spots are over the central part of the occiput about an inch from the mid-line and about the centre of the parietal bone. Firm pressure on these spots gives rise to both local and referred pain, though the patient had nearly always been aware only of the latter.

From the negative point of view the absence of neurological signs is confirmative.

Treatment

In fibrositis of the scalp treatment is not difficult. Massage must be given daily until the symptoms have gone. In advanced cases the thickenings in the scalp do not disappear; they merely cease to hurt. Provided the correct spots are massaged firmly and persistently there should be next to no failures. The diffuse occipital fibrositis that so often follows influenza may yield immediately to one treatment and not return. When there is long-standing induration of the scalp, massage may have to be continued for some months. I have not tried the effect of infiltration of the scalp areas with procaine, partly because in my experience this treatment, admirable for muscle, is useless for lesions in fibrous tissue, and partly for fear of injecting the procaine solution into a vein with intracranial connexions.

In rheumatism of the cervical muscles these must receive deep friction across their fibres, followed by passive stretching, and the increased range must then be maintained by active exercises. In mobilizing the neck day by day, particular attention should be given to lateral bending, which is often more limited than flexion and extension or rotation. If tender spots persist in the muscles after adequate massage their infiltration with 1 in 200 watery solution of procaine is often very helpful. Fibrous tissue in a muscle can to some extent be softened by injections into it of a 1 in 50 solution of procaine in olive oil, and this is more worthy of trial than the watery solution in cases where the muscle feels rough and stringy.

Commentary

If the points of origin of rheumatic headache are looked for according to the above diagram many hitherto unexplained headaches will be found to fit into the two categories described. Obviously many patients with headache and a pain in the eye or ear who may be referred to the appropriate special department, there to be labelled "neuralgia" on the discovery of a normal visual or auditory apparatus, and some of those in whom a post-influenzal frontal sinusitis is at first suspected, may be afforded relief if their symptoms are understood.

Osteopaths have claimed to cure headache. This is not impossible, since massage of the head and neck followed by mobilization, however foolish the theory on which it is based may be, is obviously sometimes excellent treatment.

It is probably fair to say that a headache that goes on for years without altering appreciably or making the patient ill is rheumatic. Apart from these uncommon cases, those who suffer from less persistent headaches can be given great relief by the use of massage if only the existence of this sort of headache is kept in mind.

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Clinical Memoranda

Reviews

Bilateral Rupture of Quadriceps Tendon

There appears to be no reference in the literature to the occurrence of bilateral rupture of the quadriceps tendon above the patella. The following case was treated in Charing Cross Hospital by Mr. R. A. Fitzsimons, by whose permission these notes are submitted.

CASE REPORT

A Covent Garden porter aged 66 fell down four stairs late on Christmas Eve. His right knee was so injured that he was unable to straighten it. After an interval of rest he pulled himself up and, putting all his weight on the left leg, managed to descend the remaining stairs and was hopping across a landing when his left leg gave out in a similar manner. He estimates the time interval as about half an hour. He pulled himself up by a window-sill, and attracted the attention of passers-by in the street, who came to his help.

He was admitted to Charing Cross Hospital, and was found to have a bilateral rupture of the quadriceps above the patella, with the characteristic hollows over the lower end of the femur, an effusion into the knee-joint, and complete loss of the power of extension. At operation under tourniquet five days later it was found that both tendons were completely avulsed from the upper borders of the patellae, with tearing of the lateral expansion. The knee-joints contained blood. The patella was drilled transversely, and kangaroo tendon was used to approximate the bulk of the ruptured tendon to it. The lateral expansion and aponeurosis were sutured with catgut. The patient made a good recovery, being discharged a month after operation. Flexion to 90° degrees was regained in three months.

COMMENTARY

Rupture of the quadriceps tendon is by no means uncommon, and is caused by the violence of a sudden muscle pull—that is, the same mechanism as that which brings about transverse fracture of the patella. The available figures give the comparative frequency of the two lesions as four cases of ruptured tendon to 318 fractured patellae. Tendon rupture occurs typically in men past middle age, and it has been assumed that the tendon is weakened through fibrosis from old injury, syphilis, arteriosclerosis, or obesity. The rupture is usually complete, although a slender deep process may remain intact. The separation may be from two to six inches, varying with the completeness of the tear and the length of time that has elapsed since the injury. The tendon is more frequently torn cleanly from the bone, but a fringe may be left attached to the patella.

The classical signs, occurring as they most frequently do in an elderly man, comprise evidence of haemarthrosis, a hollow above the knee-joint through which the lower end of the femur becomes palpable, and the complete loss of active extension at the joint. The accepted treatment is by suturing with fascia or kangaroo tendon, the patella being drilled transversely, unless enough tissue remains attached to the bone to hold the sutures. The tear in the lateral expansions must also be closed. The restoration of function is good, and is almost complete within five months.

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CHRONIC ABDOMINAL DISEASES

Chronic Diseases of the Abdomen: A Diagnostic System. By C. Jennings Marshall, M.S., M.D., F.R.C.S. (Pp. 247; 131 figures. 25s. net.) London: Chapman and Hall, 1938.

This volume covers in an unconventional manner all the chronic diseases which occur in the middle portion of the human frame. The term "chronic abdomen" has been used so widely as to include every variety of intestinal trouble: the liver, the pancreas, the urinary system, and even the lower spine. A chapter on physical examination is followed by one on special investigations of the intestinal tract and the renal apparatus, which are treated in some detail. The next hundred pages deal with abdominal pain, first of all as vague and general, then as epigastric, and finally in other local regions. The remainder of the volume deals briefly with such special conditions as haematemesis, ascites, jaundice, and haematuria.

Throughout the book every subject is dealt with in the tabular manner which is now so popular with the student, and the letterpress is illuminated by variations of type which are certainly unusual and perhaps a little futuristic. Descriptions of symptoms are very much to the point, and suggest that the author's reference to Rabelais is more than accidental, for the method of presentation would certainly have met with his approval. The volume is admirably illustrated by photographs and radiographs and by sketches which give a student just the information he requires. It is a book from which the student can gain a great deal of information in the very brief time that he has at his disposal for reading.

PNEUMONIA

The Pneumonias. By Hobart A. Reimann, M.A. With a foreword by Rufus Cole. (Pp. 381; 111 illustrations, 17 tables, and frontispiece. 25s. net.) London and Philadelphia: W. B. Saunders Company, 1938.

The changing outlook on the subject of pneumonia is well exemplified by Dr. Reimann in his book entitled *The Pneumonias*. That change may be largely attributed to the typing of the causative organisms which, though initiated by Lister in South Africa in 1913, was systematically elaborated at the Rockefeller Institute under the direction of Dr. Rufus Cole, resulting in the recognition of the four groups as proposed by Dochez. Dr. Reimann was then a resident in the hospital of the Institute and devoted much attention to the subject—an attention which he has continued now that he holds a chair at Philadelphia. Of that prolonged study this book is the outcome. He has cast his net wide, for he includes many acute infections of the lung besides those due to any of the types (now extended to far more than four) of pneumonia, and does not exclude those due to infective granulomas which may run a chronic course.

The first part of the book is devoted to specific forms due to various cocci, bacilli, and filterable viruses, and also to fungi and moulds. The second part deals with pneumonia as a complication of systemic disease, while the remainder treats of a variety of pneumonic inflammations produced by mechanical causes, radiotherapy, etc. The whole therefore forms a comprehensive survey which is copiously illustrated by a valuable series of x-ray photographs. Perhaps the most important section is the study of pneumococcal pneumonia, as this includes so much of

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THE PITUITARY GLAND

The appearance of a book of 724 pages published by the Association for Research in Nervous and Mental Diseases and entirely devoted to the pituitary gland¹ forcibly reminds us of the rapid advances in the study of that organ. For the whole subject is only just over forty years old. True in 1886 Marie described acromegaly, but it was not till the following year that Minkowski suggested that it was due to over-functioning of the pituitary, though on grounds which now appear rather inadequate. In 1895 Schäfer and Oliver prepared an active extract from the gland, thus repeating their success in obtaining an active suprarenal extract the previous year. Soon afterwards Howell showed that it was only the posterior lobe which yielded pituitrin. The year 1900 was marked by two steps forward, for Benda observed the excess of acidophilic cells in the anterior pituitary in acromegaly and Babinsky described a case of hypopituitarism. Generally speaking neither of these facts received the attention it deserved, but the seed fell on good ground in Sir Charles Sherrington's laboratory at Liverpool, where both Harvey Cushing and Fröhlich were working at the time. The next year Fröhlich returned to Vienna and described the hypopituitary syndrome which still goes by his name, and Cushing went back to the United States to initiate a combined surgical, pathological, and experimental attack on the problems that were just emerging. It will be generally agreed that no one man has done so much by his own work and his stimulating effect on others to elucidate and illuminate these problems as Harvey Cushing. And so it comes about that although he has not contributed an article to the monograph before us, his influence is writ large upon it all.

The investigations which started then have led to some valuable conceptions of general importance. Thus we have learned that the pituitary, like the adrenals, acts as a transformer of nervous stimuli into chemical secretions; its close association with the centres of emotional expression has served to link biochemistry with psychology; its

richness in tropic hormones has led to a conception of the integration of the endocrine system. In other words, if the pituitary is to be regarded as "the leader of the endocrine orchestra" we have come to see that the hypothalamus is its conductor. This is not to deny that the endocrine system has autonomous activities according to the daily biochemical needs of the body, but it has become clear that this system can be activated or inhibited by the hypothalamus through either the chemical mechanisms of the pituitary or the nervous mechanisms of the sympathetic. No doubt in the ordinary way the chemical secretions of the pituitary pass into the venous system, but it is also evident that some of its effects are due to their passage through the stalk of the gland into the cerebrospinal fluid. This appears to apply particularly to the oxytocic principle, but Raab has also shown that the influence of the pituitary secretion on fat metabolism is more potently exercised through the lateral ventricles of the brain than through the blood stream.

Through a study of the pituitary new light has been thrown on such important problems as normal and abnormal growth, infantilism, diabetes, Graves's disease, and the interaction of the sex hormones. Coincidentally with this increase of biochemical data there has been a sobering down of the speculations on the influence of the gland on the temperamental make-up of the individual. Nevertheless Rowe found that of sixty-eight children suffering from endocrine disturbances associated with disorders of behaviour, fifty-three showed pituitary dysfunction, indicating the importance of the connexion. All this and more also will be found fully discussed in the present monograph. From the wealth of material which it contains we will select a few outstanding examples. A. E. Severinghaus gives a particularly clear and well-illustrated account of the cytology of the pituitary, in which he adopts the now generally accepted view that the chromophobe cell is the parent of the acidophilic and basophilic ones. This explains the temporary nature of some cases resembling Fröhlich's syndrome; they are not due to a chromophobe adenoma but merely to a delay in the differentiation of the parent cells. The double origin of the pituitary has always been a subject of great interest to the embryologist, especially in its evolutionary aspect, and Dr. Fredrick Tilney discusses this very fully in a chapter entitled "The Glands of the Brain," drawing a contrast between the variability of the cerebral glands connected with the roof of the brain and the constancy of the floor glands. The variability he interprets as an adaptation to the needs of the individual species, while the constancy expresses certain dominant themes common to all vertebrates

¹ *The Pituitary Gland. An Investigation of the Most Recent Advances.* Editorial Board: Walter Timme, Angus M. Frantz, and Clarence C. Hare. Baltimore: Williams and Wilkins Co.; London: Baillière, Tindall and Cox. (45s.)

from beginning to end. The long-established structural constancy of the pituitary indicates its indispensable nature, just as its complex differentiation implies the possibility of widespread tropic influences. Dr. Walter Timme, whose views are always interesting, if sometimes rather challenging, contributes a critique of the pituitary theory of migraine, of which he is more in favour than are some other authorities. The questions of water balance and diabetes insipidus are fully discussed by various writers, and naturally Cushing's syndrome of pituitary basophilism comes in for considerable notice.

We have referred to the length of the book, and if one small criticism may be made we would hint that American writers are tending to a Teutonic discursiveness which might with advantage submit to the blue pencil. Nevertheless this is an admirable record of an abundant harvest reaped in a brief twosecure of years.

ECONOMIC STATUS AND HEALTH

In collaboration with Dr. A. Grant Fleming, Professor of Public Health and Dean of the Faculty of Medicine in McGill University, and with Mr. C. F. Blackler, a former social research assistant, Mr. Leonard C. Marsh, the director of social research in that university, has, under the auspices of his university and through the Oxford University Press, published a volume, entitled *Health and Unemployment*,¹ containing an account of some careful and interesting studies of the relationships of those conditions throughout the Dominion of Canada or in its various Provinces. The book—like the surveys the results of which it embodies—does more than attempt to answer the questions how far the unemployed are in need of medical care, or what are the medical and physical implications of being unemployed. It describes and discusses also the effect of the industrial and economic depression on the development of social welfare organization in Canada. The main study dealing specifically with health conditions is based upon the results of complete physical examination of 1,000 unemployed adults, compared with 1,000 employed men, and 270 unemployed youths, both classified according to their occupational or economic status. There were other somewhat similar studies relating to groups of socially assisted unemployed families, school children, and infants. The results are set out in no fewer than 115 charts or statistical tables. These

are clear and informative and of very varying interest and merit. Indeed, the value of these results as a whole cannot be placed very high, either because of the relatively small numbers of persons concerned, or because in almost every case they can be legitimately interpreted in divers ways and may even be held to lead to quite different or contradictory and opposite conclusions.

Mr. Leonard Marsh and his co-investigators naturally admit that the measurement and assessment of health conditions is not a simple matter. It becomes clear, too, that the problems considered are not those of unemployment *per se*, but rather those of economic status among the employed and unemployed alike, and even so that they have to be dealt with in relation to sex, age, and other relevant circumstances. Moreover, it is not easy in many cases to distinguish between cause and effect: is ill-health or mental disturbance or physical disability the cause of unemployment, or is it the other way round? The authors do not really attempt to elucidate these problems, though it is suggested (in a footnote) that the relationship of ill-health and unemployment is not one of cause and effect either way, but that both are the joint result of economic, social, and personal factors. This may be so, but it is perhaps a little surprising to read that the "evidence justifies the estimate that at least 20 or 30 per cent. of the unemployment problem is a health problem so far as remedial treatment is concerned." If this means that from one-quarter to one-third of the total unemployment could be got rid of by better medical attention to the unemployed the situation is less unhelpful than it might be.

For the medical profession the most important, valuable, and interesting part of the work is that entitled "The Provision of Medical Care." This section of some fifty pages describes in sufficient detail and with admirable clarity the medical provision made, or in the making, for the unemployed and the necessitous in Eastern Canada and in Western Canada respectively. It discusses also the relation of medical relief to systems of health insurance, and recent steps taken, including two provincial Acts on the statute books in Alberta and in British Columbia, towards the establishment of federal or provincial systems of health insurance in the Dominion. The conclusion is reached that such a federal scheme of insurance is definitely the most satisfactory solution, and that it should include provision for the destitute and the unemployed on lines similar to that for others who are unable to make the needed medical provision for themselves. The most extensive and satisfactory schemes of medical relief at present are those established in Ontario and in Montreal. The

¹ *Health and Unemployment. Some Studies of their Relationships.* By Leonard C. Marsh. In collaboration with A. Grant Fleming and C. F. Blackler. London: Oxford University Press. (10s. 6d.)

nature of these schemes, as well as that of others on a more restricted scale in other parts of Canada, is adequately set out, and should be studied with interest by those engaged in health-insurance or public assistance administration in this country. For this part of his book Mr. Leonard Marsh deserves special thanks.

EARLY DIAGNOSIS OF CANCER

The improved outlook in cancer is due in part to better technique in treatment, but in part also to better and earlier diagnosis. The importance of early diagnosis is indeed so overwhelming that much effort has been made and a good deal of money spent in trying to educate the public on this subject. How much effect such propaganda can have is uncertain, and both the spoken and the written word can cause unnecessary apprehension besides perhaps doing good. Periodic medical examination in middle and later life is undoubtedly desirable, but how frequent it should be and to what lengths it should go are other questions on which there is no general agreement. But whatever doubt there may be about the education of the public in this matter there is none about the imperative need for a fully educated medical profession. A patient attentive to the possible first signs of cancer can have his vigilance rewarded only by a doctor with the knowledge and diagnostic ability to interpret them. These qualities, and the acumen, also based on knowledge, which will descry in the trivial symptom a danger signal calling for further investigation, are capable of higher development in most of us. No one has ever pretended to estimate how often the blame for delayed diagnosis rests on the patient and how often on his doctor, but were such an analysis possible the medical profession would not be entirely exculpated. If it be granted that education of the profession is at least as much to be desired as that of the public, an important service has been rendered by the Canadian Medical Association in publishing a *Handbook on Cancer* intended for the general practitioner.¹ This book of 232 pages is simple and unencumbered by illustrations or masses of figures, but it has been written by experts and furnishes an admirable account of the pathology, symptomatology, diagnosis, and treatment of cancer in every part of the body. The information given is authoritative, up-to-date, and surprisingly full and detailed for chapters so brief and easily read; that on bone tumours, for example, clearly describes and distinguishes between the four types of primary growth in bone, and the very different course taken by each of them. In describing symptomatology, emphasis is laid on the first presenting symptom, and a graphic picture given of the features by which the disease should first be recognized or suspected. Methods of examination, both simple and special, are adequately described; there

is, for example, an excellent account of the use of inspection and palpation in detecting a carcinoma of the breast, while various endoscopic methods and procedures for securing a histological diagnosis are assigned their place and value. The rules given for treatment are precise and well informed, and the prognosis is stated in terms as exact as a few well-chosen figures can make them; when treatment by irradiation has been shown to be fruitless this is plainly stated. The possibility of prophylaxis is not forgotten, predisposing causes being mentioned where they are known to exist, and precancerous conditions described. The chapters on cancer of different organs follow accounts of the general principles of treatment and those underlying radiological treatment and an introductory chapter on the general pathology of the disease which furnishes an admirable summary of the present position of cancer research. Almost everyone has something to learn from a book such as this, and to many without special experience and training it can be a most valuable guide. Some of the funds available for promoting the study and improving the treatment of cancer could scarcely be better spent than in sending a copy of this book to every practitioner in the country. The *Canadian Medical Association Journal* in announcing its publication says that free copies have been presented to members of the C.M.A. as a contribution to the nation-wide campaign against cancer. Applications from other members of the profession should be addressed to the General Secretary, Canadian Medical Association, 184, College Street, Toronto.

OEESOPHAGITIS IN INFANCY

It is probable that anyone asked about the frequency of inflammation of the oesophagus in young infants would reply that it is a rarity and generally diagnosed only at necropsy. Diagnosis during life in an infant who cannot complain of pain or difficulty in swallowing is obviously not easy, but it should be simplified to some extent by a study of the recent paper by J. H. Ebbs.¹ Twenty-eight children have died with an acute oesophagitis at the Birmingham Children's Hospital during the past three years. Working back from the post-mortem findings, Ebbs sets out the clinical features of the disease. It appeared in twenty-two instances to be due to infection by the organism causing thrush—*Monilia albicans*; in these infants there was always a previous history of thrush of the mouth. The outstanding observation made by mothers or nurses in these cases of acute oesophagitis was that the infant cried during or immediately after the act of swallowing, or that it refused to feed. Many infants in this series would take the liquid into the mouth and then allow it to dribble. The chief complaint was vomiting; if swallowed the food was either immediately regurgitated or returned as a large forceful vomit during, immediately after, or within a short time of the feed. Dehydration became a serious factor in association with frequent vomiting, and toxæmia seemed to develop.

¹ *Handbook on Cancer for the Medical Profession*. The Authorship Committee Department of Cancer Control, Canadian Medical Association. Toronto, 1938.

¹ *Arch. Dis. Childh.*, 1938, 13, 211.

usually a few days after the onset of severe symptoms. The temperature was slightly raised in some instances, but was often subnormal; the pulse was always rapid and usually irregular; diarrhoea was never an outstanding sign. Periods of apparent recovery alternated with periods when the child appeared to be dying, and terminal bronchopneumonia occurred in nearly all cases. It is clear from this study that treatment must be prophylactic; in other words, ordinary thrush must receive adequate treatment. In the present cases borax and glycerin has been disappointing, but the application of an aqueous 1 per cent. solution of gentian-violet has been found most satisfactory. It is said that one application will clear the lesions in the mouth, and if an infant with thrush in the mouth refuses feeds, vomits soon after swallowing, and shows a deterioration of its general condition with a toxæmia out of all proportion to the signs present it should be suspected of thrush oesophagitis, and gentian-violet should be applied liberally to the mouth in the hope that it will reach the affected areas in the oesophagus. Ebbs concludes his interesting paper with the description of one such case successfully treated.

PLANT GROWTH HORMONES

The study of hormones is being energetically pursued in plant physiology and is even finding some applications in horticulture. Animal hormones have been described as peculiar in the respect that they are produced in one organ and carried by the blood stream to another, in which their effects are manifested. There is no circulatory system corresponding to the blood in the higher plants; nevertheless the action is somewhat similar. The plant growth hormone can be described as a substance which, being produced in one part of the organism, is transferred to another part and there influences a specific physiological process. In a recent lecture to the Pharmaceutical Society of Great Britain Mr. W. G. Templeman, who is engaged in research on plant physiology, described the nature and use of these hormones and of the synthetic growth-promoting substances, the preparation of which, as in medicine, has followed upon the discovery of the hormone. After the isolation from human urine of auxin *a* or auxentrionie acid, a substance of similar activity known as auxin *b* or auxinolonie acid was isolated from maize-germ oil. Neither of these substances has as yet been synthesized, but it has been ascertained that auxin *a* is present in the higher plants, and recent work suggests that another substance, the heteroauxin or β -indolacetic acid, of about half the activity of the former, which has been synthesized, is also present, though it is not yet known how widely it is distributed. Altogether some fifty compounds from synthetic and other sources are now known which have growth-promoting properties. The effect of plant hormones is to produce cell elongation and division, though it is still not known whether in division the hormones are the only chemical factors concerned. The application of synthetic growth substances to young

stems results in a large swelling of the tissue, very similar to the tumours produced by certain pathological organisms. Thus a gall may be produced on making a cut and smearing the wound with indolacetic acid. Another interesting effect is bud inhibition. It has been found that the young developing terminal bud produces a hormone which diffuses downwards and inhibits the growth of lateral buds, and if the terminal bud be replaced by auxin *a* or *b* the development of the lateral buds is still inhibited just as if the terminal bud were present. Various changes can be rung on the flowering cycle of plants. The flower hormone or florigen is regarded by a Russian worker as the sex hormone of the plant, and by its use blossoming has been accelerated and non-flowering plants have been made to flower. The increased growth of plant tissue upon the approach of the pollen tube is also thought to be due to excretion of some hormone substance from the tube. A ripe tomato fruit has been produced by the application of indole-propionic acid to the style of an unpollinated tomato flower. It has been discovered that by the treatment of the stem of a plant either by paste application or by injection of heteroauxin in lanolin, after intervals of varying lengths according to the species, there appear adventitious roots along the stem. Experiments have been carried out with cuttings standing in vessels filled with aqueous solutions of synthetic substances such as indolacetic acid or indolbutyric acid, and a number of them respond by developing roots although they may have remained unrooted for months. But even in plant physiology the path of hormone research is not smooth. Cuttings from some plants are very difficult if not impossible to root, whatever the application of synthetic substance, and, moreover, cuttings of the same variety taken from different plants sometimes behave differently in their response to growth-promoting hormone. The work is proceeding at Kew, where there is a plant hormone committee, and in various other laboratories, and may some day result in revolutions of major or minor extent in plant production. Miss Dorothy Brain¹ has suggested that the possibility that the raw materials of some animal hormones may be derived from plants may have to be taken into account in interpreting the symptoms of deficiency diseases.

PSYCHIATRIC PREPARATIONS FOR WAR EMERGENCY

Among all the speculations with regard to medical preparation for a national emergency, problems of psychiatry have been receiving much consideration from those whose special concern is with this branch of medicine. The fact that in a disciplined body of men there was so much neurotic breakdown in the great war—and there were over 70,000 such patients in 1918—is a clear indication that the disturbance of the stability of the untrained civilian population of our cities would be very considerable in case of air raids of the sort that are to be expected. The evidence from Spain as to incidence of neurotic breakdown under

¹ *Lancet*, 1937, 1, 1241.

somewhat comparable circumstances is conflicting, but it is clear that preparation must be made in all plans for dealing with this group of civilian casualties. In our advertisement columns there appears an announcement of a short course of lectures arranged by the Tavistock Clinic on "The Neuroses in War Time," which is designed to give some insight and elementary instruction to those who would have to grapple with such problems in emergency. Those doctors who are to be in charge of first-aid stations will certainly need some help with this aspect of their work, just as they will need special instruction in the most modern techniques in regard to fractures, burns, etc. Many others who realize the problems with which they may be faced, whether in hospital work or in general practice, will no doubt welcome such lectures, and if this experimental course proves as useful as is expected it should be capable of repetition, not merely in London but in other cities and towns throughout the country. Many of those who attend this course will no doubt, as a result of the lectures and the discussions that follow them, be in a position to carry on such instruction for their colleagues elsewhere. We note that all the lecturers in this first course have been chosen from among those who had experience in the last war, though it is questionable whether there are any precedents to serve as a guide in making medical plans for a possible future war.

THE USES OF TISSUE CULTURE

The annual report of the Strangeways Research Laboratory at Cambridge for 1937 records that no fewer than twenty-five investigators worked there during the year, and the brief outline given of the objects and results of their work illustrates the variety of purpose which the tissue-culture technique is now being made to serve. By the cultivation *in vitro* of large portions of embryo it has been possible to throw light on obscure questions in embryology. Thus the researches enumerated in this report include studies of the mode of formation of the mandible and of the sternum. A good deal of other work has been concerned with factors controlling growth; in this category are studies of the effect of pressure on cartilage formation, and of the relation between blood pressure and the thickness of the arterial wall. The conclusion on this point is that pressure alone does not explain variations in the thickness of the vessel wall in different parts of the embryonic arterial tree. An *in vitro* study of developing teeth is thought to have shown that the shape of the cusps is controlled by factors in the tooth germ itself, and is independent of mechanical conditions in the jaw. In grafting experiments with tissues derived from races of different size genetic rather than immediate factors have also been shown to be the more influential. On the more pathological side there have been studies of the causes of fibrillation in heart muscle, and several observations on infective processes *in vitro*. Many bacteria would doubtless destroy a tissue culture within a few hours, but it has been found possible in the past to

introduce such slowly growing bacteria as tubercle bacilli and to observe the mutual behaviour of these and the tissue cultivated. In the present experiments fungi were used, and two conclusions have been reached on the basis of experiments with *Monilia albicans*—namely, that its destructive effect on lung cultures *in vitro* corresponds to its degree of pathogenicity *in vivo*, and that it has not, as has been suggested, a specific action on ciliated epithelium, since cultures of this tissue will survive in the presence of the fungus for as long as fourteen days. The Strangeways Laboratory is now even better equipped than before for studying the effects of irradiation, and work has been done on the degree of susceptibility to x rays of different processes in cell metabolism. The factors controlling the effects of irradiation have been studied in tadpoles—one of many more primitive forms of life, ranging from the roots of beans to the eggs of flies, which have been tried for this purpose—and the results appear in several ways to confirm the long-held belief that metabolic activity, and in particular the imminence of mitosis, determine the susceptibility of the cell to irradiation. All the work described here has evidently a fascination in that it deals with living material which is yet under complete control; whether these *in vitro* conditions are such as always to justify conclusions applicable to the whole body has yet to be decided.

A NUTRITION PANEL

The formation of a Nutrition Panel consisting of prominent food experts and scientists in every branch of research and industry is announced by the Food Group of the Society of Chemical Industry. The Panel, with Dr. J. C. Drummond, professor of biochemistry at London University, as chairman, Mr. A. L. Bacharach as honorary secretary, and Dr. G. W. Monier-Williams, Dr. Albert Green, and Dr. Magnus Pyke on the committee, has been formed for the study of food in relation to health and disease. Its scope will include the production, processing, and distribution of food for both human and animal consumption, and the manufacture and control of preparations for supplementing diets for medical use in the nutritional disorders. Membership is open to all members of the Society of Chemical Industry and the Food Group, and regular meetings are being arranged for the New Year. The work began at a recent meeting of over fifty chemists and other research workers in London, when the committee was elected and an informal discussion on "Nutritional Problems of Exploration and Nutrition at High Altitudes" took place. The proceedings of the meeting will be published in the *Journal of the Society of Chemical Industry*.

Dr. Walter Elliot, Minister of Health, will visit Manchester on January 20 to open the new orthopaedic and physiotherapeutic building at the Royal Infirmary.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

CIRCUMCISION

BY

KENNETH WALKER, F.R.C.S.

Circumcision is probably the oldest operation in the history of humanity. It is also one of the simplest surgical procedures that the practitioner may be called upon to carry out. Nevertheless, in spite of its simplicity it is sometimes ill performed, and when this is the case may be followed by unfortunate complications.

Indications

The chief indication for the operation is the existence of a phimosis. This is usually congenital in origin, but may also result from contraction of the foreskin following repeated attacks of infection. Acquired phimosis is also very commonly met with in elderly men who have not paid enough attention to hygiene, and have failed to withdraw the foreskin and wash away smegma. In such cases repeated attacks of balanitis and posthitis carry with them a considerable risk of carcinoma, and to remove this risk, circumcision is urgently indicated. In younger patients phimosis may be a complication of a venereal infection. A patient with a long foreskin is far more likely to suffer from balanitis and posthitis if he contracts gonorrhoea than one who has been circumcised, and, should these complications occur, treatment by means of irrigation may be rendered very difficult. Statistics also show that the incidence of syphilis is higher among the uncircumcised than among the circumcised. This is due not only to the greater difficulty in carrying out satisfactory prophylaxis, but also to the fact that coitus with a tight foreskin is liable to cause minute lacerations through which the spirochaete finds a ready entry.

Because of the disabilities that may arise in later life, circumcision should always be carried out in an infant with a congenital phimosis—that is to say, with a prepuce that cannot easily be retracted over the glans penis. It is also sometimes advisable when the prepuce is redundant, even if retraction is possible. Since, however, phimosis is a relative term, there exist many intermediate cases in which doubt will be felt whether circumcision is or is not necessary. For these intermediate cases the compromise of stretching the prepuce may be all that is necessary. This is carried out by inserting artery forceps into the mouth of the prepuce, which has been smeared with petroleum jelly, and then opening them so as to stretch the orifice sufficiently to allow of its easy retraction. The nurse can then be told to withdraw the prepuce daily, wash the glans penis with a mild antiseptic, and cover it with a thin layer of petroleum jelly. By such means the necessity for circumcision can often be avoided. Care, however, must be exercised to make sure that the prepuce has been entirely withdrawn, since its mucosa is often very adherent to the surface of the glans, and complete separation may not have been effected. In older children circumcision is sometimes advised in the treatment of such conditions as enuresis or masturbation. Personally I have never seen any benefit result from circumcision in cases of enuresis. It is, however, a justifiable measure in confirmed masturbation when there is reason to believe that the long foreskin is a source of irritation.

Anaesthesia in Circumcision

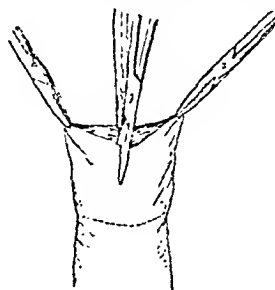
In the infant no anaesthetic is necessary. For children a general anaesthetic is indicated, but for adults local anaesthesia is sufficient. The nerves to the outer layer of the prepuce may be blocked by injecting 30 minims of a 0.5 to 1 per cent. solution of novocain, with or without adrenaline. The nerves to the inner layer of the prepuce are caught by infiltration as close to the corona as the needle can be inserted. When it is difficult to reach this position because of the impossibility of retracting the prepuce, the same object may be achieved by injecting the solution into the upper quadrant of each corpus cavernosum. In this case, however, anaesthesia may not be complete in the region of the fraenum, and additional local infiltration here may be required. Five to fifteen minutes are necessary for the novocain to take effect. Anaesthesia as a rule lasts forty-five to sixty minutes.

It should be borne in mind that psychologists are disposed to lay great emphasis on the psychological trauma that may result from the carrying out of circumcision in children. Care should therefore be exercised not to frighten a nervous child; and generally it is advisable to make use of some such basal narcotic as nembutal, paraldehyde, or avertin.

Technique of Circumcision

The commonest method is by means of a clamp. The foreskin is pulled forwards, and a circumcision clamp (of which there are many varieties) is placed obliquely on it parallel to the corona glandis. The clamp is then held in the left hand and the foreskin and clamp are cut off with the scalpel, the edge of which is kept as close to the clamp as possible. The skin retracts and the mucous membrane is seen to be still covering the glans. The edge of this is picked up with forceps, cut along the dorsum to the corona, and stripped off the glans until the coronal sulcus is exposed. This redundant mucous membrane is then clipped away.

Simple as this procedure is, mistakes may easily be made, the commonest of these being to draw too much skin into the clamp. Should this be done it may be found



when the clamp has been removed that the skin withdraws half-way up the penis. For this reason the following method is preferable. The foreskin is first retracted until the surface is tense, and on the edge of it are placed three pairs of fine-toothed forceps, two on each side of the median line dorsally, and one at the middle line ventrally (see figure). These are raised, and the foreskin is separated from the glans with a director. With a sharp, pointed

pair of scissors the foreskin is then slit up the middle line of the dorsum as far as the coronal sulcus, the edge of each flap thus formed being held by one of the forceps. The flaps are well stripped off the glans, and from the end of the dorsal incision a second is carried round one flap of foreskin, leaving just a narrow ledge of mucous membrane below the corona. This flap is cut away, leaving the lower pair of forceps attached. The same incision is carried round the second side, this time cutting away the two remaining pairs of forceps. After removal of the forceps four bleeding points will usually be found—a dorsal, two lateral, and a fractional. If the bleeding from these does not quickly cease they are clamped and tied with fine catgut. Catgut stitches are then inserted through the mucous membrane and skin, bringing them into accurate apposition.

In children the wound should be thickly dusted with boric powder, no dressing being necessary. In adults a dressing of moist antiseptic gauze or of acriflavine in liquid paraffin should be wrapped round the line of suture.

Complications of Circumcision

The commonest complications are (1) insufficient or incomplete removal of the foreskin, with subsequent contraction; (2) injury to the glans; (3) removal of too much skin when employing the clamp method; (4) sepsis; and (5) haemorrhage and the formation of a haematoma. It is unnecessary to discuss the avoidance of these, since they all point to an error in technique. It is, however, advisable to mention that in the presence of severe sepsis circumcision should be postponed until this has been reduced by proper treatment. This will consist either of preputial wash-outs or of carrying out a preliminary division of the prepuce along the dorsum. By slitting the prepuce in this manner drainage is improved and treatment by means of penile baths and the application of antiseptic dressings facilitated. All that it is necessary to do in order to complete the circumcision at a later stage is to remove the two flaps of prepuce lying on each side of the glans.

CONTROL OF PUERPERAL FEVER

LECTURE BY DR. L. COLEBROOK

A Chadwick Public Lecture was given at the London School of Hygiene and Tropical Medicine on December 13 by Dr. LEONARD COLEBROOK, honorary director, research laboratories, Queen Charlotte's Hospital. His subject was "The Control of Puerperal Fever."

Dr. Colebrook began by remarking that ten years ago progress in the campaign against maternal mortality was held up by lack of knowledge; to-day the difficulty was that more facts had been accumulated than it had been possible to put into practice. Infection of the genital tract must not be regarded as coming under a single category. Out of one hundred cases of puerperal fever about forty would be found brought about by the haemolytic streptococcus, and the other sixty by different organisms, mostly following a certain amount of injury during labour. These two groups differed in their aetiology, prognosis, and treatment, also to some extent in their pathology. He had little to say about the second group because until to a large extent injuries during childbirth could be obviated such infections would persist.

Infection by Haemolytic Streptococcus

The first group, due to infection by the haemolytic streptococcus, was the most important because the infections were the most serious and the most easily prevent-

able. It was now known that there were some six or seven different groups of the organism which could be distinguished by biochemical and serological tests, but only one of these groups was responsible to any large extent for puerperal fever. In all cases the streptococci were found in abundance in discharges from the mother, and the task of research had been to find out from whence the organism came, and why one woman out of one or two hundred got it and the others escaped. It might be transferred from other cases of septic infection through the doctor or nurse; it certainly did come by way of the air in particles of dust or droplets from the throat, which was the most important source. Dr. Dora Colebrook had investigated forty-eight cases in which she had been able to identify the organism found in the mother with that from some outside source. In twenty-four cases the infection had come from an attendant contact—that is, doctor, nurse, or midwife—and of the twenty-four all but one were respiratory; of the others, nine came from a member of the mother's household and six from the mothers themselves.

The question whether so-called healthy throats were dangerous had been considered in relation to this work. Research had shown that sometimes these might be a source of infection. There seemed to be something like 5 to 10 per cent. of people who were carriers of this group of streptococci. Nasal infections appeared to be less frequent, but when these did occur they were often more serious, because a person suffering from a sinus infection always had a little discharge and only a small degree of lack of care was necessary for the infection to be carried.

Preventive Methods

With all these possibilities it was difficult to get complete safety in midwifery. The ideal would be to inoculate all women in the last month of pregnancy, but at the moment this was not in sight. Many other things, however, could be done. It should be possible to erect barriers by the wearing of efficient masks and the use of strict antiseptic toilet. Some valuable things had been learned with regard to antiseptics during the last few years. The prime importance of soap and water had been established. There was no doubt that this was the most valuable antiseptic ritual in both surgery and maternity work. It had been useful to find out that the old antiseptics, which had been chosen rather at random, did not give a sufficient margin of safety when removing streptococci from the skin, and it had been shown that iodine and the halogen derivative of xylene known as "dettol" were much better in this respect. They left a protective film on the skin which lasted a matter of hours, and this should be of value in dealing with prolonged labour. Dettol had been used at Queen Charlotte's for the last five or six years. There was a danger now that with the introduction of prontosil less trouble would be taken over this strict ritual, but it should be remembered that there were a few streptococci which were not susceptible to these agents, and there was nothing to prevent them from becoming virulent and an epidemic starting if antiseptics was relaxed.

But whatever the barriers, maternity policy ought to be so shaped that the fewest possible number of women were delivered in a dangerous environment. As to whether it was better for women to have their confinements at home or in an institution, in four years at Queen Charlotte's only one patient in 700 had developed the haemolytic streptococcus infection, whereas on the district the incidence had been 1 in 115. The same results had been shown at University College Hospital, London, and the Elsie Inglis Hospital, Edinburgh. It was quite certain that within the next few years, with more known about the sources of infection, it would be possible to get most of the maternity hospitals up to that standard, whereas it was not at all certain that even with better houses and improved economic conditions the figure, so far as the homes of the mothers were concerned, would be very much better.

Institutional Midwifery

More midwifery should be carried out in properly planned and conducted maternity institutions. By "properly planned" he meant either an institution separate from a general hospital, with its medical and surgical wards, or, if associated with a hospital, sufficiently segregated both in space and staff to prevent any possibility of infection passing by way of air currents, nurses' clothing, and the like. By "properly conducted" he meant what he called an "antiseptic precaution service," a definite schedule of preventive measures carefully thought out and aimed at preventing the spread of the streptococci. When engaging new staff throat swabs should be taken. Acute respiratory infections, including colds, should be carefully investigated, and sufferers kept from work until the bacteriologist reported that no streptococci or pneumococci were present. Probably the most common mistake in obstetrics to-day was failure to investigate puerperal cases until the fever had continued for some days. The idea seemed to have got abroad that a swab should be taken from the cervix uteri with the aid of a speculum, but this was not necessary; if the patient had the streptococcus suspected it would be found in the vagina.

Dr. Leonard Colebrook ended with a short account of the results of penicillin and sulphamylamide therapy in puerperal fever. Since penicillin was first administered at Queen Charlotte's the death rate had dropped to a remarkable extent. There could be no doubt that these drugs had changed the whole outlook. If the same thing took place in other hospitals it would mean that the hæmolytic streptococcus would cease to be an important factor in maternal mortality, although it would be always necessary to work under the threat of it.

Dame Louise Mellroy took the chair at the lecture, and the vote of thanks was proposed and seconded by Professor H. Miles Phillips and Sir Ernest Graham-Little, M.P., respectively.

PHARMACY AND POISONS ACT, 1933

AMENDED RULES AND SCHEDULES

The Poisons (Amendment) Rules, 1938, and the Poisons List (Amendment) Order, 1938, which were made by the Home Secretary on December 15, will come into operation on January 1, 1939. The following changes should be noted.

First Schedule Poisons

Rule 7(4) of the Poisons Rules, 1935, has been amended so as to provide that a signed order for a First Schedule poison (not being a poison to which the Dangerous Drugs Acts apply) given by a duly qualified medical practitioner, registered dentist, registered veterinary surgeon, a hospital, infirmary, dispensary, or clinic, need not contain a statement of the purpose for which the poison is required if the seller is reasonably satisfied that the poison is required for the purpose of medical, dental, or veterinary treatment.

New Methods of Labelling

Rule 17 has been re-enacted with amendments to permit the following new methods of labelling:

(2) When a poison is named specifically in the Poisons List and is the subject of a monograph in the *British Pharmacopœia* or the *British Pharmaceutical Codex*, one of the names at the head of the monograph in the *Pharmacopœia* or the *Codex*, as the case may be, may be used to describe the poison instead of the term in the Poisons List.

(2) A substance which is the subject of a monograph in the *British Pharmacopœia* or in the *British Pharmaceutical Codex* and any dilution, concentration, or admixture of

such a substance may be named with the name used to describe the substance in the *Pharmacopœia* or in the *Codex* with the addition of the letters B.P. or B.P.C. as the case may be. The similar provision already applicable to preparations, and to dilutions or admixtures of such preparations, in the *Pharmacopœia* or in the *Codex* is now extended to concentrations of such preparations.

(3) In the case of a preparation containing a poison mentioned in the first column of the Sixth Schedule to the Rules it will be sufficient, where the name of a poison or substance is mentioned in the relevant particulars in the second column of that schedule, to state the name of that poison or substance.

(4) In the case of preparations derived from nux vomica or from opium and containing one or more alkaloids of nux vomica or of opium named in the Poisons List, it will be sufficient to use the name "strychnine" or "morphine," as the case may be, or one of the names or abbreviated names of strychnine or morphine as the case may be, set out at the head of the monographs in the *Pharmacopœia* or the *Codex*.

Substances are now included with preparations and surgical dressings in the provision contained in Rule 18(3) that, where they are named in accordance with Rule 17(2), the proportion of poison contained in them need not be stated on the label. The provisions of the same paragraph as to the method of expressing the proportion of poison in a dilution or admixture of a preparation so named are now extended to concentrations of such preparations, and to dilutions, concentrations, and admixtures of substances so named.

Other amendments to Rule 18 and to the Sixth Schedule enable the proportion of the poison in preparations containing nux vomica or opium, and in preparations derived from nux vomica or from opium and containing one or more alkaloids of nux vomica or of opium named in the Poisons List, to be stated in terms of the proportion of strychnine or of morphine respectively. A further amendment to the Sixth Schedule enables the proportion of insulin in a preparation to be stated in terms of units of activity as defined in the *British Pharmacopœia*.

Benzedrine and Sulphonamide

Benzedrine and related substances (except when contained in inhalers—see next paragraph) are included in Part I of the Poisons List and also in the First Schedule and paragraph 1 of the Seventh Schedule to the Poisons Rules. Sulphonamide and related substances are included in Part I of the Poisons List and also in the First and Fourth Schedules to the Poisons Rules.

Additions have been made to the special exemptions in Group II of the Third Schedule to the Poisons Rules, to exempt from all control under the Act and Rules benzedrine and related substances contained in inhalers, and dinitrocreols in substances other than preparations for the treatment of human ailments.

By an amendment to Rule 22(1)(b) glass bottles containing local anaesthetics for injection in the treatment of human or animal ailments will no longer be required to have a fluted outer surface.

Copies of the Order (price 1d.) and Rules (2d.) may be purchased from H.M. Stationery Office or through any bookseller.

Crippled for life through a fall at the age of 15 John Pounds, Portsmouth shoemaker and originator of the idea of ragged schools, the centenary of whose death occurs on January 1, in interrogatory and realistic fashion taught the poorest children in his town the rudiments of knowledge, how to cook, mend their own shoes, and make their own toys. Besides being their voluntary schoolmaster, he acted as their doctor and nurse. His influence was recognized after his death, when schools were founded in his memory.

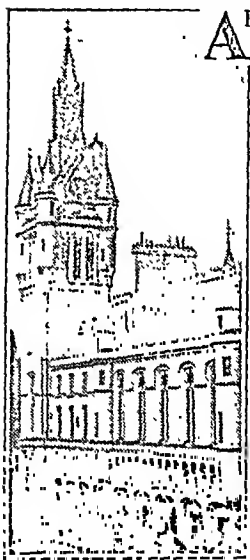
ONE HUNDRED AND SEVENTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION ABERDEEN, 1939

THE one hundred and seventh Annual Meeting of the British Medical Association will be held at Aberdeen next summer under the presidency of Dr. Thomas Fraser, consulting physician, Aberdeen Royal Infirmary. The Sectional Meetings for scientific and clinical work will be held on Wednesday, Thursday, and Friday, July 26, 27, and 28, the morning sessions being given up to discussions and the reading of papers. The Annual Representative Meeting for the transaction of medico-political business will begin on the previous Friday, July 21. The titles of the Sections with the names of the presidents of each Section appear in the *Supplement* this week (p. 407). Further details of the Section officers and of the general arrangements for the Annual Meeting will be given in subsequent issues. We publish below the first of a series of descriptive and historical articles on Aberdeen and its medical institutions.

ABERDEEN TO-DAY

BY

ALEXANDER KEITH



Town House

ABERDEEN to-day in spirit is the Aberdeen of yesterday, of eight centuries of yesterdays; but its main outward appearance is that of a modern city. Few of its buildings can claim to be of venerable age, yet it is still, as it was in Edward I's time, "a good town upon the sea," and its business is still, as at the Restoration, concerned with "salmond, coarse woolen-cloth called playding, linning cloth, stockines, skins, hydes, and all that the country yields," though it has added several strings to its industrial bow since then. Its inhabitants, not being given much to poetry, may not express their civic sentiments by quoting Dunbar's lines:

Unto the heaven ascended thy renown is
Of virtue, wisdom, and of worthiness;

but that, in substance, is what they think.

For a generation or two Aberdeen seems to have acquired and kept, among the lesser breeds (who inhabit, to the certain knowledge of every responsible Aberdonian, all the world beyond a circle of twelve miles' radius round Aberdeen), the reputation of being a city "pour rire." Recently a contingent of German schoolboys about to make a trip to this country were advised by a Teutonic pundit that they need not include Aberdeen in their itinerary as it was only a small fishing village. In the description the word "fishing" is correct. For the rest, Aberdeen is in point of population the third city in Scotland, the Registrar-General's latest figure being 178,200 souls. It is the most northerly of the cities of the British Empire. It is probably as wealthy per head of population as any in the United Kingdom. It adds to a remarkable variety of industries a unique educational equipment. Its annual record of sunshine is higher than that of any of the British "resorts," and its average summer temperature is only three degrees below that of the English Channel coast. Its trade—as distinct from its consumption—in food, "stored sunshine," is easily the largest of any British centre.

First seen from the south by those arriving by rail, Aberdeen is not prepossessing; no town is if thus entered. The railway approach is through the chief industrial

district, and all industrial districts are alike in appearance. But if the arrival is by road, Aberdeen at first sight reveals a sufficiency of charms to the visitor while he is yet afar off. The River Dee, emerging from the wooded spurs of the mountain range called the Mounth, still marks what is practically the southern boundary of the city. To the right is the sea, studded with cargo boats and trawlers plying to and from the port. To the left are the residential suburbs. In the left centre, lifted above the city and gleaming white on its hill, is the great new Royal Infirmary. In the right centre rise innumerable spires and towers above the busy haze. It used to be said of Aberdeen, as of Rome, that it was built on seven hills, but the Aberdonian requires more elbow room as he expands with prosperity and progress, and during the last twenty years other hills have been incorporated into the town to accommodate upwards of 10,000 new houses built since the war. Not the least interesting of these new hills are the two, named Tullos and Kincorth, on the approaching wayfarer's right before he crosses the Dee to enter the city. These have been acquired by the corporation, and upon them will in due time be laid out a satellite town, an industrial suburb, a golf course, and other amenities.

City of Open Spaces

Aberdeen is no congested area. It covers 11,000 acres, with a population density of sixteen per acre. Its open spaces, including fifty-eight acres of children's playgrounds, extend to 1,733 acres, comprising the town's links; the beautiful Hazlehead estate with its 200 acres of woodland and a magnificent collection of rhododendrons; the Duthie Park, which contains a winter garden; other public parks, three public golf courses (besides four 18-hole private courses in or near the city); and ground for football, cricket, bowls, tennis, and hockey. Its forty-two schools provide accommodation for over 33,000 pupils. There are two nursery schools for infants between the ages of 2 and 5; two special schools for mental and physical defectives; and over a dozen play-centres open three nights a week with average attendances of 3,000 a night. Some 4,000 children are educated at four secondary schools, as befits a university city. (The University of Aberdeen, and the health services, with which the University's Medical Faculty is closely linked, will be dealt with in subsequent articles.)

Although to the casual observer Aberdeen may seem to be inhabited principally by lawyers, doctors, and bankers, Aberdonians have other occupations. Chief among the industries which sustain the city is agriculture. Over £2,500,000 represents the annual turnover in livestock in Aberdeen; every week 1,000 cattle and 3,000 sheep are slaughtered in the city, while a bacon factory six miles out can cope with 3,000 pigs a week. Aberdeenshire feeds more commercial cattle than any other three counties in Scotland; it has twice as many pigs as any

county in Scotland; it grows one-fifth of Scotland's total crop of oats; every day the city's population consumes nearly 10,000 gallons of milk, yet a surplus of several thousand gallons daily remains to be sent south; the county's output of potatoes is equal to twice the general British average; it raises one-tenth of Scotland's yield of straw-

berries; it is among the six chief vegetable-growing counties in Scotland; the beekeepers' association that has its headquarters in Aberdeen is the largest in Britain; while as testimony to the genial character of the city's supposedly hyperborean climate, it may be mentioned that one gardener within its bounds can shelter under his own fig-tree and eat the fruit thereof, and another was plucking ripe strawberries in November. Thousands of tons of meat, oats, oatmeal, and potatoes are sent by sea, rail, or road from Aberdeen annually.

The Fishing Port

Next to agriculture comes fishing, the white and, to a limited extent, the herring fishing. The annual value of the fish landed at the port is £1,000,000; in its peak year it was £3,000,000. Aberdeen then was the leading white-fish port in the kingdom; now it is third. Its fleet of over 300 trawlers and liners, employing 3,000 fishermen and 9,000 shore hands, specializes in short voyages and quality fish. The fish market is the chief industrial "sight" of the city. It is nearly half a mile long, and at 8 o'clock in the morning, as a "shop window" for the white fisheries, it is worth a visit. The fishing gives employment to a great many subsidiary industries, such as the making of nets, of ice, of boxes, of lacquer for the inside of tins, besides the preserving of fish in various ways, the extraction of cod-liver and halibut-liver oils, and the manufacture of fish meal from offal. In connexion with

agriculture and fishing there is a concentration of scientific research in Aberdeen: for agriculture the North of Scotland College of Agriculture, the Rowett Institute (mainly engaged on nutrition), and the Macaulay Institute for Soil Research; for fishing the Research Station of the Department of Scientific and Industrial Research and the

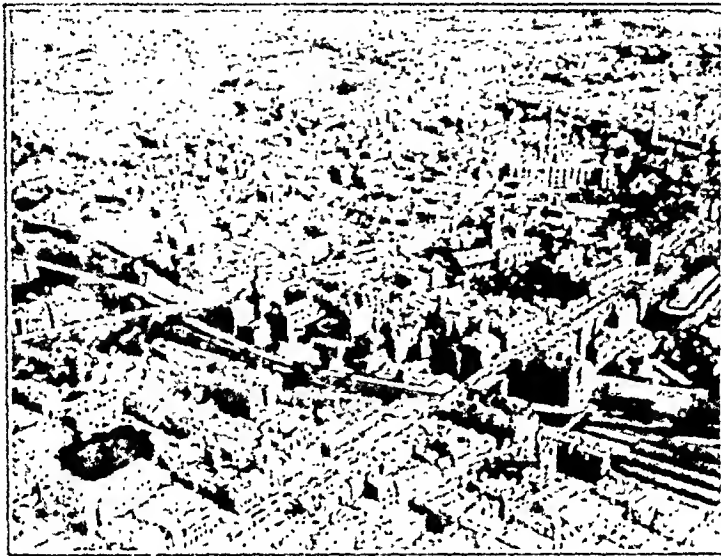
Marine Laboratory of the Scottish Fishery Board.

Aberdeen is the "Granite City," and despite fluctuations in fashion the quarrying and handling of granite is one of its staple trades. The output from the quarries is about 400,000 tons yearly, and among many buildings of Aberdeen granite outside Aberdeen may be mentioned Thames House, Imperial Chemical House, and the Carlton Club in London; St. George's Hall, Liverpool; King Edward VII Bridge, Newcastle; and the new Government

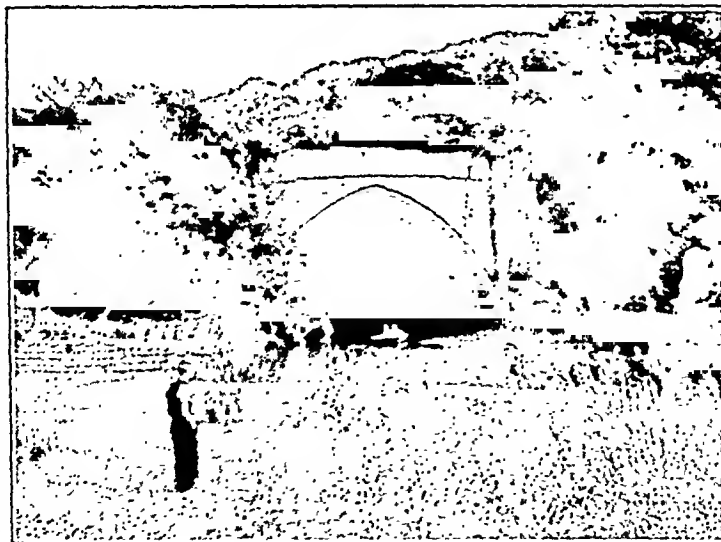
Buildings in Edinburgh are being faced with it. In Aberdeen itself Marischal College and the new Royal Infirmary are testimony to its elegance and beauty. Another side of the industry is the monumental trade, which became active when, a century and a quarter ago, an Aberdeen granite merchant rediscovered the ancient Egyptian method of polishing the stone. If with its fish and its meat Aberdeen caters for mankind living, with its tombstones it immortalizes mankind dead.

Variety of Industries

Paper-making has flourished in Aberdeen for 200 years; one of its mills is the largest in the country. Textiles in Aberdeen have had a still longer history, and to-day two of its factories employ over 1,000 hands each. A woollen mill produces 19,600 miles of yarn a day. Tweeds, woollen stockings, gloves, underwear, blankets, wineys, tarpaulins, and hose-pipes are among the lines that have been long or recently developed. Of three shipbuilding yards, one specializes in passenger and cargo steamers, one in dredgers, hoppers, and tugs, and another in cargo boats.



Aberdeen Union Street from the Air



Brig o' Balgownie

The first Diesel electric tug built in Britain came out of an Aberdeen yard. From Aberdeen engineering shops have gone cableways that are now working in the Pacific; cranes for Egypt, India, and West Africa; milling and crushing plant for Burma, Malaya, East and West Africa, and Central America. An important branch of the industry is agricultural machinery and implements, while the invention of the cold-starting Diesel engine in Aberdeen has resulted in the production by the city of great quantities of these engines.

Combs, soaps, paints, chemicals, fertilizers, iron grit, confectionery, organs, baskets and brushes, pneumatic tools, calendars, surgical appliances, drugs, and furniture are other industries which indicate that the city does not stick to one basket, even of its own making, for all the eggs it handles.

Architectural Variety

Architecturally Aberdeen, if not outstanding and although to the stranger the predominant granite seems hard and cold, has a few specimens to show. The bridge which carries the road from the south over the Dee into the city was completed in 1527. A new bridge to relieve the veteran is now being built a few hundred yards down the river. The old bridge over the Don, the Brig o' Balgownie, was built about 1320; it is a piece of sheer loveliness spanning a black and craggy pool of the Don (which, incidentally, is a far more picturesque river than its much-vaunted neighbour the Dee). The two rivers are connected through the centre of the town by three long streets: Holburn Street, Union Street, and King Street. Union Street, a mile in length, is the principal thoroughfare, the construction of which plunged the city in bankruptcy a hundred years ago. The strikingly bold design of the Town House, the Corinthian style of the North of Scotland Bank beside it, the ornate Hall of the Seven Incorporated Trades, the massive solidity of the Northern Assurance Buildings, and the Grecian aspect of the Music Hall, together with several examples of modern architecture in Union Street, show that Aberdeen's taste in buildings is as catholic as its choice of industries. Off Union Street, but visible from Union Bridge, the Public Library, the South Church, His Majesty's Theatre, the War Memorial, the Cowdray Hall, the Art Gallery, the School of Art, with Robert Gordon's Colleges behind the last two, form an imposing stretch of contrasted and beautiful frontages.

Some Celebrities

Between the Union Bridge and the Town House, and separated from the street by an Ionic façade, lie the graveyard and the twin churches of St. Nicholas. In the churches many of the city's treasured relics are preserved; in the graveyard are buried many of Aberdeen's eminent men and some strangers, among them one of the several husbands or lovers of the wife of Prince Talleyrand. There are more relics of Aberdeen's chequered past in the Trades Hall, both colleges of the University, the Public Library, St. Machar's Cathedral, in Old Aberdeen between King's College and the Brig o' Balgownie, and in the Town House itself. It is a strange coincidence that the owners of two of the most illustrious names in Aberdeen's Roll of Freeman should now lie together, though separated by a century in their lives, in the Haliburton Aisle of Dryburgh Abbey—Walter Scott and Douglas Haig.

Such in skeleton is Aberdeen to-day, bounded on north and south by the twin rivers Don and Dee, on the west by the woods and the fertile farmlands, on the east by its two long miles of golden sands and the sea. Its motto is "Bon-Accord"; its toast to the stranger within its gates is cordial: "Happy to meet, sorry to part, happy to meet again"; its air is bracing; its viands were full of vitamins long before science discovered them. Said Dr. Johnson (another of its Freeman) of the city: "The houses are large and lofty, and the streets spacious and clean"; and of his inn: "A very good house and civil treatment." So was Aberdeen, and so it is.

[The photographs reproduced are by Aberdeen Journals, Ltd.]

Nova et Vetera

J. B. MURPHY

Surgeon Extraordinary. The Life Story of Dr. J. B. Murphy, the Stormy Petrel of Surgery. By Loyal Davis. (Pp. 287; frontispiece. 8s. 6d. net.) London: George G. Harrap. 1938.

This account of J. B. Murphy of Chicago by Dr. Loyal Davis, professor of surgery and chairman of the division of surgery in the North-Western University of Illinois, is written attractively and will be welcomed by all who knew "J. B." It will be read with especial interest by British surgeons, who will compare his career with that of his contemporaries, Sir William MacEwen in Scotland, John McArdle in Ireland, and Lord Moynihan in England. All were self-made men, all became eminent as surgeons, and all had remarkable personalities; but their training and opportunities were wholly different. Of the four, Murphy began life with the heaviest handicap. He was the youngest son of a peasant driven out of Ireland by the potato famine of 1845, who was so poor that he worked his way to the United States as stevedore and sailor. He had the good fortune to marry another emigrant from Ireland whose family was in rather better circumstances, and to his wife Jolin Murphy owed much, for she was a woman of sterling honesty and of great common sense. J. B. Murphy's early years were spent in helping to clear the land which his father had bought at two and a half dollars an acre. For a few months he was a school teacher, then he became assistant to a druggist in the village shop, and, as handy boy to a friendly doctor who appreciated his ability, he was led towards medicine. Murphy entered the Rush Medical College at Chicago after much consideration, although the fee was fifteen dollars more than that of the Chicago medical school, qualified, and became an intern at the Cook County Hospital. Of the medical education and of the hospital practice Professor Loyal Davis gives a very lively account without exaggerating the facts. Thanks to his mother's economy, but with very straitened means, Murphy was enabled to spend some months first in Vienna, then at Heidelberg, and on his return to Chicago became a partner with Dr. Ed. W. Lee, who had a practice in the city. Here he married a charming, sensible, and pretty girl who came of a well-to-do family. She made him an excellent wife, was his constant companion, advised him always for the best, and did much for his social education.

The Haymarket Square riot at Chicago in May, 1886, resulted in many gunshot wounds and turned Murphy from a family doctor into an operating surgeon. From that time onwards he specialized in abdominal operations, became known throughout the world for his "short-circuiting" by means of the "Murphy button" and by his advocacy of early operation in appendicitis.

Professor Loyal Davis gives an unbiased account of a man who was never accepted cordially by his colleagues, partly because they were envious of his success, partly because Murphy was himself difficult and loved to be in the limelight, and partly because he retained to the end many traits of his peasant origin. The story is told well but rather too flamboyantly, and is full of personal details. Those who begin to read it will not stop until the last page is reached, and by that time they will have learnt how a remarkable man rose from being a pioneer on the land to become a pioneer in surgery. A portrait, which is an excellent likeness, is supplied as a frontispiece.

MALARIA IN ENGLAND

Dr. W. H. M. Wilson writes from Burnham-on-Crouch, Essex:

Where the North Sea washes the eastern coast of Essex there is a strip of land five miles broad and ten miles long which lies under the level of the high tide and is protected

from the sea by a stone wall. Although this land is efficiently drained it is still called the Marshes. Fifty years ago it was all cornland, but now it serves as a rich pasture to herds of milking cattle.

In this area and in the villages round about there still lives a generation of men and women who can remember malaria in England. The ague, they call it. As they are all about eighty years old now, the day cannot be far distant when they and their memories will be gone. For this reason it is perhaps worth recording the account of an old man to whom I was speaking the other day. After all these years it is doubtful if it could be accurate, but is nevertheless interesting.

This ancient now lives at Burnham-on-Tonch, but seventy years ago, when he was nine years old, he lived at Staminate on the Blackwater. It was then that he had the ague. He still remembers the terrible coldness, as he sat over the fire with his teeth chattering, and how his mother used to put rugs round him to try to get him warm. Soon afterwards he would be just as hot. According to his account it would first come on one day and then miss one, then two days and miss one, then three days and miss one. As time went on, however, it would get less frequent, until it only came on every now and again. Apparently ague was largely a disease of children, as he says that most of the children had it, and the adult population only used to get an occasional attack. It was severe enough to keep him away from school for six months. The people had no idea of the cause, and there was evidently little in the way of treatment—for the poor at any rate. Groundsel made into a pad and slept on was one of the remedies employed, without much effect. The disease, according to my informant, had been in existence for very many years, but died out soon after this, and not much has been heard of it since. He believed there was a Government grant for the provision of quinine.

It occurs to me that as London is built on the westward continuation of these same marshes up the Thames estuary the disease may have been endemic there also. Perhaps there are practitioners alive still who worked in Poplar, Limehouse, Lambeth, Vauxhall, or other low-lying districts round the river seventy years ago who could tell us something about it.

ANNALS OF MEDICAL HISTORY

Of the eight main articles in the September number of the *Annals of Medical History*¹ half are short biographies. Professor Ralph Major of Kansas City, whose *Classic Descriptions of Disease* are in such constant use by those who like to verify their references, writes on Santorin Santorio, whose *Statia Medicina* produced such a sensation in the medical world, went through twenty-eight Latin editions, and won him the title of "the father of the science of metabolism." In a well-illustrated article on Sir Hans Slane, Dr. Burton Chance of Philadelphia, who has previously written on the founder of the British Museum, reproduces an interesting advertisement of Sloane's milk chocolate, stated to be of "great use in all consumptive cases." Sir Robert Armstrong-Jones in a pleasant account of Keats and his friends draws welcome attention to Keats's house, Wentworth Place, Hampstead. A. P. Borodin, physician, chemist, and musician, is described in an extremely interesting manner by Dr. Sunderman. The early teachers—Alibert, Biett, Cazenave, Devergie, and Bazin—at l'Hôpital Saint-Louis, Paris, and their influence on American dermatology are passed in review by Dr. P. E. Hechet of New York. Dr. Gibson writes on the captured medical men and army hospitals during the American revolution; Dr. E. M. Jameson gives an account of obstetrics and obstetricians in the United States during the eighteenth century; and Dr. Solomon R. Kagan, whose *Life and Letters of F. H. Garrison* is reviewed in this number, contributes a short essay on Maimonides' prayer.

¹ *Annals of Medical History*. New Series, Volume X, No. 5, September, 1938. Edited by Francis R. Packard, M.D. (Pp. 369-462; illustrated. Subscription for year, 11 dollars; single number, 2.50 dollars.) New York: Paul B. Hoeber Inc.; London: Harper and Brothers, Book Department. 1938.

HEALTH OF THE SCHOOL CHILD

CHIEF MEDICAL OFFICER'S REPORT

Sir Arthur MacNalty's report as Chief Medical Officer of the Board of Education for the year 1937* consists of an introduction, sixteen chapters, and a series of appendices. It is a composite document, the work of many hands. With the issue of this report the School Medical Service celebrates its thirtieth birthday, and Sir Arthur MacNalty traces its origins to the nineteenth century, when great humanitarians like Lord Shaftesbury fought to bring some health, beauty, and learning into the lives of children hitherto condemned to the unrelieved gloom of the factories. When, in the 'seventies, education became the business of the State, the need for medical supervision of the children became more obvious, and in 1891 the London School Board appointed a medical officer. In 1907, after various investigations which had revealed how badly it was needed, the School Medical Service proper was established by the Education (Administrative Provisions) Act. From its beginning it has been a part of the Public Health Service of the country. When the Ministry of Health was established in 1919 the links were drawn closer by the appointment of Sir George Newman to be Chief Medical Officer of the Ministry of Health, while at the same time retaining the post of Chief Medical Officer of the Board of Education; and his successor has continued the two-fold functions.

Nutrition of the School Child

Once again nutrition is given pride of place in the report. The year 1937 was eventful from this point of view, for in its early part the first report of the Advisory Committee on Nutrition was published, and during the year large-scale inquiries under the aegis of that committee were continued. In addition a dietary survey, to be carried out by the Carnegie Trust under the direction of Sir John Orr, was inaugurated. The Board has consistently urged the great importance of a sufficient quantity of milk as in most cases the key to the improved nutrition of the school child. But the qualification "in most cases" must be noted, for some school children need solid meals either alone or in addition to the extra milk.

During the year 1,696,527 children were assessed at routine medical inspections in respect of their nutritional state. The percentages placed in the four groups were as follows:

| | | | | |
|-----------------------|----|----|----|----------------|
| A. Excellent | .. | .. | .. | 15.0 per cent. |
| B. Normal | .. | .. | .. | 73.8 " |
| C. Slightly subnormal | .. | .. | .. | 10.6 " |
| D. Bad | .. | .. | .. | 0.6 " |

These percentages are practically the same as those found in the two previous years. Attention is drawn to the value of frequent weighing and measuring as an aid to the clinical assessment of nutrition. Certain criticisms of the method of clinical assessment are discussed and the conclusions reached are that:

(1) There is no accepted objective method of measuring nutrition.

(2) As a purely subjective method the clinical assessment of nutrition must inevitably lack scientific accuracy, and to criticize it as unscientific is but to beat the air.

(3) The absence of a satisfactory standard of normal nutrition is the explanation of the many divergent returns as to the nutritional condition of elementary school children.

(4) As a subjective method clinical assessment is dependent on the individual standard of the assessor.

(5) Clinical assessment of nutrition is fallible.

In these defects it resembles many other forms of assessment based on subjective methods, such as academic examination or medical diagnosis.

The great importance of securing that school children get enough sleep is emphasized once again, and the

* H.M. Stationery Office, price 2s. 6d. (by post 2s. 8d.).

section closes with a summary of recent work on vitamin deficiencies in children's diet.

Provision of Milk and Meals

During 1937 there was an increase of 4 per cent. in the proportion of children taking milk in public elementary schools and an increase of about 2 per cent. in the proportion of school departments in which the milk-in-schools scheme was in operation. While these figures are a slight improvement, it is hoped that the national campaign for the increased appreciation of the health services which began in the last month of 1937 will show a greater improvement in 1938. Progress in schemes for the provision of solid meals for school children, both free and for payment, is reported, and an appendix deals with "school canteens" which cater, chiefly in rural areas, for children who have to come a long way to school.

The interim report of the Milk Nutrition Committee is discussed. Though the results of these large-scale investigations into the value of an extra ration of milk are not quite so striking as those of certain former investigations, the children receiving milk showed an obvious benefit when compared with the controls. No constant difference was observed between the growth rates of children receiving raw milk and of those receiving pasteurized milk.

Physical Education

A great obstacle to the progress of physical education in schools has been the lack of adequate facilities for carrying out comprehensive schemes of training, but much is now being done to remedy this state of affairs. A recent development in London is designed to overcome the difficulty of great distance between school and playing field. A number of large playing fields have been equipped with classrooms, so that it is possible to send whole groups of children to the playing field for a whole day. During the day each class has at least an hour for games and spends the rest of the day in more academic work.

Infectious Diseases

Early in 1938 the first report of the Epidemics in Schools Committee was published, and although this committee is concerned with boarding schools for the most part and its investigations are as yet at an early stage much interesting information has been accumulated. Sir Arthur MacNalty discusses the problem of the administrative action taken to control infectious diseases in school children and concludes that in the present rapidly changing state of medical knowledge it is wiser to defer any revision of the policy of the Board of Education and the Ministry of Health. While the incidence of infectious diseases has not markedly decreased of recent years, the mortality from them has decreased considerably. For example, the death rate from measles at ages under 15 years per million living decreased from 750 in 1910 to 143 in 1935.

Medical Inspection and Treatment

The work of routine medical inspection and treatment is described. For the first time the statistics of the incidence of defects allow a fair comparison to be made between the incidences in the various age groups. When defects of vision, defects of nutrition, uncleanness, and dental disease are excluded, the entrant group shows 15.7 per cent. with defects requiring treatment, the second age group 12.6 per cent., and the third age group 10.2 per cent. These figures bring out the reduction in the incidence of defect as the child passes from the age of 5 or thereabouts to the age of 12.

The provision for transfer of information from the School Medical Service to insurance medical practitioners made in the National Health Insurance (Juvenile Contributors and Young Persons) Act is described. A total of

1,700,078 children, or 37.1 per cent. of those in average attendance, were inspected at routine inspections. Progress has been made in the provision of clinics, particularly in the provision of joint health centres which cater for pre-school children as well as for school children. Other subjects dealt with are the scope of treatment under the School Medical Service, middle-ear disease, medical inspection and treatment in secondary schools and in junior instruction centres, and child guidance.

Since 1935 the number of operations for the removal of tonsils and adenoids has continued to rise, and a review of the subject is therefore included. The general conclusions reached are that operation should be undertaken only when there are clear indications for it, and that the conditions under which the operation is performed should conform to a proper standard which embodies those laid down in the report for 1923, together with new conditions. There is evidence that these operations are often performed without adequate reasons and sometimes without full precautions against dangers and complications.

Later in the report a chapter is devoted to skin diseases, particularly scabies, plantar warts, and ringworm of the scalp; other chapters deal with the treatment of speech defects, squint, and the problem of the partially deaf child. The latter consists of a review of a report made by a committee of the Board. The care of delicate children and the care of young children are discussed in the sections devoted to open-air schools and nursery schools respectively. Minor orthopaedic deformities and the teaching of hygiene in training colleges are also considered.

The School Dental Service

An interesting feature of the report on the work of the School Dental Service is a comparison between the condition of the mouths of a number of children in an area which up till now has had no school dental service with the dental condition of a similar number of children in an area with an efficient service. The advantage of the children whose mouths had been properly cared for is striking.

Reports of Societies

INFECTIOUS QUALITY OF NEUROSIS

At a meeting of the Medical Society of Individual Psychology on December 8, with Dr. H. C. SQUIRES in the chair, Dr. ETHEL DUKES read a paper on the infectious quality of neurosis, which was concerned especially with the relationship between parents and children.

Dr. Ethel Dukes pointed out that heredity and constitution must first be taken into account in assessing the contributory factors in the neurosis of children. Even where the material and personal environment appeared to be all that could humanly be expected; where the marital relationships between the parents and their mutual management of the family were good; and where the other children were normal in every way, one child might be neurotic. In such cases the family history might throw light upon the hereditary aspect of the case. Anyone who had had much experience of newly born infants was acutely aware of their differing individuality from earliest life, and particularly of their idiosyncrasies of behaviour on first being put to the breast. Character could almost be foretold by the knowledgeable, and mothers of large families would recall how differently each child reacted to feeding and nurture. The reception of all phenomena would be coloured or distorted by the interpretation the child made to himself of his early experi-

ences. Conflicts then might arise and, however wise authority might be and however stable the environment, unless the child could correlate his experiences and resolve his own emotional conflicts he was bound to suffer. There were, on the other hand, children who appeared to have inherited such psychological tendencies to stability that nothing, not even the most unstable environment, could upset their serenity. These children were not necessarily stupid or dull. Many, on the contrary, were gifted individuals, often lively and possessed of a good sense of humour, in addition to the capacity for getting on well with others.

Need for Security

The most important factor in the early normal development of childhood was a sense of security in the fundamental relationships of life. So often in cases of neurosis in children was it found that one or more of the parents or close attendants suffered from neurotic complaints that the illness of the child seemed almost like an infection. Sometimes the symptoms were alike, but more often they differed, for a child's reaction was different from that of an adult. This was often unconsciously dramatized in play-therapy analysis. Hence the importance of family and environmental histories and the frequent necessity for treating some other member of the family in addition to the child.

In this earliest period of life the child, though a highly potentialized individual, lived largely in the unconscious. Life for him was chiefly that of affectivity, and whatever happened in the unconscious as well as in the conscious mind of his parent was bound to have great influence on his emotional development because of his close psychic connexion with the parent. Young children understood life chiefly through their sensations and their intuitions, and knew intuitively when the conduct of the nearest adults was based on fears, inhibitions, and repressions. They reacted not only to the adults' words and actions but to their unconscious motivations. Children might be brought up in very restricted and poor conditions, yet if from their early days they recognized intuitively the unconscious "goodness" and emotional stability of their parents all might be well with them also. Dr. Dukes gave examples to illustrate her thesis. The paper aroused a great deal of discussion, to which many of those present contributed.

MALARIAL ENDEMICITY IN AFRICA

At the December meeting of the Royal Society of Tropical Medicine and Hygiene, with the president, Colonel S. P. JAMES, in the chair, Dr. D. BAGSTER WILSON read a paper on the implications of malarial endemicity in East Africa.

Malaria Surveys in Tanganyika

Dr. Wilson gave a brief account of the results of malaria surveys in two groups of Bantu people in Tanganyika, the Digo and the Nyiramba. The fallacy of relying on the spleen rate alone as an index of the endemic state was shown; for, although the spleen rates were the same, a comparison of the parasite counts at different ages and at different seasons showed that there was a great difference between the two groups. This difference lay in the degree of immunity acquired, the first group being fully immune and the second only partially immune. The estimation of parasite infestation by counting parasites should be, although as yet it was not, pre-eminent as a method of field study. The lack of immunity was also revealed in the liability to clinical attacks of malaria, which were confined to infants in the Digo group, but were liable to occur at all ages in the Nyiramba. The factors responsible for the production of a full immunity were discussed, and it was concluded that the differences found

were explicable in terms of frequency of infection. In the Digo villages reinfection was liable to occur about thirty times a year, but in the Nyiramba only four to eight times a year. Moreover, in the latter case there was a considerable period during which transmission was absent.

The freedom, after infancy, from illness attributable to malaria, together with the intense anopheline infestation, seemed to make *laissez-faire* the policy of choice among the Digo. Treatment sufficient to save life should be offered for the infants, Dr. Wilson said, but he gave reasons for concluding that anopheline control was impossible under the circumstances and with the resources available. In the case of the Nyiramba the situation was very different, and treatment might have to be given at any age, since it was demanded by the people themselves. Treatment should, however, be minimal—a supplement to, rather than a substitute for, such immunity as was present. Anopheline control in an area in which malaria was seasonal was also a much more feasible proposition, and an attempt at control in such an area should be made.

There was an essential difference in the two cases, and while in the one the only rational policy would appear to be the maintenance of the natural defences in man, in the other defence against the anopheline vector was possible and should be tried. Conditions essential to the carrying out of the second policy were a seasonal transmission and close settlement of the land. In any case, a rational malaria policy demanded close study of selected areas in every type of country—a study that still largely remained to be made.

Acquired Tolerance

Professor R. M. GORDON, in opening the discussion, pointed out that the term "acquired tolerance" was a better one than "natural immunity." Too much importance could be attached to counting malarial parasites, as the number of parasites in the peripheral blood was not necessarily an indication of the total number present in the body. Thus a massive infection of the placenta might persist at a time when the peripheral blood appeared to be free from infection; similarly, cerebral malaria could be associated with scanty infection in the peripheral blood. Dr. Wilson had suggested that "curative treatment of either adults or infants in a hyperendemic area was to be avoided" because of the danger of interfering with acquired immunity. But how was an infant seriously ill with malaria to be treated in such a manner as to cure the symptoms but not destroy the parasite? The danger of failing to treat malaria in pregnancy was shown by the results of Blacklock and Gordon in 1925. Out of fifty-one children born alive of mothers with malaria-infected placentas 25 per cent. died. In a series of ninety-three children born of mothers whose placentas were not infected only 5.4 per cent. died within that period. In regard to the danger of curing malaria in the infant and thus postponing the acquirement of immunity, the work of Lourie on bird malaria, and Hackett's application of these results to human cases, suggested that rigorous quinine treatment did not interfere with the development of resistance to a fresh infection.

Lieutenant-Colonel J. A. SINTON said that Dr. Wilson had compared the degrees of immunity acquired by two tribes of the same race living under different conditions of severe malarial transmission. In areas where severe transmission was continuous reinfection and superinfection occurred without intermission throughout the year; this led in a few years to a condition of tolerance among the survivors to all the local strains of parasites. As a result the whole population, except those in the first few years of life, developed and maintained a high degree of tolerance: this was shown by the lower parasitic infestation and the diminution of clinical manifestations after the first ten years of life. On the other hand, where severe transmission was interrupted for many months of the year this overlap and superposition of infection and of its immunological effects was less common, so the

tolerance took longer to establish and its action was less constant and lasting. As a result morbidity continued, the parasite infestation remained at a higher level for a longer period of life, and clinical manifestations occurred. In regard to any immunity or tolerance to malaria in newly born or suckling infants, it seemed unlikely that this could be due to any specific antibody absorbed during lactation. More probably it resulted from transmission of immunity via the placenta or to an immunity acquired *in utero*.

General Discussion

Colonel C. A. GILL agreed with Professor Gordon that the term "tolerance" was a more exact description of immunity associated with hyperendemic malaria. Two types could be recognized. In hyperendemic areas with "complete tolerance" the adults had good physique, little sickness, no marked anaemia, a relatively low spleen rate, a low infestation index, and, according to Schüffner, a remarkably high birth rate and a low adult death rate. In hyperendemic areas with "incomplete tolerance" the afflicted natives were physical wrecks. Fever and anaemia were common, and the spleen rate and infestation index were both relatively high. The birth rate was extremely low and abortions were frequent, while the total death rate was relatively high. Dr. Wilson regarded frequent and constant infection as the main factor concerned in determining hyperendemicity with complete tolerance in Africa. While this might be one cause, it did not rule out a difference in racial reaction to infection, and in India "complete tolerance" was limited to aboriginal tribes or primitive tribes of great antiquity.

Dr. E. M. LOURIE spoke particularly on bird malaria and its bearing on human infections. He pointed out that in acute cases infection took place not because there was no natural immunity but because there was not enough of it or because acquired immunity had, for some reason or another, not sufficiently developed. Acquired immunity was really nothing more than an immunity to superinfection. The parasites were still present, but they were either below the threshold at which they could be seen, or if they could be seen they were not producing demonstrable clinical effects. This acquired immunity might at any time break down, giving rise to relapse.

Sir MALCOLM WATSON emphasized the difficulty of gauging fully the ill effects of malaria on a village unless one removed malaria from those people or removed them to a non-malarious area. Then the improvement was extraordinary. Where nothing else could be done—and at the beginning of a campaign nothing else could be done—infected people should be treated with quinine. Quinine would enable those people to develop an immunity; without quinine they died. Our conception of malaria control to-day included not merely malaria therapy and the control of mosquitos by drainage, species sanitation, and flushing, but the associated control of other diseases by biological measures, direct co-operation with agriculture in soil preservation, improvement in the soil, and preservation of the rainfall in countries where rainfall was deficient.

Colonel S. P. JAMES said that Dr. and Mrs. Wilson had made important improvements in technical methods for conducting a malaria survey. Instead of random sampling in the village street they had got to know the families in their homes, and watched infants and young children grow up through the various stages of parasitic infestation until complete or partial immunity had been maintained. Particularly interesting was their conclusion that the best guide to anti-malarial policy in these areas was the assessment of the number of parasites harboured by a community at different age periods and at different seasons of the year.

The Howard League for Penal Reform is calling a representative conference to be held in London during the last ten days of January to consider Sir Samuel Hoare's Criminal Justice Bill, which will reach committee stage in the House of Commons early in February when Parliament reassembles after the Christmas recess.

Local News

ENGLAND AND WALES

In Recognition of Work in Tropical Medicine

The Mary Kingsley medal, which was founded in 1904 to commemorate the work of Mary Kingsley (a niece of Charles Kingsley the novelist) for the welfare of the natives of West Africa, is awarded annually in recognition of services in tropical medicine. This year there were four recipients and, in addition, one honorary recipient, Lady Danson, and the medals were presented by Viscount Leverhulme, chairman of the Liverpool School of Tropical Medicine, at a reception held in the museum of the school. The recipients, who were introduced by Professor Warrington Yorke, were:

Dr. M. A. BARBER, whose many contributions to our knowledge of the mosquito and its habits include the discovery of the manner in which "Paris green," an arsenic compound, can be used as an effective and inexpensive means of destroying the larvae of malaria-carrying mosquitos. His long and distinguished association with the International Health Division of the Rockefeller Foundation is well known for his work on the hook-worm. At the early age of 26 he became professor of bacteriology and pathology at Kansas, and during this period he invented the apparatus with which his name will always be associated—the "Barber micro-manipulator." By the aid of this instrument bacteriologists are able to study the growth of individual minute organisms, and biologists to dissect individual cells, under far higher magnifications than were previously possible. In Dr. Barber's absence in Mexico the medal was received by his colleague, Professor Gunn, vice-president of the Rockefeller Foundation.

Professor EMILE BRUMPT was appointed professor of parasitology and natural history in the Faculty of Medicine of Paris in 1919. In the same year he undertook the heavy duties of Secretary-General of the Institute of Colonial Medicine of France, which he still carries out with energy, and in 1936 he was appointed director of the School of Malariology of the University of Paris. Professor Brumpt is the author of over 350 published papers. He founded the *Annals of Human and Comparative Parasitology*, a journal which he has directed from its inception, and his name is familiar to students in every country through his well-known textbook on parasitology, of which a fifth edition has recently appeared.

Professor WALTER SCOTT PATTON, who has worked in the Liverpool School for ten years, was for twenty years a member of the Indian Medical Service, and during that time he added much to our knowledge of the diseases of India. The value of his work was early recognized by his appointment as a specialist to investigate the aetiology of kala-azar and Oriental sore, and later by his promotion to the directorship of the King Institute of Preventive Medicine in Madras. In 1925 he was chosen by the Royal Society to be director of the Kala-azar Commission to Northern China, and two years later was appointed to the Dutton Memorial Chair of Entomology in the University of Liverpool. Professor Patton was unable to attend to receive the medal; it was received by his wife, who has added much to the interest and scientific value of his numerous publications by her exquisite drawings.

Professor WERNER SCHULEMANN, whose researches when director of the great German chemical firm of Bayer at Elberfeld have resulted in a discovery of such importance to tropical medicine that his name is known to all workers in this field. In 1924 he succeeded in synthesizing in the laboratory a chemical compound which not only acted on the malaria parasite but accomplished what quinine had failed to do, in that it destroyed the stage of the parasite which infects the mosquito. This outstanding achievement attracted

world-wide attention and gave a great impetus to the comparatively new science of chemotherapy, the full significance of which is only now beginning to be appreciated. Two years ago Professor Schulemann left the firm of Bayer to become professor of pharmacology at Bonn.

Lord Nuffield's Further Gift to the Wingfield-Morris Orthopaedic Hospital

Viscount Nuffield has shown a great interest in the development of orthopaedic services in Great Britain and throughout the Commonwealth. He has at heart the prevention of crippling and the cure of cripples, and has shown it in no uncertain way by giving various sums amounting in all to approximately £500,000 to the Mother Country and the Dominions of Australia, New Zealand, and South Africa for this purpose. In addition to this widespread munificence he has taken a special personal interest in the Wingfield-Morris Orthopaedic Hospital, Oxford; and it has been his purpose that this hospital should provide an example of all that can be done toward restoring activity to the disabled by surgery and by the natural healing powers of the sun and the open air. The Wingfield-Morris Hospital should, in his plan, be a working model, available to specialists and post-graduate students from all over the world. While the hospital draws its patients primarily from the three counties of Berkshire, Buckinghamshire, and Oxfordshire, and has a direct responsibility for the treatment of patients throughout this area, it is much more than a local hospital; and its committee feels bound to do all it can to make it an example fit to fulfil Lord Nuffield's aims and capable of demonstrating what is right in clinical work, in organization, and in design to all who visit it from far and near. Already, owing to the very great generosity of Viscount Nuffield, the main part of the hospital has been rebuilt, with every part planned exactly for its purpose. The wards, the surgical, physical treatment, and x-ray departments, the plaster room, the kitchen and laundry are all admirably designed and working faultlessly. The Wingfield-Morris Hospital is a voluntary hospital without endowment and, though many cases are partially paid for, it depends largely on voluntary subscriptions for its maintenance. The increasing pressure of the waiting list has demanded a gradually increasing number of beds; furthermore, the ever-rising standard of work, records, and research involves greater cost per bed. Recently the need for providing additional nurses' quarters, some twenty more beds, and for the replacement of obsolete hutment buildings had presented an acute need for capital expenditure. The additional quarters for nurses are, in the main, needed in order that their hours of duty may be reduced to the modern right and reasonable standards. The additional beds will also mean the need for a few more nurses. The hospital has, despite the increase of beds from 135 in 1932 to 180 in 1938, managed to reduce its net overdraft from nearly £5,000 in 1934 to less than £2,500 at the present time. But it has now been faced with a compelling need for a capital expenditure of £31,383, though with an overdraft rather than any means at its disposal. Once again Lord Nuffield has most generously stepped into the breach and, fully appreciating the necessity, given the hospital this sum.

Papworth Tuberculosis Settlement

In the annual report for 1937 of the Papworth Village Settlement the medical director, Sir Pendrill Varrier-Jones, stresses the psychological aspect of the treatment of tuberculous patients. For example, in the industrial departments, which are such a feature of the Settlement, no visible element of "charity" must be apparent, and every position, from that of general manager downward, must be open to a disabled man or woman. In order that the healing process may proceed without psychological embarrassment the patient must be free from the anxiety neurosis engendered by fear of unemployment. The

report points out that, by means of the Papworth scheme, patients who would otherwise have become permanent charges upon public funds or private charity are rendered wholly or partially self-supporting; their families are well protected against the disease, and the additional expense of treating new cases is thereby avoided: the happy and voluntary segregation in the Settlement prevents the spread of infection. "Every patient who becomes a settler at Papworth thus represents a twofold economy—a reduction in public expenditure and a reduction in public risk." Towards the end of the year the new home for tuberculous nurses was unofficially opened, and nurses from England, Scotland, Ireland, and Wales are now in residence. The report predicts that this home will shortly be filled to capacity, and the hope is expressed that similar institutions in other parts of the country may also be able to make provision for nurses suffering from tuberculosis.

Domiciliary Midwifery Service in London

A report has been made to the London County Council on the results of the first nine months' working of the Council's domiciliary midwifery arrangements under the Midwives Act, 1936. The number of patients attended during the period January 1 to September 30 was 8,137, of whom 2,465 were attended by the Council's midwives and 5,672 by the midwives of voluntary agencies included in the scheme. The number of midwives has been adequate, but in certain districts, owing to independent midwives surrendering their certificates, there have been heavy bookings, and the number of midwives employed by the Council has been increased from the forty-seven originally engaged to fifty-three. In view of the pressure on the accommodation in the maternity wards at the Council's hospitals, applicants for admission who are considered to be suitable for confinement at home are being invited to make use of the Council's domiciliary midwives. The section of the Midwives Act which prohibits the employment of unqualified persons for attendance as a nurse on maternity cases has been applied to London from November 1. These factors will have the effect of increasing still further the demand for the services of the Council's midwives.

The arrangements originally approved provide for a payment of £2 14s. for each patient attended. When a domiciliary midwife is taken away from a case by the Council, on account of the presence of infection, the further attendance is carried out by the district nursing association. If the complication is personal to the mother the association receives payment from the borough council under its maternity and child welfare powers, but if the midwife is removed because of other infection in the home the district nursing association, although providing nursing attendance for both mother and child, receives payment from the borough council only in respect of the child. The county council now proposes in such cases that a payment of £1 7s.—namely, half the usual fee—should be made.

It is stated that the arrangements are working with considerable success, thanks to the co-operation of the voluntary organizations and the borough councils, also to co-operation between the midwives themselves and the health visitors. Patients have availed themselves freely of the facilities provided by the borough councils, many of which have found it necessary to increase the number of sessions at their ante-natal clinics.

Remedial Exercises in General Medicine

The value of suitable exercises as an adjuvant to treatment is not perhaps fully recognized by all medical men. A demonstration of remedial treatments arranged by the London Branch of the Chartered Society of Massage and Medical Gymnastics at the Middlesex Hospital on December 16 gave some idea of the wide range of these methods outside the orthopaedic conditions in which their use is most familiar. Miss C. Sparger showed how ballet dancing

technique is applied to the correction of foot defects and the posture problems which arise from them and also give rise to them. The exercises are performed to gramophone music and are ingeniously devised to strengthen the muscles which are weakened as the result of deformity or misuse, and to stimulate the intrinsic muscles which maintain tone and cannot be contracted voluntarily. Miss M. Randall exhibited a range of exercises which, allied to simple teaching in the anatomy of parturition, greatly assist the normal processes of pregnancy and labour and enable the mother to co-operate with intelligent interest. Her stress on the value of ability to relax was repeated by Miss H. Angove in an entirely different connexion: that of the treatment of asthma. Patients must learn to relax before they can begin to learn the breathing exercises which are such a useful auxiliary to medical treatment and psychotherapy. They then exercise the walls of the chest and abdomen, and practise shaking movements on deep expiration. The whole course takes about three months, after which the patient is able to perform the exercises without supervision and is often already much improved. Mrs. Guthrie Smith's use of pulleys and slings is now widely known, especially in the treatment of the after-effects of poliomyelitis. She showed a film, and exercises by a sufferer from residual paralysis. As a patient in slings is released from the influence of gravitation and friction he can perform voluntary movements with muscles that are too weak to move under other conditions, but even the most vigorous exercises can be carried out in the sturdy tubular frame from which the slings are suspended. Miss G. E. Bristow demonstrated the use of short-wave current by spaced electrodes and by coil in the treatment of sinus infections, and Miss B. Copestake the preparation of Pistany mud packs for the treatment of sciatica and arthritis. The medical visitors expressed great interest in what they saw, and admitted that much of it was new to them. There is room for extension in the use of such measures in hospital, and even more so in private at the direction of the general practitioner.

IRELAND

Medical Research Council

The Medical Research Council of Eire has made the following awards, each for one year, for whole-time research: Mr. Patrick J. Boyle, M.Sc., investigation: (1) into the effect of the potassium ion on the kidney; and (2) to develop a micro-method for the estimation of glucose; the work to be carried out in the Department of Physiology, University College, Dublin, under the direction of Professor E. J. Conway. Mr. Thomas G. Brady, M.Sc., investigation into the occurrence of vegetable adenylic acid in plasma and tissues, the work to be carried out in the Department of Physiology, University College, Dublin, under the direction of Professor E. J. Conway. Dr. Owen T. D. Loughnan, investigation into the value of heparin in the treatment of established thrombosis, the work to be carried out under the direction of Professor J. M. O'Donovan, University College, Cork. Dr. Denis K. O'Donovan, investigation into the specific metabolic principle of the pituitary gland, the work to be carried out in the Department of Physiology, University College, Dublin, under the direction of Professor J. M. O'Connor. A grant has been made to Miss E. J. Power Steele, M.Sc., for part-time research into the degree of visual defect resulting from a deficiency in vitamin A, the work to be carried out at the Rotunda Hospital, the Physical Laboratory, Trinity College, Dublin, and other Dublin hospitals and schools, under the direction of Dr. Dockeray and Professor R. W. Ditchburn. The following grants-in-aid have also been made: Dr. Gerald FitzGerald, for one year for expenses in connexion with training in methods of neuro-pathological research in the

National Hospital for Nervous Diseases, Queen Square, London; Professor J. Brontë Gatenby and Miss Olive Aykroyd, B.A., for one year for an investigation of the secretory functions of the endometrium and uterine glands, the work to be carried out in the School of Zoology, Trinity College, Dublin; and Dr. E. F. McCarthy, for one year for an investigation of the oxygen affinities of human foetal and maternal haemoglobin, the work to be carried out in the Department of Physiology, University College, Cork. Original grants have been renewed for further periods, as follows: Mr. R. P. Cooke, M.Sc. (one year); Dr. Oliver-FitzGerald (one year); Dr. Ninian Falkiner (one year); Dr. Cecil Mushatt (nine months); Dr. T. C. J. O'Connell (six months).

Tuberculosis in Belfast

In his report for 1937 the chief tuberculosis officer of the City and County Borough of Belfast gives an interesting commentary on the sex incidence of tuberculous affections. He states that, while in 1915 the proportion of men to women suffering from tuberculosis was 100 to 150, the figure for 1937 was 100 to 83. Similarly with regard to mortality from tuberculosis in 1915, for every 100 male deaths there were 134 female; in 1937 the comparable number of female deaths was 97. It is further observed that, although in England there has been a fall in the incidence of mortality from tuberculosis among females of all ages, the death rate for young women of the age period 15-25 has risen during recent years. In Belfast, however, the mortality among young women has fallen, the rate per thousand showing a reduction of over 50 per cent., when comparing the quinquennium 1933-7 with that of 1912-16. "It is difficult to see what is the cause of the rise in the mortality from pulmonary tuberculosis in this age-period in England, or why we should not suffer from tuberculosis in the same age-period in Belfast. . . . any rate in the older industries—are better, hours of work shorter, and pay envelopes heavier. It is probable that the 'enjoyment' of additional leisure hours may be more exhausting than work; or again that conditions in the newer industries employing vast numbers of young women may not be so satisfactory as in the older."

Purdysburn Fever Hospital

Owing to the resignation of Dr. A. Gardner Robb from the post of medical superintendent of the Belfast Fever Hospitals the corporation has appointed Dr. F. F. Kane to be resident superintendent at the Purdysburn Fever Hospital, Belfast.

FRANCE

Tributes to Brown-Séquard

The recent unveiling of a commemorative tablet to Dr. C. E. Brown-Séquard at the University of Nice in connexion with the Congrès des Sociétés Savantes was made the occasion for several more or less biographical addresses by eminent men. One of them, Professor Acharé, classified the world's savants according as they were *savants dispersés* or *savants concentrés*. Brown-Séquard, he was sure, belonged to the former group, for not only was he always on the run, crossing the Atlantic more than threescore times, but he was also always without blinkers as a research worker. The fields in which he made his mark most clearly were those of experimental neurology and the internal secretions. With regard to the latter he was a pioneer indeed, and the experiments he performed on himself with testicular extracts made him incur the fate of most scientists who are before their time. But if he appeared then to be

somewhat lacking in mid-Victorian good taste, he was ultimately to be proclaimed as one of the founders of endocrinology.

Soundless Rest Cure in the Sahara

In a recent issue of *La Presse Medicale* Dr. Malachowsky has made himself the mouthpiece for a new scheme which is nothing less than a silence cure in the Sahara, recently traversed by him and found ideal for his purpose. For four weeks he has revelled in silent days and silent nights, undisturbed even by the rustling of a newspaper, so successful was he in escaping not only from the sounds but also from the news of the outer world. Other prospective benefits, which seem at first sight unconnected with an orthodox silence or rest cure, are the sterility of the desert sand, the high magnesium content of certain of the Sahara's waters, the comforts of the hotels, and the big-game shooting. The last-named in particular would hardly seem compatible with a silence cure unless the weapons employed are to be bows and arrows. Be this as it may, Dr. Malachowsky has announced that he is organizing a medical tour of the desert for a month at an inclusive charge of 12,500 francs.

Medical Obituary

The death is announced on November 7 of Dr. Roman Adelheim, professor of pathological anatomy at the University of Riga. Born in 1881, he did experimental work on the pancreas and, during the great war, he published in Russian a monograph on the pathological anatomy of poisoning by suffocating gases. Much of his more recent work was also concerned with the chemical side of modern warfare. He made important contributions during and after the war to the study of several infectious diseases, including small-pox, typhoid, typhus, and influenza. The death is also announced at the age of 55 of Dr. Durand Fardel, corresponding member of the French Academy of Medicine, and distinguished in the world of hydrology and thermal statistics. Another recent death is that of Professor Leenhardt of Montpellier. He was born in 1875, and was on his way, at the end of October, 1938, to Paris, to attend the Paediatric Congress, of which he was vice-president, when he died suddenly. He made important contributions to paediatrics.

Medical Lectures in Paris

The Association d'Enseignement Médical des Hôpitaux de Paris has organized for the scholastic year 1938-9 a series of Sunday lectures at the Paris Faculty of Medicine free of charge. The first lecture, given on November 20 by Dr. Bénard, dealt with the heart and sport. The subject of the second lecture was lipid nephrosis in the child. A series of twelve lectures and six practical demonstrations is being given in Paris this winter free of charge to all doctors, medical students, and persons interested in guidance in the choice of a trade, occupation, or profession. This course is given under the direction of Professor Tanon at the Faculty of Medicine, and is sponsored by the Institut National d'Orientation Professionnelle, whose leaders have foreseen that doctors taking part in this activity will need special training for it.

Events Postponed

The fiftieth anniversary of the inauguration of the Pasteur Institute will be celebrated on March 15, 1939, its celebration in the autumn of 1938 having been deferred on account of the critical state of the international situation. On December 3 the French League against Rheumatism gave the rheumatic demonstration which had originally been timed for October 8. A special feature of this meeting was the demonstration of patients operated upon for chronic arthritis and of a film showing the various stages of the operation performed.

Correspondence

Mechanical Respirators

SIR,—The "iron lungs" which Lord Nuffield is manufacturing and presenting to hospitals are made in accordance with the original design of Professor Drinker of Harvard University, but of wood instead of steel. Drinker himself had made a respirator of wood, but found steel to be better. In many Press notices of Lord Nuffield's gift the inventor appears to have been forgotten. It was the high incidence of infantile paralysis in the U.S.A. which led Professor Drinker, after much experimental work, to invent his respirator, and a large number of these are now in use in American hospitals. In 1930 Drinker brought an "iron lung" (as the Press called it) to England, and demonstrated its use to the medical profession. Sir Robert Davis purchased this particular apparatus and made arrangements with Professor Drinker for its manufacture. In accordance with medical custom no patent was taken out, but the apparatus was to be known as the Drinker respirator. The original machine was freely lent to several hospitals, and was the means of saving several lives, a notable case being that of the Stowe schoolboy, who recovered after treatment in this machine for many weeks at the Wingfield-Morris Orthopaedic Hospital. A cheaper model, of simplified construction, was, I understand, made and supplied to the London County Council in 1934 at the price of £97. Subsequently, as a result of the practical experience of L.C.C. medical officers, refinements and accessories were embodied, with increase in cost, but making for greater efficiency in operation and greater comfort for the patient. Lord Nuffield's model is similar to the simplified machine produced in 1930, but all the models are on Drinker's principle, and in justice to him should be referred to as Drinker respirators. While public welfare is paramount, and everyone appreciates the generosity of Lord Nuffield, credit is due and should be given to those who have made and perfected these respirators. It is doubtful whether a wooden structure will lastingly ensure the safety of the machine to meet emergencies, which very rarely occur. Another type of respirator in which rhythmic compression of the chest is used, invented by Sir William Bragg to meet the needs of a paralysed friend, has been perfected by Mr. R. W. Paul.—I am, etc.,

Bucks, Dec. 15.

LEONARD HILL.

SIR,—A few months ago, when I had occasion to place my first case of acute poliomyelitis with respiratory paralysis in a box respirator, I found the procedure of drawing the child's head through the opening in the rubber diaphragm a difficult task and a most uncomfortable ordeal for the patient. Subsequently, I made a five-inch split in the rubber diaphragm towards the periphery, which split is opened and closed by means of a zip fastener sewn on to thin leather stuck to the rubber. I communicated the idea to Mr. Both, and such rubber diaphragms, complete with zip fasteners, are now supplied by Messrs. D. and J. Fowler, 215-218, Mansion House Chambers, Queen Victoria Street, E.C.4, or the ordinary rubber diaphragm can be easily converted at but little cost and labour.

I feel that this simple method, whereby a patient can be placed in and taken out of the box respirator with considerable ease, should be universally known to all users of box respirators, whether of the "Drinker" or "Both" type. As box respirators have been but little used in this country

until recently, and there appear to be no detailed instructions available regarding practical points in nursing, I venture to stress the importance of frequent postural changes, as in the treatment of enteric fever, owing to the great liability of poliomyelitis cases with respiratory embarrassment to develop hypostatic congestion and pneumonia.—I am, etc.,

Cardiff, Dec. 19. G. EMRYS HARRIES, M.B., B.S., D.P.H.
Medical Superintendent, City Isolation Hospital.

Cardiazol for Schizophrenia

SIR,—With regard to the annotation on the dangers of cardiazol treatment in the *Journal* of December 17 (p. 1267), there is a source of damage other than the asserted frequency of fractures or dislocations, or the impairment of memory. Fractures are rare if adequate precautions are taken. Obviously, if patients who have not had any exercise for some time, or are middle-aged, are subjected to the treatment without due preparation, fractures will be frequent. Also, dislocations of the shoulder or jaw are in my experience uncommon; in the 430 convulsions which I induced during this year dislocation of the jaw happened twice and dislocation of the shoulder not at all; there were no fractures. It is true that quite a number of patients complain of their memory while undergoing treatment, but with my patients this has been temporary, and the memory recovers soon after completion of the treatment.

While satisfied that convulsion treatment has a wide therapeutic range and promotes recovery in many cases, I see a serious danger in overestimating the spectacular effects which often occur soon after commencing the treatment, for these may be quite misleading as to the ultimate result of the treatment. With convulsion therapy it is not difficult to obtain such effects; the difficulty is to knit them together into lasting improvement. This should be better known than it is at present, or the very advantages of convulsion therapy will lead the enthusiastic physician, and with him the public, to believe that mental disease, whatever its type or duration, can be cured by a few convulsions.—I am, etc.,

London, N.6, Dec. 19.

H. PULLAR STRECKER.

Oxygen in Treatment of Sciatica

SIR,—A discussion on sciatica and its treatment at the Annual Meeting at Plymouth last July was opened by Dr. Wilfred Harris (*Journal*, December 17, p. 1245). It is rather surprising that a simple, painless, and in many cases extraordinarily successful method—the subcutaneous injection of oxygen—which may give immediate relief, and even effect a complete cure in both acute and chronic cases of sciatica, was not even mentioned. This treatment was described by Dr. J. P. Martin in volume iii of *Modern Technique in Treatment*, published by the *Lancet* in 1927. The method is especially useful in the treatment of those cases of sciatica which are most commonly met with and which are so difficult to cure—the rheumatic or toxic form, in which there is interstitial inflammation of the nerve with perineuritis. In these cases the subcutaneous injection of oxygen may give immediate relief, which may be permanent. Dr. Martin says: "This method of treatment is suitable in acute and subacute cases, and though it may be somewhat uncertain its extreme simplicity makes it always worth trying."

Drs. James Collier and W. J. Adie, also of Queen's Square Hospital, who were responsible for the section on diseases of the nervous system in Price's *Textbook of the*

Practice of Medicine, used these words: "Massive injection of oxygen into the region of the affected nerve is a simple and harmless method which gives no pain and often brings most conspicuous relief." My own experience of this treatment has been comparatively small, but in the cases I have seen the effect has been very striking.

A man who had been completely incapacitated by sciatica and confined to bed for several months had obtained little if any benefit from treatment, with the exception of saline injection into the nerve, from which he obtained some relief; but after the injection of oxygen he was able to walk without pain and resume his work. Another case, a member of my own family, had been incapacitated by sciatica for about five months and had suffered many things of many physicians, including epidural injections into the sacral canal, which, though very painful, gave little if any relief. She was completely cured after two or three subcutaneous injections of oxygen. I found injection of oxygen equally effective at an early stage of the disease. A middle-aged woman who had been confined to her bed for a week with acute sciatica was also completely cured after three injections of oxygen.

The method which I have employed is to connect by sterilized rubber tubing a cylinder of oxygen with fine adjustment to a sterile Record needle about $\frac{1}{2}$ mm. in diameter and 2 inches long, via a bottle containing warm water. When the gas is bubbling gently through the bottle the needle is introduced into the subcutaneous tissue at the back of the thigh, in the line of the sciatic nerve, just below the gluteal fold. It may be introduced for a distance of about an inch or even more, care being taken that it does not penetrate muscle but remains confined to the cellular tissue, so that the oxygen may penetrate to the region of the sciatic nerve between the hamstring muscles. The subcutaneous tissue of the thigh will quickly become emphysematous and "ballooned" with gas; when the skin is judged to be sufficiently tense the needle may be removed. The injection will cause no pain unless the gas is being injected into a muscle, which will be extremely painful and will be unaccompanied by subcutaneous oedema and emphysema. The emphysema subsides fairly soon and will have quite disappeared in forty-eight hours, when another injection should be made lower down in the middle line of the thigh over the sciatic nerve. If necessary a third injection may be given just above the popliteal space. If care is taken to inject into the subcutaneous tissues only complete relief of pain may be expected.

Recently a very simple and handy apparatus for this treatment has been devised by Sparklets, Ltd., by which 1 litre of oxygen can be introduced on each occasion. The apparatus fits into a small box, which may be easily carried in a doctor's bag. Subcutaneous injection of oxygen might also be used in a similar way for the treatment of brachial neuritis.—I am, etc.,

Worthing, December 17.

HERBERT H. BROWN.

Decline of Breast-feeding

SIR,—In my experience of infant welfare centres I have seen a large number of cases similar to those described by Dr. H. W. Pooler in your issue of December 3 (p. 1176) in which the breast milk diminished in quantity during the first month after confinement, directly the mother began her daily domestic duties in the home. I think the cause of this condition is psychological. While lying in bed the mother concentrates on breast-feeding, whereas when she is doing her domestic duties she has to think of other things as well. The change of environment is really responsible for the temporary inhibition of the milk supply; as time goes on she gets used to her dual functions and her nervous system adjusts itself; the temporary inhibition is then removed and full lactation is resumed. The duty of those who give advice at the welfare centres is to tide over this period of adjustment

so that the child can continue breast-feeding. The rich mother is not bothered nearly so often with this diminution of milk when she resumes household duties. She of course lies in bed very often for three weeks and so allows time for full lactation to be established.

Lately a method has been started of preserving breast milk: a full description of its clinical application was published in the *American Journal of Diseases of Children*, February, 1938 (p. 249). Briefly, it consists in collecting breast milk in maternity institutions and pasteurizing it. It was found that 150° F. (the normal pasteurization temperature) failed to prevent the appearance of pathogenic organisms in the milk within two weeks; also boiling the milk in an open pan for thirty minutes on three successive days was not satisfactory. Broadhurst and Duncan in 1933 pointed out that breast milk heated to 175° F. for thirty minutes on three successive days would remain sterile indefinitely when refrigerated properly. At the end of two years the milk was sterile and the chemical composition was similar to fresh breast milk. The Infants Hospital, Vincent Square, has carried out this scheme of preserving breast milk with similar results to those in America; they found the milk remained sterile and that its chemical composition resembled in every way fresh breast milk. I hear a similar scheme is being adopted at Queen Charlotte's Hospital. I believe if this scheme is universally adopted there will be some chance of reducing our high neo-natal mortality. I see no reason why in the near future the general practitioner should not be able to obtain breast milk for some of his feeble infants and those suffering from digestive disorder who cannot thrive on cow's milk in any form.—I am, etc.,

London, W.8, Dec. 12.

RONALD CARTER.

SIR,—Dr. Ronald Carter, in the *Journal* of December 10 (p. 1229), mentions the experience in India of Dr. Ruth Young, who took part in the discussion on this subject at the last Annual Meeting. Being an Indian born and bred, I can testify from personal experience and knowledge of the working women of India, who live on practically starvation wages, that the amount and quality of food taken bear little relation to the secretion and quantity of breast milk. Their main diet consists of *bajri* (a kind of rye) bread and *chutni*, made of greens, spices, and coconut. In the higher social strata the Indian women form two groups: those sophisticated by Western culture and those not so sophisticated. Among the latter the secretion of breast milk does not differ from that in the working-class women; but among the sophisticated women, and particularly the Parsees of Bombay, the secretion of milk shows the same variations as in the corresponding types of Western women. It is the custom among most Parsees, especially when confinement takes place at home, to make young mothers partake of *soonth*, a delicious though rather heavy preparation of ginger, nuts, flour, sugar, and spices, during the period of confinement (this used to be forty days but is now usually ten to fifteen days). The *soonth* acts as a galactagogue to a certain extent but not unless the condition mentioned in the following paragraph prevails.

To my mind the main reason for the decline of breast-feeding is psychological. The woman with true motherly instincts always secretes the necessary amount of milk, and more to spare, for her baby. But the one who regards motherhood as a matter of sufferance, or who considers herself deprived of her petty privileges of social and domestic engagements and outings, and who thinks these disadvantages outweigh the happiness derived from the presence of the baby in her arms or by her side, would

hardly supply the psychological stimulus so essential for the secretion. Quantity and quality of food, the presence of vitamins therein, social and domestic comfort, requisite exercise, massage, etc., may act as secondary or supplementary stimuli but not the essential one. There may be exceptions, but, as usual, they do not constitute the rule.—I am, etc.,

London, E.14, Dec. 16.

ARDESHIR D. JILLA.

SIR,—I have read with interest Dr. J. C. Spence's paper in the *Journal* of October 8 (p. 729) on the decline of breast-feeding and the subsequent correspondence. It is agreed, I think, that the breast milk often tends to diminish at the end of the first fortnight, when the mother returns to her many household duties.

Recently I came across a statement—I cannot find the reference now—made, I think, by the professor of gynaecology and obstetrics at either Edinburgh or Glasgow, that an injection of 2 c.cm. of a concentrated liver extract (for example, anahaemin, pernaemon forte, or similar preparation) would restore lactation in such cases. Knowing the difficulty one always has in dealing with these patients, and as an injection of liver extract could in any case only be of benefit to the mother, I have tried this remedy on two occasions: (1) for a woman whose milk failed two days after returning from the maternity hospital, and (2) for a woman whose milk failed when the baby was nearly 3 months old. On both occasions a full supply of breast milk was obtainable in two to three days, and was maintained, to the gratification of both the mother and myself. The success of this treatment suggests that failure of lactation may in many cases be due to anaemia, and/or to the deficiency of other essential factors, as the result of the pregnancy.

I should be interested to know of others who have tried this remedy, and also to whom I am indebted for the original idea.—I am, etc.,

Napier, New Zealand, Nov. 29.

A. C. B. BIGGS.

A Voluntary National Register of Land for War-time

SIR,—Some three years ago I had an opportunity of seeing the new general hospital at Malacca. This imposing structure, comprising several blocks five stories high, contains installations of the most modern description; its wards, operating theatres, and equipment are considered second to none in the East. This type of hospital offers many advantages from the point of view of efficiency and easy administration in time of peace.

During the last three years it has become evident that air warfare is developing according to ideas which no longer regard military establishments as the only proper objectives. If Malaya becomes involved in war this magnificent building, on elevated ground and a conspicuous landmark for miles, will prove a tempting and easy target for the enemy. To meet this danger two policies are available. The first is to guard the hospital from attack by anti-aircraft defensive measures; the difficulties of this are likely to prove insurmountable. The second is to remove the patients immediately to other and safer quarters. Fortunately rapid progress has been made during recent years in the methods of construction and erection of temporary hospital buildings, and in Malaya there should not be any difficulty in obtaining sufficient land in positions giving a degree of concealment and security from air attack.

But a similar danger arises in this country wherever great hospitals exist, especially in or near any town liable

to be bombed. Unless there is an adequate preventive method against air raids or there is bomb-proofed hospital accommodation locally, the rapid evacuation of patients to semi-permanent quarters remote from the town is unavoidable.

From recent disclosures it is evident that no such preventive method or safe accommodation yet exists. Arrangements should therefore be made beforehand to acquire the use of suitable sites at a safe distance, from these populous centres. For maximum safety the war hospitals will no doubt have to be erected in one-story blocks, as widely separated from each other as is reasonably possible. This plan, analogous to that employed for many explosive factories, will minimize the casualties from high-explosive or incendiary bombs. Presumably the methods applicable for ensuring the safety of hospital patients will apply also to other classes, such as school children and residents in various institutions. Any considerable number of persons housed in one large building in an area exposed to the danger of air attack will require to be dispersed at once.

The public would be much reassured about the danger from bombing in time of war if they knew that the various hospital and other authorities had secured beforehand an option on all the land necessary for these war-time buildings. A very large area of land will be required for such purposes, and one simple method of ensuring immediate access to it on the outbreak of war would be the formation now of a voluntary national register of all suitable lands. If necessity arose, the register could at once be given a compulsory form.—I am, etc.,

Liverpool, Dec. 21.

D. B. BLACKLOCK.

Control of Small-pox in India

SIR,—I feel I must reply further to Dr. C. Killick Millard's letter (December 10, p. 1228). The mortality figures do not in any way disprove the value of vaccination or suggest that it has failed to protect the community. The proportion of persons vaccinated in the whole population is small, and vaccination cannot be talked of as having been "pushed" as far as ever was practicable; the statistics cannot be relied on and the number of sears is generally inadequate. In pre-vaccination days 90 per cent. of deaths were at ages below 5 years. In any community the deaths from small-pox were limited to the unvaccinated, and, apart from vaccinated units being factors in the protection of a community, the fact that vaccination has raised the age incidence of mortality shows its general protective value. I cannot agree that "medical authorities . . . for years" have been educating the people as to vaccination in India. A few leaflets and lectures in some cities can hardly be called "educating the people." As to variolation, Dr. Millard need not go so far back as the practice in the East. We had it in England, when it spread the disease, had disastrous effects, and disfigured many; it still remains a penal offence by the Act of 1840 which stopped it. There is no evidence adduced that variola would protect against the major disease any more than vaccination, nor that it would not cause an outbreak of the major variety. Would Dr. Millard allow himself to be variolated from the pustules of some unknown arm? If not, why should he advocate it for Indians? It would be difficult to persuade the various castes that the variolation was only from someone in their caste. Even then, with the existence of many blood diseases there is the danger of transmission of some of these.

India is ruled by civil authorities. Medical officers would have to persuade the various civil surgeons, sanitary commissioners, deputy commissioners, commissioners, and the Lieutenant-Governor before the method could be sanctioned. It might take ten years of cross-arguments before a decision would be arrived at. Presuming it was, it would be still more difficult to get it passed through an enlightened Indian municipality. I fought four years for a small-pox hospital, and though all the above officials supported me the municipality did not see the need. Medical men in India are not to be blamed; they are generally overworked if in any official position, and general practitioners work under the silly competitive system (as in England). In rural areas things are more difficult; there are no hospitals except such as may be provided among a community of industrial concerns. Isolation for small-pox is impracticable except by a too-late temporary hut.

You cannot try these experiments in India so easily as Dr. Millard thinks. The people, however, will be led by their leaders, and the best hope lies in educating these leaders. I am just as anxious as Dr. Millard to see small-pox reduced in India. If he could give something more than theory—some definite proof that such a variolation would stamp out both varieties of the disease—and could then persuade the medical officers of health, etc., in India that it would be so, then he would be a benefactor to India. I wish him luck.—I am, etc.,

Ilford, Dec. 13.

A. G. NEWELL, M.D., D.P.H.

Social Pathology

SIR,—Perhaps you will allow me to offer your readers a somewhat fresh view of the fall in national population, which, most unreasonably, has come to be looked on as inevitable. A journal which at once leads the great medical profession and responds to its growth in thought will not, I feel sure, refuse a hearing to any who firmly believe national decay can be avoided. It is, no doubt, likely that moral, religious, and conventional prejudice will stand in the way of a fundamental reorganization of the social rules inhibiting sexual fertility. But if anything, however drastic, can be done to stay the approved processes which are destroying this nation, as they destroyed other nations throughout the ages, social morality and religious ordinances should lose all authority. I shall say a little of the fact that at present this nation, misled by a socially harmful philanthropy, spends millions and immense energy to preserve those who should be allowed to die. The temporary and costly salvation of the unfit and insane is lamentable enough, since even the more healthy elderly and aged use up energy which might help the young to live and grow. It is, then, true that we should recognize that overlong survival is a sign of racial and social degeneration, but what is far more serious in our social system is the fact that possible and necessary birth is actually prevented. I do not refer to birth control, a purely secondary phenomenon with which I should not venture to trouble a philosophical journal. A very little time ago the most prominent population problem in the world of Malthus and Darwin was over-breeding. We can fear this no longer. But is what we do fear a natural world process? Racial death may matter little to philosophers, but, fortunately, they matter less to the world. For how comes it that neither they nor statesmen nor physicians have solved this simple problem? During the last few years I have noted, not wholly without such a measure of intellectual pity as a social Pyrrhonist may reserve for himself and his friends, the way in which many

of the best-regarded intellects of Europe have struggled vainly with it, without so much as touching on basal physiology. Are we then to understand that neither statesmen nor physicians, to say nothing of moralists, are able to grasp the elementary proposition that the one and only way to fertility is fertilization?

Women in the mass are the female generative organ of the social organism, and yet everything is done by the interposition of moral, religious, and economic obstacles to render this organ barren during the period of early reproduction. It is well known that the proper fertile age of women runs roughly from 14 to 28. Yet what are our social practices? We forbid intercourse by law for two years of that period. It is even proposed to add two more barren legal years. An illegitimate child is doubly a social crime, not a racial gift. Early marriage is too often discouraged by elderly, jealous, and possessive relatives, who wish to keep their children as servants, not to say slaves. This evil factor tends to increase with the noted and lamentable increase of the old. As regards the upper and middle classes, which are most in danger of extinction, there is, however, little need for direct parental discouragement, as economic conditions tend to make these classes defer marriage till the age of fertility is practically over. By this time the selfish pleasures of a dying social system have taught young women to avoid the residual fertility their instincts earlier made them eager to seek. It should be as obvious to the medical profession as it is to nurses and to schoolmistresses that girls should begin to produce offspring about the time they begin at last to neglect their dolls, even though they feel the vain and empty want of them. This very plain doctrine, which declares the whole truth as to race failure, will no doubt be damned as conducing to immorality and even to direct State aid of illegitimacy. This I shall not attempt here to discuss. In the end it must be left to those most deeply concerned to settle whether racial death or the collapse of an antiquated moral system is to be preferred. This decision must clearly lie in the hands of those who suffer most from ethical doctrines which doom the race to death. We may well inquire whether these doctrines have not already broken down in a rebellious self-indulgence which remains barren when with a new morality, so sorely needed, the nation might renew its growth and power.—I am, etc.,

London, N.W.3, Dec. 19.

MORLEY ROBERTS.

A Museum of Practical Radiology

SIR.—In his admirable contribution to the debate in the House of Commons Sir Francis Fremantle deftly placed two fingers on the weakest points of the Cancer Bill. In the first place he pointed out that radium was not the only cure but ranked equal with surgery and deep x rays. In the second place he pleaded for early diagnosis, and this depended on the acumen of the general practitioner who first saw the case. In the diagnosis of internal cancer, especially of the stomach and colon (the commonest sites), x rays stand unrivalled for early diagnosis; and where can the practitioner learn what are the appearances and how can radiology help him in his daily round? The radiologists have not even a museum for their own training, let alone one for the education of the general practitioner. There are few lectures for those not taking up the specialty as a full-time occupation. The only collection of prints available is at the Wellcome Museum, Euston Road, where it is in an ideal setting, being accompanied by photographs, specimens, and microscopical slides; but this does not profess to be an x-ray

museum, and Dr. Daukes has told me that he has difficulty in obtaining radiographs even there.

Ever since 1929, and in each edition of my *Descriptive Atlas of Radiographs*, I have been urging the need for an institution worthy of British radiology. Unlike radium and deep x-ray therapy, which are hardly out of their infancy, the diagnostic side of radiology has almost passed the stage of an art and is a science in the hands of the capable. The once familiar laparotomy is rarely performed in the larger cities in America and on the Continent; the condition is diagnosed previously by x rays, and not only this but fruitless operations on the inoperable can be avoided, with relief to surgeon and patient.

The best location for such an institution or clinic is a matter for consideration. In London and the large provincial towns it would interfere with existing bodies; the mixture of graduates and undergraduates is never satisfactory. After many years of thought I have come to the conclusion that it would be best to start *de novo* in some small provincial town where there would be no outside interference, no counter-attractions, and where students (I refer to graduates attending) could "sleep" in the subject for their week's intensive course. Such a place would be "alive," since students could see patients actually being radiographed and examined; merely a collection of prints, specimens, notes, etc., would tend to make the place "dead."

The late Dr. Stanley Melville once told me that he did not want radiology popularized, because that would lead to the mushroom growth of practitioner-radiologists, which would be bad for the science. Anyone who has had the working of a busy practice knows that the last thing he wants is to be bothered with the developing, etc., of an x-ray plant, but he would like to know how radiology would help him in his daily task, particularly in confirming the early symptoms of disease. The idea of a small town as a site may not appeal to all at first. But what was Rochester, Minnesota, but a small village until the Mayo Clinic transformed it into a town of hospitals and hotels? Into such a foundation it would be possible to import an occasional wizard of the science from abroad, with obvious advantages to British radiology.

I consider Sir Francis Fremantle has made a notable step in our search for knowledge in the cancer campaign.—I am, etc.,

London, W.1, Dec. 19. A. P. BERTWISTLE, F.R.C.S.Ed.

Adrenaline Treatment of Asthma

SIR.—To show how little the connexion between asthma and nasal polypi in aspirin-sensitive patients is appreciated may I mention two cases.

The first was an aspirin-sensitive patient who consulted me and said that he had been slightly troubled by asthma and was sent to a rhinologist, who removed a number of nasal polypi. Immediately his asthma became severe and continuous, necessitating an injection of adrenaline every three hours. The patient returned to the rhinologist, who informed him that his business had been to remove the polypi and that he must now consult a physician about his asthma.

I succeeded in stopping long-standing asthma in the second case, a man with nasal polypi who was aspirin-sensitive, and for six years he remained absolutely free. He then consulted me again because his nasal obstruction made him snore, and as he had been free from asthma for so long he thought there would be no risk in having his polypi removed. I persuaded him that the nasal obstruction was the lesser of the two evils, and he was content. Eighteen months later he came to see me again because he had consulted an aurist who discovered the polypi and said they must be removed. The polypi were removed, with the result that the asthma returned the same day

orders granting leave of absence were all in the same form. They were headed "Order for discharge of patient" and read:

"We, the undersigned, being members of the committee of the hospital, do hereby certify that the patient named above, who is now under treatment in the hospital, is fit to be discharged, and that the committee of the hospital is of the opinion that the patient should be discharged."

The medical officer certified on the same form that the patient was fit for "provisional discharge." The form was presented in February, 1938. In February, 1938, the patient was discharged. During the five years she was absent for varying periods beginning every Christmas. She was during the whole time incurably of unsound mind. Her advisers admitted this at an early stage. But contended that she had not been continuously under care and treatment for five years. Simply stated, the question for the decision of the court was whether or not she was under care and treatment while living with her sister.

The Solicitor-General agreed that the form or the order could not be justified, for there was no such thing in law as a provisional discharge. He argued, however, that the visitors had intended to allow the patient to be absent on trial in accordance with Section 55 of the Lunacy Act, 1890. This section permits any two visitors, with the advice in writing of the medical officer, to allow a patient to be absent on trial as long as they think fit, and if a patient absent on trial does not return when his leave is up, and the visitors or the manager of the hospital do not receive a medical certificate that he need no longer be detained as a person of unsound mind, he may be retained within fourteen days as though he had escaped. The Solicitor-General maintained that detention did not necessarily mean physical detention or being locked up. The Board of Control held the view, he said, that Section 55 might properly be used on behalf of patients to whom they reacted to ordinary life. "On trial" does not refer to trial whether a patient has recovered; indeed, in this case it was common ground that the patient was still of unsound mind. The question to be tried was whether the environment of a holiday camp or some other place is suitable for the patient. He went on to argue that if a discharge takes place, whether the patient is cured or not, then control is exercised by the manager under the regulations of the hospital for three nights or four days; absence on trial for a fixed period; and absence on trial for an indefinite period. If detention in fact is required, he said, these varieties of absence would require separate consideration. He was not prepared to hold that detention would be interrupted by routine outings in the daytime, and he assumed, without deciding, that an occasional absence for three nights or four days would not interrupt the detention, on the principle of *de minimis non curat lex*. Even so, he thought, such absences might be so frequent that it would be impossible to disregard the accumulation of days of freedom during the five-year period. It might be impossible to draw a line to fit all cases, but he thought that, if detention in fact was required, absence on trial for prolonged and indefinite periods must be on the wrong side of any reasonable line.

The President referred to the Divorce (Scotland) Act, 1938, but did not lay much stress on the comparison of its wording with that of the English Act. On the wording of the English Act he could not hold that liability to be detained if a reception order was called out of abeyance was the same thing as actual detention under an order which was being enforced. So far as concerned the medical superintendent, there was no necessity for the wife to be detained at all or for her to return to the asylum, except the convenience of her sister. By Section 55(8), when a patient is on trial, any medical man can send a certificate to the visitors certifying that detention is no longer necessary. The certificate does not necessarily mean that the patient has recovered. When it is sent, the reception order ceases to be enforced. The President remarked that it seemed absurd, in a case like this, that the question whether a patient who is allowed more or less indefinite leave of absence on trial is "continuously under care and treatment" may depend on whether or not some

Mr. H. W. Barnard, appearing for the wife, said that the absences under an order having no legal force were equivalent to an escape; or else the order operated as a discharge and killed the reception order. Alternatively, if the reception order was alive the detention had been interrupted and the patient had not been under care and treatment continuously for five years. He urged that the word "detained" must be strictly construed.

The President, in his judgment, remarked that the schedules of forms in the Lunacy Act, 1890, do not set out a form for discharge or for any kind of temporary release. Moreover, the Act, he said, does not recognize such a thing as a provisional discharge. It recognizes several ways in which a patient may in fact be at large though the reception order remains in force. He pointed to Section 85, which provides that an escaped patient may be retained within fourteen days by the manager of the asylum in which "he was detained"—the implication being that after he escaped he was no longer under detention; and to Section 57, which provides for the

The Judgment

Turning to the form of the order under which the wife was released, the President said that it was a composite form which could be, and later was, adapted to an absolute discharge. The word "provisional" had been inserted in writing in a blank space. There was no provision in the Act for varying asylum patients "on holiday"—the phrase in current use in relation to private patients released for the benefit of their health. There was no provision in the order that Mrs. Shipman's sister would be "responsible" for her—a word used in the entry in the hospital book relating to the absence. He accepted the argument of the Solicitor-General that she had been "absent on trial" within the meaning of the Act, and that it had been lawful for the authorities to receive her back although no further order had been made and she had not relapsed. He therefore held that the reception order had remained in force at all material times, but he hoped that the case would result in the local authorities considering putting their house in order, for the argument had shown that they ran a considerable risk in matters unconnected with divorce through the confusion which prevailed in their exercise of their powers.

Assuming that the reception order was in force at all material times, he had next to consider whether the wife was continuously detained under it. According to the Solicitor-General she was to be considered as "detained" if a reception order was continuously in force under which she was liable at any time to be received and detained in the hospital, whether she was actually detained or not. This solution would be simple, and would relieve the court of all the difficulties which would arise if detention must be proved. There are, the President observed, four varieties of permissive absence: any temporary outing, unattended, during the time of day when patients are not locked in; leave of absence granted by the manager under the regulations of the hospital for three nights or four days; absence on trial for a fixed period; and absence on trial for an indefinite period. If detention in fact is required, he said, these varieties of absence would require separate consideration. He was not prepared to hold that detention would be interrupted by routine outings in the daytime, and he assumed, without deciding, that an occasional absence for three nights or four days would not interrupt the detention, on the principle of *de minimis non curat lex*. Even so, he thought, such absences might be so frequent that it would be impossible to disregard the accumulation of days of freedom during the five-year period. It might be impossible to draw a line to fit all cases, but he thought that, if detention in fact was required, absence on trial for prolonged and indefinite periods must be on the wrong side of any reasonable line.

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Obituary

E. L. FOX, M.D.

Dr. Edward Lawrence Fox, who died on December 1 at the age of 79, was a member of an old Plymouth family. He was educated at Cambridge University, where he proceeded to his M.D. degree in 1890, and at St. Bartholomew's Hospital. He became M.R.C.P. in 1891, and was appointed physician to the hospital that is now the Prince of Wales's Hospital, Plymouth, in 1894. He reached the position of senior physician before resigning under the age limit in 1926. He was also consulting physician to the Royal Eye Infirmary and to the Plymouth Public Dispensary. Dr. Fox was a pioneer in the use of thyroid extract for the treatment of myxoedema, and a paper from his pen on this subject was published in this *Journal* in 1892. He was, however, better known to his colleagues and the public for his work on functional nervous diseases. During the war, in which he held the rank of lieutenant-colonel, R.A.M.C., he had charge of the neurological cases in the war hospitals at Plymouth and in the district.

He was a man of very strong character and held decided opinions, in connexion with which his attitude was uncompromising, but he was held in high esteem by his colleagues and the people of Plymouth on account of his integrity, his friendship and care for his poorer patients, and for his private generosity, which was never advertised. Shortly after the end of the war he married, and lived a life of the greatest happiness with one who shared his many interests to the full. His private life was one of great activity, for he was devoted to the creation of beautiful gardens, and, in addition to the one at his country home at Bantnam, he constructed several in selected situations on land belonging to his friends. His main interest in these was the cultivation of rare alpine plants and heaths. He was also a keen fisherman, and gave a great deal of attention to the breeding of trout. By his death Plymouth has suffered a severe loss, for one who continued his professional interests, his hobbies, and his philanthropic works to the time of his last illness will be very difficult to replace.

Dr. Fox had been a member of the British Medical Association for forty-seven years, and was a member of the Central Council of the Association from 1901 to 1907. He also held office as vice-president of the Section of Medicine when the Association held its Annual Meeting at Exeter in 1907.

Dr. Harry Finley of West Malvern died on December 12 at the age of 70. He was the son of the late Henry Thomas Edward Finley of Wimborne Minster, Dorset, and was educated at the Grammar School. From there he went to University College, London, taking his M.B. in 1892 and his M.D. London in the following year. He held resident posts at University College Hospital, London, and at the Cumberland Infirmary, Carlisle. He then spent some years in temporary appointments in various parts of the county, ranging from Devonshire to Midlothian, before settling at West Malvern in 1899. He was carrying on his regular duties up to the evening of November 14, when he was suddenly taken seriously ill in his own home. For many years he was a valued member of the staff of the Malvern Hospital. Among his appointments were consulting surgeon of the Malvern Hospital, medical officer

"We the undersigned being two of the visiting justices of private asylums for Kent hereby sanction leave of absence from Mallings Place to X on probation for the period of twenty-eight days; but this sanction is revocable by us at any time during that period; provided that the medical officer shall at any time before the expiration of the said period have power to take back the said patient into the licensed house if his mental condition requires it."

Quite incidentally the case has shown that the practice of at least one mental hospital in granting leave of absence is not in accordance with the law. The President referred to a form of order for absence which was set out in the opinion of Viscount Cave (then Lord Chancellor) in the report of Harnett's case (at p. 676), and which, he said, would afford an excellent model for the guidance of the mental hospital concerned. It was said to have been approved by the Law Officers of the Crown of that day.

This decision, therefore, lays down that when a patient is absent on leave he is not under care and treatment, because he is not "detained." If Parliament intended in 1937 that absence from the mental home should be an indispensable part of this ground for divorce, as well as the incurable insanity, then the decision is in accordance with its intention, and the only amendment needed in the Act is one which will more precisely define the meaning of "care and treatment." In view of the wording of the 1937 Act—"it is incurably of unsound mind and has been continuously under care and treatment for a period of at least five years"—it is difficult to see how the Legislature could have meant to grant a divorce merely for incurable insanity in a patient who was harmless enough, as this patient was, to be allowed out for long periods. One implication of the decision seems to be, however, that in order effectually to bar a petition for divorce on the ground of insanity it is only necessary for the patient to obtain a long leave of absence. If during that leave the patient or his advisers can find a medical practitioner who will certify that he need not be further detained, he will make doubly sure, for the reception order itself will be killed.

Implications of the Decision

doctor sends the visitors a certificate. The five years may include a period of treatment as a voluntary patient, provided it follows without any interval a period of detention under certificate. In the President's opinion this strictly limited reference to treatment as a voluntary patient serves rather to mark the contrast between the words "treatment" and "detention." If Parliament had intended, he said, to take as the test any kind of care and treatment—voluntary, temporary, or under certificate—it could quite easily have said so. As Parliament had not chosen to say so, it was not for the court to legislate. Moreover, wrongful detention as a lunatic gave rise to an action for false imprisonment, and the President could not see how an ex-patient could allege false imprisonment in respect of a period when he was, in fact, at large by permission. In *Harnett v. Bond* a private patient was ordered twenty-eight days' absence on trial; during that period he came to Dr. Bond's office, and Dr. Bond, considering that he was in a very excited state, sent for the medical officer of his asylum, who, according to the proviso in the leave of absence order, could take him back, if his mental condition required it. Dr. Bond, however, forcibly detained the patient until the medical officer arrived, and admitted that he had no legal justification for doing so. These facts seemed to the President inconsistent with the notion that, while that patient was absent under the leave of absence order, he was detained in pursuance of the reception order. For these reasons the President held that the required ground of divorce did not exist, and dismissed the petition.

Dr. William Gosse, who died at a nursing home in Boscombe on December 19 after a very long illness, was at one time an active worker in the British Medical Association. Born on November 13, 1860, in Lincolnshire, he studied medicine at Charing Cross Hospital after earlier education at University College, Aberystwyth, and qualified as M.R.C.S., L.R.C.P., in 1886. He took the Cambridge D.P.H. in 1890 and the Durham M.D. in 1902. From Charing Cross, where he had been house-surgeon, he went to Stillingbourne, and was in general practice there until he moved to Parkstone, Dorset, and became a member of the Bournemouth Division of the B.M.A. He was representative of his Division at the annual Meetings from 1903 to 1911, and for two years a member of the Central Council. A former colleague (B. T.) writes: "In 1908 I joined Dr. William Gosse in partnership, and after his retirement I appreciated how greatly he was respected in Stillingbourne, and that in his practice he was not only their doctor but also their friend. During the war he acted as medical officer of health for the borough of Poole. He was, both before and after his retirement, a very active member of the British Medical Association, and was always keenly interested in his old hospital, and endowed a bed there."

K. C. Sarbadhikari, M.B., A. H. El Sherkawi, M.B., B.Ch., M. V. Sheehan, M.B., B.Ch., J. M. Small, M.B., B.Ch., K. F. Strachan, J. H. Tasker, G. N. Taylor, M.B., B.Ch., J. G. Taylor, E. H. Travers, M.B., B.S., Eugene L. Willis, M.B., B.Ch., D. P. van Meurs, M.B., B.S., Eugene L. Willis, M.B., B.Ch., D. P. van

SOCIETY OF APOTHECARIES OF LONDON
The following candidates have passed in the subjects indicated:
Surgery.—G. R. Green, R. G. Titchhurst.
Medicine.—J. A. Bailey, N. P. Desai, C. R. Morgan, D. Specier, Forensic Medicine.—J. A. Bailey, N. P. Desai, C. R. Morgan, Midwifery.—J. A. Bailey, D. H. Dracup, D. S. Foster, A. B. Kennedy, G. E. King-Turner.
The diploma of the Society has been granted to J. A. Bailey, C. R. Morgan, and G. E. King-Turner.

Medical Notes in Parliament

Mr. Chamberlain announced on December 21, that the Committee stage of the Cancer Bill will be taken in the House of Commons on January 31.

The Marriage (Scotland) Bill was read a first time by the Commons on December 21.

In the House of Lords on December 20 the Marriage (Scotland) Bill, the Limitation Bill, the Housing (Financial Provisions) (Scotland) Bill, and the Census of Production Bill were read the third time and passed.

The second reading of the Bastardy (Blood Tests) Bill is set down in the House of Lords for February 8. That House stands adjourned till February 7 unless urgent business intervenes.

The Royal Assent was given on December 22 to the Expiring Laws Continuance Act and the Housing (Financial Provisions) (Scotland) Act.

Drunkenness.—Sir SAUL HORE stated on December 20 that from 1924 to 1932 there was a steep fall in the number of convictions for drunkenness. Since 1932 the figure had risen each year, though the total was substantially lower than in 1930. The question of what steps could be taken to elucidate the causes of the increase was engaging his attention.

Pasteurization.—Sir ERNEST GRAMM-LITTLE asked on December 22 whether, in view of the conflicting opinions still expressed with regard to the value of pasteurization, Dr. Elliot would cause a judicial inquiry to be made into this matter at the earliest opportunity so that a final and considered decision could be given. Dr. Elliot said in reply that the facts with regard to pasteurization were well known. The conflict was a matter of opinion. He did not think that any useful purpose would be served by taking the course suggested.

Occupational Therapy.—Miss RATTIBONE said on December 22 that two Commissioners of the Board of Control who visited Park Prewelt Mental Hospital in July, 1937, made an entry in the visitors book to the effect that they had been disappointed at the progress made in occupational therapy, and that little appeared to be done for those patients who were in need of occupational treatment. She asked whether Dr. Elliot was satisfied that the defect referred to in this entry either had not existed or had been remedied; and how often and on what dates Park Prewelt Hospital had been inspected since the date when this complaint was made. Dr. Elliot replied that he knew of the entry made in July, 1937. Two Commissioners of the Board of Control visited the hospital again on October 14, 1938, and reported that since the previous visit a welcome advance had been made in the development of occupational therapy. There were certain directions in which they suggested the possibility of further advance.

Cancer "Cures."—Mr. GROVES asked Dr. Elliot whether the cures of cancer by Mr. Rees Evans had been brought to his notice; and whether, in drawing up his plan for a cancer service, he considered any of the unorthodox treatments claimed to have numerous successes. Dr. Elliot replied on December 22 that Mr. Rees Evans's claims had been brought

Notes in Brief
In Scotland, during six months from May 1 to October 31, 297 persons were charged with drunkenness caused by methylated spirits, compared with 1,243 persons in the corresponding six months of 1937.

Milk in Schools.—On March 31, 1938, out of 29,223 public elementary school departments in England and Wales, 19,200 made no arrangements for the supply of milk. The department making no arrangements were for the most part small, and contained less than 3 per cent. of the total number of public elementary school children.

Midwives Act.—Dr. ELLIOT declared that, taking the different boroughs and counties in Wales, the Midwives Act of 1936 was fully operative in each of them. This was the first full year during which the service set up by the Midwives Act had been in operation. The maternal mortality rate for Wales in 1937 showed a welcome improvement over that in 1936, and he hoped the new service would contribute to the maintenance of that improvement.

Medical News

Mr. R. C. Emslie, M.S., F.R.C.S., has been appointed a member of the Royal Commission recently set up to inquire into the subject of workmen's compensation. The chairman of the Commission is Sir Hector James Wright Hetherington, L.L.D.

Professor Emilie de Grosz of Budapest will give an address on "The Surgery of the Eye in Hungary" at the Tenth Memorial Institute, Church Street, Glasgow, on Wednesday, January 18, at 8.15 p.m. The address has been arranged by the Department of Ophthalmology of the University of Glasgow, and all interested are invited to attend.

The Royal Sanitary Institute has arranged a discussion on "House Management: its Principles and Practice," to be opened by Dr. J. Greenwood Wilson, at 90, Buckingham Palace Road, S.W., on Tuesday, January 10, at 5.30 p.m.

The winter conversation of members of the University of London Medical Graduates Society and other medical graduates of the University of London was held at the Wellcome Research Institution by invitation of the Director-in-Chief, Dr. C. M. Wenyon, F.R.S., on December 15. The President, Sir James Wallon, received the guests, who included Sir StClair Thomson, the Foundation President of the Society, and a representative gathering, Dr. S. H. Dukes, Director of the Wellcome Museum of Medical Science, outlined the objects of the museum, the system of arrangement and recent developments, and led the visitors on an inspection of the exhibits. The annual meeting and dinner of the Society will be held in the Langham Hotel on Tuesday, May 2, 1939.

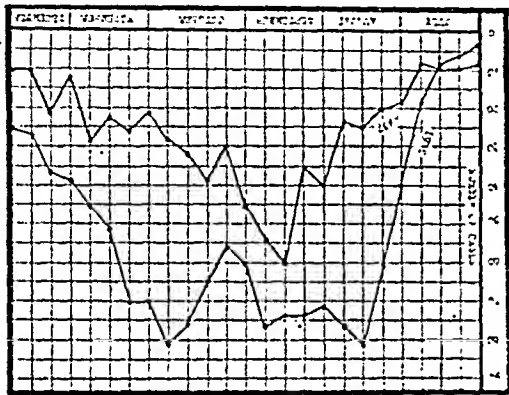
The issue of *La Riforma Medica* for November 5 is devoted to an illustrated account of the proceedings of the forty-fourth congress of the Italian Society of Internal Medicine and the forty-fifth congress of the Italian Society of Surgery, held simultaneously in Rome on October 19 to 22.

The International Association for the Prevention of Blindness has founded a new quarterly journal entitled *Journal of Social Ophthalmology*. Its offices are at 66, Boulevard Saint-Michel, Paris Vle.

Dr. Ross T. McIntire, White House physician, has been appointed Surgeon General of the U.S. Navy with the rank of rear-admiral, in succession to Admiral Percival S. Kossiter.

Although the epidemic of acute poliomyelitis in England and Wales is not finished the accompanying graph indicates that at the present rate of decrease it will be over early in the New Year. In comparison with 1937 the epidemic is characterized not only by its greater magnitude but by the occurrence of two readily discernible maxima and by the persistence of the disease in epidemic form into the cold months of the year. The last quarter of 1938 has been for the most part warm, and it remains to be seen whether the present spell of cold will lead to a rapid termination of the epidemic. There were nearly twice as many cases in 1938 as in 1937, but the numbers notified approximately in the second week of September of both years. The prevalence of the disease in Essex is largely responsible for the increase in 1938.

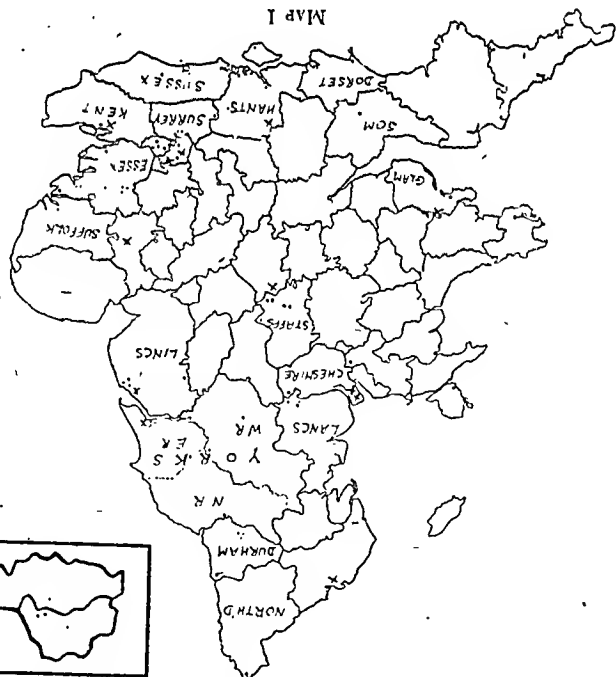
The Eugenics Society has arranged the following programme for 1959 at the Rooms of the Royal Society, Burlington House, Piccadilly, W., on Tuesday, at 5.15 p.m.: January



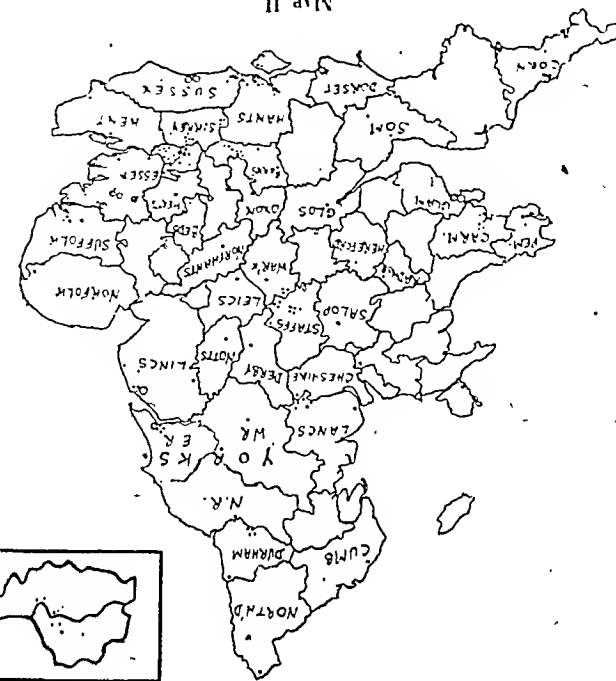
So far as can be judged, the spread of acute poliomyelitis in England and Wales results from the presence of multiple foci which appear to have little causal connexion with each other and are often at considerable distances apart. With the exception of the Essex outbreak the subsequent course of events for each individual focus is tolerably uniform: after the initial case two or three up to a dozen cases crop up at intervals over a period of 10 to 30 months or so, and a final crop may follow after an interval of several weeks, presumably due to the presence of carriers in the community. In the meantime a spread to neighbouring cities or counties has

already taken place, lighting up a fresh focus and leading to a similar train of events. There is little ground for believing that the exceptional prevalence of the disease in Essex is due to special circumstances, whether geographical or affecting the members of the communities involved by reason of lowered resistance, general or specific. It may well be that the epidemic was largely accidental, the result of a

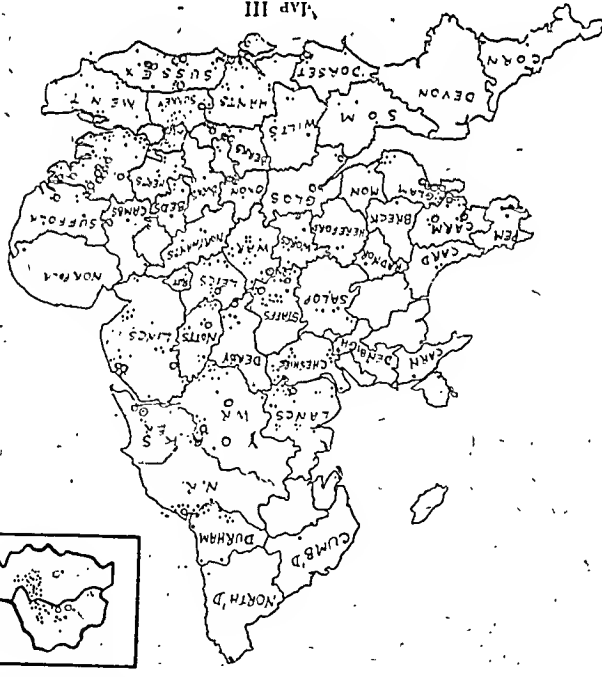
the movement of contacts, usually with supervision for a prophylaxis being the avoidance of close congregation of susceptibles in affected communities and the restriction of injection of serum and the use of gargles and nasal sprays have played a secondary part, the most effective means of the disease might be well advanced. In these countries the America, Australia, and Denmark—methods of controlling



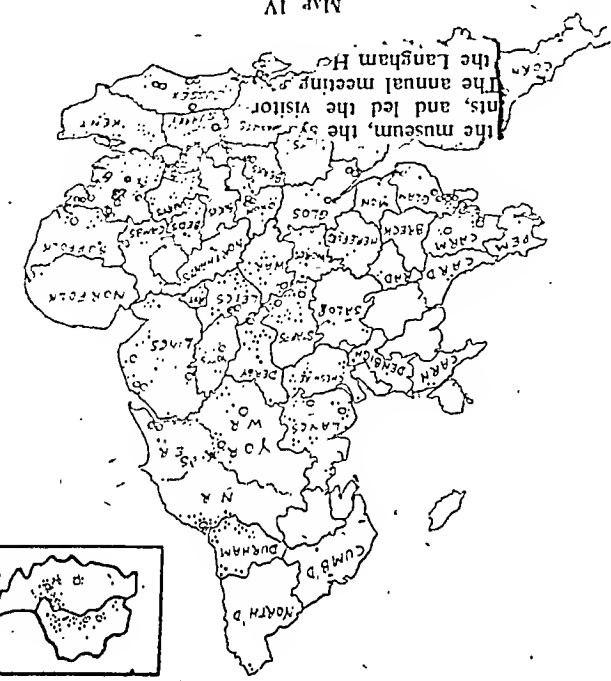
MAP I



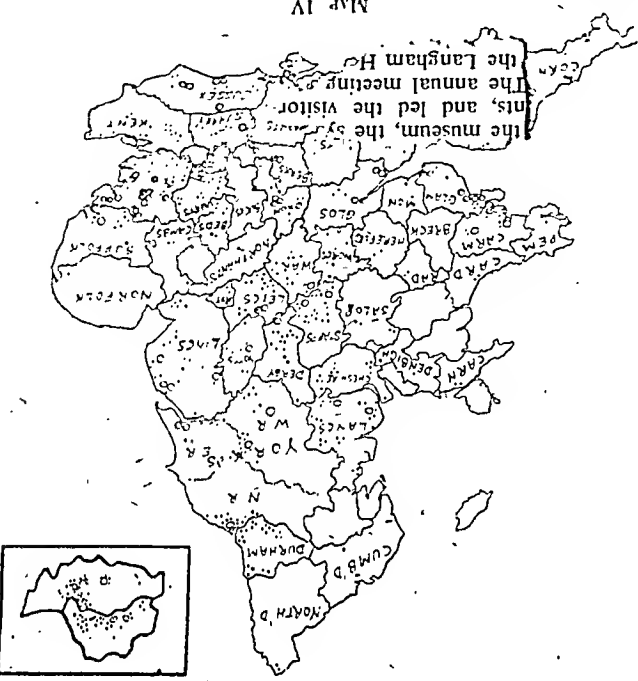
MAP II



MAP III



MAP IV



fortnight or so. In the epidemic briefly reviewed here it is probable that the application of administrative measures on these lines undertaken by local authorities with the co-operation of medical practitioners has been the main factor in securing the localization of the disease and the prevention of a major epidemic. The dots in the above maps represent single cases of poliomyelitis; the circles, five cases; and the circles with a dot inside, ten cases. The incidence in London is shown in the inset maps.

series of chances, or rather mischances, in which infection to lead to invasion and manifest disease. Coincident with the recognized cases subclinical infections and temporary carriers appear on a rising scale as the community is increasingly "sated." As the epidemic gathers force infection is introduced (usually by abortive cases and carriers) into more distant centres hitherto unexposed. If an answer could be given to the question why these local outbreaks do not usually develop into major epidemics, as in other countries—notably

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended December 17, 1938. Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns (125 in 1937) in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1938 | | | | | 1937 (Corresponding Week) | | | | | 1929-37 (Median Value Corresponding Weeks) | | | | |
|---|-------|-------|------|------|------|---------------------------|-------|------|------|------|--|-----|-----|-----|-----|
| | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) | (a) | (b) | (c) | (d) | (e) |
| Cerebrospinal fever | 21 | 4 | 10 | — | — | 24 | 2 | 5 | — | — | 34 | 63 | 4 | — | — |
| Diphtheria | 1,467 | 173 | 249 | 51 | 4 | 1,565 | 201 | 183 | 6 | 4 | 1,302 | 201 | 183 | 6 | 4 |
| Dysentery | 36 | 14 | 20 | — | — | 411 | 127 | 43 | — | — | — | — | — | — | — |
| Enteritis (typhoid and paratyphoid) fever | 23 | 7 | 6 | 8 | 1 | 24 | 1 | 3 | 15 | 2 | — | — | — | — | — |
| Erysipelas | 1 | — | — | — | — | 1 | — | — | — | — | — | — | — | — | — |
| Infective enteritis or diarrhoea under 2 years | 43 | 10 | 3 | 4 | 4 | 57 | 15 | 9 | 8 | 2 | — | — | — | — | — |
| Measles | 2 | — | 19 | — | — | 22 | — | 8 | 2 | 4 | 279 | — | — | — | — |
| Ophthalmia neonatorum | 94 | 15 | 29 | — | — | 89 | 8 | 35 | — | — | — | — | — | — | — |
| Pneumonia, influenza* | 948 | 116 | 9 | 4 | 27 | 1,118 | 124 | 21 | 6 | 9 | 997 | — | — | — | — |
| Pneumonia, primary | 19 | — | 347 | 20 | 16 | 30 | — | 404 | 17 | 19 | — | — | — | — | — |
| Polio-encephalitis, acute | 1 | — | — | — | — | 1 | — | — | — | — | — | — | — | — | — |
| Polio-encephalitis, acute | 31 | 1 | 2 | — | — | 10 | 1 | — | — | — | — | — | — | — | — |
| Puerperal fever | 47 | 4 | 11 | 3 | 1 | 14 | 1 | 25 | 1 | — | — | — | — | — | — |
| Puerperal pyrexia | 150 | 15 | 18 | — | — | 152 | 9 | 21 | — | — | — | — | — | — | — |
| Relapsing fever | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Scarlet fever | 1,849 | 151 | 325 | 76 | 91 | 2,565 | 159 | 505 | 82 | 81 | 2,586 | — | — | — | — |
| Small-pox | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Typhus fever | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Whooping-cough | 7 | 2 | 375 | 7 | 1 | 21 | 22 | 8 | 46 | 1 | 5 | — | — | — | — |
| Deaths (0-1 year) | 387 | 63 | 80 | 16 | 26 | 444 | 74 | 76 | 92 | 100 | 38 | 27 | — | — | — |
| Infant mortality rate (per 1,000 live births) | 64 | 52 | 63 | 80 | 16 | 74 | 74 | 76 | 92 | 100 | 38 | 27 | — | — | — |
| Deaths (excluding stillbirths) | 4,965 | 921 | 742 | 207 | 179 | 5,881 | 1,209 | 818 | 245 | 170 | — | — | — | — | — |
| Annual death rate (per 1,000 persons living) | 12.2 | 11.7 | 15.1 | 14.0 | 15.5 | 14.5 | 15.2 | 16.7 | 15.1 | — | — | — | — | — | — |
| Live births | 6,321 | 1,183 | 890 | 357 | 238 | 6,037 | 1,195 | 804 | 325 | 240 | — | — | — | — | — |
| Annual rate per 1,000 persons living | 15.5 | 15.1 | 18.1 | 24.2 | 21.1 | 14.9 | 15.0 | 16.4 | 22.2 | 21.3 | — | — | — | — | — |
| Rate per 1,000 total births (including stillborn) | 23.4 | 23 | 19 | — | — | 29.4 | 38 | 31 | — | — | — | — | — | — | — |

* Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

† After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

‡ Death from puerperal sepsis.

Letters, Notes, and Answers

All communications, in regard to editorial business should be addressed to the EDITOR, *British Medical Journal*, B.M.A. House, Tavistock Square, W.C.1.

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EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Athology* Westcott, London.
SECRETARY, *Medicisera Westcott, London*.
The address of the B.M.A. Scottish Office is 7, Drumshough Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh), and of the Office of the Cumanan Docteur na h-Eirann (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone 62550 Dublin).

QUERIES AND ANSWERS

Gas-and-Air Analgesia in Midwifery

Dr. W. A. Clark (Glamorganshire) writes: (1) Has any fatality due to the use of gas in childbirth ever occurred? (2) What damage of any kind has ever been attributable to the use in labour? (3) What justification is there for the Central Midwives Board's insistence on the presence of (a) a specially trained midwife, and (b) another nursing assistant, at the labour of a woman who uses a gas-and-air apparatus for analgesia?

LETTERS, NOTES, ETC.

"New Intravenous Cannula"

Mr. Maurice Lee (London, W.1) writes: In the *Journal of December 24* (p. 1315) I notice a "new intravenous cannula" described by Mr. C. J. C. Siggers. I devised a cannula of a similar nature two years ago, and this was described and illustrated in the *Journal of October 10, 1936* (p. 718). The instrument has been used by me very successfully, and the principle is exactly the same in every respect as that described by Mr. Siggers. A picture of my cannula is also shown in Hamilton Bailey's *Emergency Surgery* (p. 3).

Inoculation against Diphtheria

Dr. W. L. English (Crewe) writes: On two occasions in the past I made inquiry in your columns as to the advisability of using an inoculation for diphtheria, while giving a prophylactic dose of serum. To my disappointment the query was ignored. I notice that you now refer to it in a leading article. Anyhow, in spite of my getting no encouragement from authority, I have been carrying on on my own. I certainly was rather amazed at the lack of interest in my question.

Chemiotherapy of Gonococcal Ophthalmia Neonatorum

Dr. C. MacKenzie (Ross-shire) writes recording a case similar to that described by Dr. F. J. T. Bowie (*Journal*, August 6, p. 283): The child was born on July 23, 1938, and on July 30 developed ophthalmia. Examination of a smear confirmed the diagnosis of gonococcal ophthalmia. A trained nurse carried out efficiently the treatment with boracic lotion and 10 per cent. argyrol, as prescribed, until August 22 with no improvement. From August 23 the child was given 0.25 grammes of M & B 693 three times a day; on August 25 there was a considerable improvement. There was very little discharge and the eye required no treatment during the night. For four further days the child was given

Social Pathology

Dr. Edward V. Bevan (Cambridge) writes: Thinking people must realize that whatever precautions are taken, and whatever of life and of property in every combatant country soon after the beginning of the next war. The medical profession in other countries is debating its own individual problems, in its own journals, in the same way as we are, with the same sort of pathetic mixture of practical suggestion and despair. Medicine, it seems to me, is international, and here are doctors discussing a problem selfishly, as individuals of separate countries. Is it not possible for the British Medical Association to approach the proper bodies in other countries—France, Germany, Italy, Russia, and others—with a view to calling a conference? If the medical profession could confer internationally on the subject of the management and prevention of war casualties, surely it would be a long step in the right direction—that of the peaceful settlement of international disputes.

Prevention of War

had similar cases.

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Prolapsed Hand and Breech Presentation

Dr. Sybil S. Stein (Johannesburg) writes: As the following obstetrical condition appears to be rare, no mention of it appearing in the literature, it was considered worthy of being recorded. The patient, a well-built European woman, aged 40, with a history of ten very quick easy labours, began labour pains at 3 a.m. On examination of the fat pendulous abdomen at 8 a.m. the breech was felt lying at the brim. There was some right obliquity of the uterus; the head was not felt. A foetal heart was heard 1½ inches above and to the right of the umbilicus. On vaginal examination the internal os was two fingers dilated in front of the breech. In view of the fact that the patient had had twins twice previously the possibility of twins was considered, although the abdominal examination had negatived this. It was thought that possibly the prolapsed hand belonged to a second foetus lying posterior to the breech and presenting as a vertex. The hand was replaced above the breech to permit the latter to engage, and then labour was allowed to proceed. Labour was protracted, though the contractions were good and meconium was passing in the liquor at 5.30 p.m.; the foetal heart was good, but the breech was still not engaged. Vaginal examination was repeated, and the whole arm to the middle of the humerus was found prolapsed in front of the breech. It was again replaced and the extended legs were brought down through the cervix. With the next few pains the feet and legs now rotated backwards, so that the abdomen of the foetus appeared at the vulva, followed rapidly by the body, which faced upwards. There was then some delay, so the extended arms were brought down (one was behind the head) and the body was gently turned through the rest of a complete circle and the head was delivered easily with slight jaw and shoulder traction. The child was somewhat asphyxiated but responded rapidly to treatment. The placenta then gave cause for anxiety, for after waiting two hours the patient began to bleed in gushes. Crotch's method was tried unsuccessfully, so the partially adherent placenta was removed manually. The patient and her baby progressed excellently and were discharged on the tenth day. The baby weighed 7½ lb., and the arm from the tip of the shoulder to the tip of the middle finger measured 8½ inches, which does not appear to be unduly long in comparison with the baby's total length of 21½ inches. The interest lies in (1) the unusual presentation—prolapse of hand and arm in front of the breech; and (2) the spontaneous backward rotation of the foetus. I should be interested to know if others have

Medizinische Welt

Berlin vol 12 October 22, 1938

Syphilis und Optic Nerve, C. Behr.—p. 1515.

Injuries of Ear, Nose, and Throat, W. Gaus.—p. 1520.

Differential Diagnosis of Apathetic Anaemia, Agnathocytosis, Thrombopenic Purpura, and Allied Conditions, V. Schilling.—p. 1524.

Estimation of Occupational Dermatoses, G. Hopf.—p. 1526.

Diphtheria Epidemic in Breslau, G. Koschke.—p. 1528.

Ambulant Lumbar Puncture, C. Ebermayer.—p. 1532.

Münchener Medizinische Wochenschrift

München vol 85 October 21, 1938

Cardiovascular Xanthomatosis as Cause of Death in Adolescence, H. Siegmund.

Pregnancy Polycytemia and its Relation to Vitamin B₁₂, A. Hildebrandt and H. Otto.—p. 1619.

Prevention and Treatment of Itch, E. Schmitz.—p. 1622.

Treatment of Lambliosis with Albicrin, K. Heilmann.—p. 1626.

Atriac Poisoning in Vine-dressers, W. Frohm.—p. 1630.

Bullous Empyema of Lung as Sequela of Infarct Pneumonia, K. Buhler.—p. 1636.

Critical Picture and Treatment of Cory Varicella, M. Lange.—p. 1637.

Nature

London vol 142 October 15, 1938

Science and National Service.—p. 685.

Discovery of Additional *Philonthus* Skull, G. H. R. von Koenigswald and F. Weidner.—p. 715.

Early Acids from Yeast as Respiratory Factors, E. S. Cook and C. W. Kreck.—p. 719.

Blood Aminoacids and Decarboxylates of Adenosine and Adenylic Acid, E. J. Conway and R. Cooke.—p. 720.

Application of Fugate Method to Study of Viruses, C. F. Robinson and J. O. W. Bland.—p. 720.

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Concepts of Human Progress.—p. 729.

Correlations and Culture Study in Technique, G. Taylor.—p. 737.

Sense Perception and Evolution of Colour and Pattern, H. B. Cott.—p. 741.

Mechanism of Light Flicker Fusion during Course of Dark and Light Adaptation, N. T. Fedorov and L. M. Khechava.—p. 750.

Effects of Trimepazine in Plants and Animals suggestive of Hormonal Influence, L. Havas.—p. 752.

Colchicine and Acanthamoeba as Polyploidizing Agents, D. Kowol.—p. 753.

Production of Growth-substance by Clover Nodule Bacteria, H. K. Chou.—p. 753.

Cyclical Changes in Adrenal Glands of Sprayed Rats, S. Zuckerman, G. Bourne, and D. Lewes.—p. 754.

Toxicity of Mercury Vapour to Insects, W. Wright and P. K. Barua.—p. 754.

Adrenal Cycle.—According to S. Zuckerman, G. Bourne, and D. Lewes, the adrenal glands in sprayed rats injected with oestrogen fluctuate in size in an approximately five-day rhythm.

New England Journal of Medicine

Boston vol 219 October 20, 1938

American Contributions to Neurology, D. Richardson.—p. 591.

Closed Intracranial Pneumolysis with One-piece Operating Thoracoscope, L. Rabinowitz and E. J. Rogers.—p. 611.

Physiological Bullness of Right Apex, R. W. Hick.—p. 615.

Physiological Bullness of Right Apex.—This is an interesting historical investigation of the conception, widely held in America and less so in Britain and on the Continent, that the right apex normally yields a duller percussion note than does the left. The author concludes that this is a concept of American clinicians not based upon, or justified by, objective experimental results.

Nordisk Medicinsk Tidskrift

Stockholm vol 16 October 22, 1938

Tuberculosis in Esquimos in Ankaravik, A. Hoggard.—p. 1647.

Mercury Oxycyanide Poisoning, O. Berger and E. Jensen.—p. 1656.

Modern Ventilation and Heating of Hospitals, C. Nachlund.—p. 1660.

Mercury Oxycyanide Poisoning.—In connexion with the case of a woman who died one hour and a half after drinking an unspecified quantity of a 3 per cent solution of mercury.

Politico

Rome vol 45 October 24, 1938 (Sec. Part)

Surgical Operations and their Consequences, V. Jura.—p. 1939.

Experimental Investigations concerning Pathogenesis of Auto-anaphylaxis from Cold, D. Sibilla.—p. 1948.

Schistosomiasis and Molluscs in Libyan Sahara: II, A. Nasasli.—p. 1951.

Schistosomiasis and Molluscs in Libyan Sahara: I, A. Nasasli.—p. 1951.

In many parts of the Libyan Sahara, of schistosomiasis and of *Bullinus contortus*; he discusses explanations of the distribution. Attention is drawn to the presence of *Planorbis pfeifferi* in Gath, and to the possibility of intestinal schistosomiasis.

Bullus Empyema of Lung as Sequela of Infarct Pneumonia, K. Buhler.

Critical Picture and Treatment of Cory Varicella, M. Lange.—p. 1637.

Presse Medicale

Paris vol 46 October 19, 1938

Some Rules of Endocrine Surgery: Surgery of Sympathetic System and Endocrine Surgery, R. Leriche.—p. 1537.

Present-day Indications for Phrenectomy in Treatment of Pulmonary Tuberculosis, J. Vallis and N. Tsoutsis.—p. 1539.

Endocrine Surgery.—Leriche discusses the pathology of the endocrine glands and their relation to the sympathetic system, and gives examples illustrating certain rules which he has found helpful in the practice of endocrine and sympathetic surgery.

Phrenectomy.—After a brief historical resume of the rise and fall in popularity of this operation since it was first advocated by Stuerz in 1911, the authors briefly consider the indications for and contraindications to phrenectomy in the treatment of pulmonary tuberculosis. They come to the conclusion that its applications are very limited—for example, in early lesions of a non-caseous nature situated at the base and near the mid-line rather than at the periphery. It may also be used as a complementary operation after an artificial pneumothorax of the type known as pneumothorax *à cord*—that is, where a fairly good collapse is obtained from side to side but not from above downwards owing to the constricting action of the diaphragm. Phrenectomy may also be used after thoracoplasty when there are active lesions at the base which are not sufficiently controlled.

Parts vol 46 October 22, 1938

Treatment of Anginal Syndromes with 883 F, Two Years' Personal Experience, A. Clerc, J. Sirene and J. P. Lenoir.—p. 1551.

Behaviour of Suprarenal Gland experimentally deprived of its Nerve Supply, H. Hermann.—p. 1554.

Repeated Perforation of Gastric-duodenal Ulcers: Two Unpublished Cases, J. Gossel, M. Jouanneau, and J. Allmand.—p. 1556.

Angina and 883 F.—The authors give the results of their treatment of thirty-two cases of angina, etc., with this drug (dichloramino-methyl-benzodioxan). The cases were all followed for several months and had previously tried all the usual forms of treatment without avail: 883 F was found to be a very useful symptomatic remedy for the pain of angina and one which could be continued for long periods without ill effects other than slight gastric disturbances easily remedied by means of alkalis.

Repeated Perforation.—The authors discuss the frequency, pathology, treatment, and prophylaxis of repeated perforation in cases of gastric and duodenal ulceration and quote sixty-six cases.

Schweizerische Medizinische Wochenschrift

Basle vol 63 October 22, 1938

Union and Division in Developmental Formative Processes, G. Wied.

Frequency of Pulmonary Spills in Portugal, F. Wiedall.—p. 1156.

Acute Nicotine Poisoning from Garden Spray, H. Wiedall.—p. 1171.

preparations of andrin, wine extracts, etc., yield useful information as to the properties of these substances.

Wiener Klinische Wochenschrift

Vol. 51 October 21, 1933

Treatment of the Breast. I. Lohrke—p. 1141.
Katharine Kays made her report on the treatment of the breast in the German War. I. Lohrke—p. 1145.
The treatment of the breast in the German War. I. Lohrke—p. 1145.

Neurotic Disease and Hysteria. W. Bäumler—p. 1150.

Production of Breast.—Wirths irradiated the breasts of fifty-eight nursing mothers with too little milk secretion or with a history of previous difficulty in nursing. Five-minute sittings increasing to ten minutes were begun on the second to the fifth day of the puerperium. In fifty-one mothers the increase of milk was marked. In seven cases irradiation was not begun before the eighth day.

Acute Nicturine Poisoning.—Two personal cases and others from the literature are described. The symptoms are not characteristic, so that the diagnosis depends chiefly on chemical or biological detection of nicotine in the excreta. Cases of acute nicotine poisoning are known, although they are less frequent than chronic or narcotic cases, and have been recorded in workers in factories producing solutions used in orchards or vineyards.

Ugeskrift for Læger

Copenhagen Vol. 112 December 29, 1933

Mutual Friction of Children at Four Years of Age. P. Bækgaard—p. 1151.
Children's Comb at Four Years of Age. I. Lohrke—p. 1151.
Children's Comb at Four Years of Age. I. Lohrke—p. 1151.
Children's Comb at Four Years of Age. I. Lohrke—p. 1151.
Children's Comb at Four Years of Age. I. Lohrke—p. 1151.

Acta Medica Scandinavica

Stockholm Vol. 58 January 1933

Incidence of Vitamin A in Lateral Section of Paracat (F.). K. Hedin—p. 425.
Urea Acid in Blood and Urine in Urinary Disease (F.). K. Bäcklund—p. 428.
Chemical Examination of Urine. L. Lundh—p. 428.
Paracat and Body Temperature (F.). L. Lundh—p. 428.
Thermometer of Adipose Tissue with Urinary (F.). L. Lundh—p. 428.

Occurrence of Bacterial Anemia in Lateral, Urinary, and Urinary. K. Hedin—p. 428.
Examination of Urine. L. Lundh—p. 428.
Paracat and Body Temperature (F.). L. Lundh—p. 428.
Thermometer of Adipose Tissue with Urinary (F.). L. Lundh—p. 428.

Parathyroid and Body Temperature.—In four cases of hyperparathyroidism (generalized osteitis fibrosa) the variations in the body temperature were studied. An elevation above the normal level is not uncommon. It disappeared immediately after the removal of the parathyroid adenoma, and is therefore probably caused by the metabolic disturbances inherent in the disease.

Acta Pathologica et Microbiologica Scandinavica

Copenhagen Vol. 15 1933 Fasc. 4

Histological Studies in Cases of Fibrosarcomas of Breast treated with Chemotherapy. F. Sjöström—p. 331.
Chemical Nature of Amyloid (F.). G. A. Johansson and F. Wahlgren—p. 331.
Immunological Studies of Bone-marrow Reticulum Cells under Normal and Pathological Conditions. N. O. Nordenskjöld—p. 352.
Studies on Bacteriophage. XIII. Further Contribution to Understanding of Immunity to Streptococci (F.). J. Forsman—p. 396.
Anticapsular Serum from Patient with Malignant Tumors. Investigated by Means of Svedberg Ultra-centrifuge (F.). M. Ferrel and K. O. Svedberg—p. 426.
Endometrial Studies in Cases with Severe Primary Stasis. V. Effect on Gravity, on Adiposity, and on Thymus (F.). A. Westman and J. Jacobson—p. 441.
Apophyseal Shock and Compensatory Function (F.). J. Bäck—p. 441.

Immunity to Streptococci.—Resistance to a fatal dose of living culture can be produced in rabbits by means of streptococcus vaccine, and is best developed after seven to five days. The serum of such rabbits may contain little anti-

American Journal of Digestive Diseases

Port Wayne Vol. 5 November, 1933

Fracture of Head and Neck.—This is an important contribution to the descriptive anatomy of the cervical fascia and its extensions, which is of clinical interest and which both supplements and corrects the defects of some of the earlier accounts.

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- Effect of Therapeutic Agents on Volume and Constituents of Bile.** C. R. Schmidt, J. M. Beazell, A. J. Atkinson, and A. C. Ivy.—p. 613.
- Modern Conception of Gastric Secretory Functions Based upon Recent Investigations and Newer Interpretations.** S. Morrison.—p. 617.
- Haemorrhagic Tendency in Jaundice.—Oral administration of vitamin K prepared from putrefied fish meal, with bile salts or human bile obtained from a biliary fistula, increases the concentration of prothrombin and thereby reduces the clotting time of the blood.**
- Therapeutic Agents and Bile.**—Using improved methods, the authors have investigated the effects on bile secretion of a high fat diet, bile salt preparations, and certain drugs. Linseed oil in the diet increased the output of cholesterol and biliary lipids, as well as the quantity of bile. The conjugated bile acid preparations are superior to the unconjugated in stimulating the flow of bile containing increased amounts of biliary constituents. Saturated bile acid increased the output of bile, while various other drugs, including calcium, were without effect. Sphinganine had no effect on the secretion of bile, but appeared in the bile in concentrations bacteriostatic for certain organisms.
- Gastric Secretion.**—Neutral red is excreted into the stomach by the oxyntic cells and this forms a useful test of the integrity of these cells. Using this fact as a basis for his experiments Morrison offers the hypothesis that a pyloroduodenal hormone may control oxyntic-cell activity. The pylorus and duodenum also provide an anti-pernicious anaemia factor. These activities are probably related to one another. An attempt is made to demonstrate an interrelationship between all gastric secretions, including that of the intrinsic factor.
- American Journal of Physiology** vol. 124 November, 1938
- Baltimore**
- Relationship of Kidney Function to Glucose Utilization of Extracellular Precursor Substance in Cortex of Kidney.** B. Friedman, D. I. Abramson, and W. Marx.—p. 285.
- Effect of Administration of Some Carbohydrate Derivatives on Hypoglycemic Symptoms of Hepatomized Dogs.** F. G. Young, E. T. Waters, J. Markovitz, and C. H. Best.—p. 295.
- Experimental Analysis of Human Locomotion.** A. W. Hubbard and R. H. Stetson.—p. 300.
- Evidence for Hormonal Nature of Oxyntic Principle of Hypophysis.** H. O. Haverstick and J. K. W. Ferguson.—p. 314.
- Effect of Cortin on Electrolytic Changes in Cat Muscle during Stimulation and Recovery.** S. R. Tipton.—p. 322.
- Blood Supply of Various Skin Areas as Estimated by Photo-electric Plethysmography.** A. L. Herriman.—p. 335.
- Action of Isotonic Salt-Serum Solutions on Conduction in Medullated Nerve Fibres.** J. Erlanger and E. A. Blair.—p. 341.
- Oxygenation of Fluids and Occurrence of Oedema in Perfused Frog Web.** G. Saxton.—p. 360.
- Effects of Administering Large Amounts of Cortin on Adrenal Cortex of Normal and Hypophysectomized Rats.** D. J. Ingie.—p. 369.
- Effect of Acetylcholine on Excitability of Frog's Sartorius Muscle.** H. A. Blair.—p. 372.
- Response of Smooth Muscle of Gall-bladder at Various Intravascular Pressures to Cholecystokin.** H. Doulier and A. C. Ivy.—p. 379.
- Effect of Ether Anesthesia on Plasma and Extracellular Fluid.** E. F. McWhorter.—p. 391.
- Polydation of Polyphosphoric Acid as Result of Work and Time.** A. M. Croom and H. A. Chappert.—p. 393.
- Depressor Effect of Inactive Red Blood Cells in Dog.** D. I. Abramson, P. Wassermann, and E. A. Senter.—p. 402.
- Disappearance of Intravenously Injected Mannitol.** B. Rose and J. S. L. Browne.—p. 412.
- Extravascular Component of Coronary Sinus Pressure-receptive Cardiac Receptor.** C. V. Winter.—p. 421.
- Isolation of Section.** H. Greenwald and V. C. Ivy.—p. 427.
- Immediate Effects of Occlusion of Coronary Veins on Collateral Blood Flow in Coronary Arteries.** D. E. Gregg and D. Dewald.—p. 435.
- Immediate Effects of Occlusion of Coronary Veins on Dynamics of Coronary Circulation.** D. E. Gregg and D. Dewald.—p. 441.
- Respiration and Circulatory Adjustments to Erect Posture.** F. A. Hinkley and J. K. W. Ferguson.—p. 457.
- Adaptive Value of Absorption of Fat into Lymphatics.** V. Johnson and W. Freeman.—p. 466.
- Intestinal and Intestine Pathways concerned with Intestinal Inhibition during Intestinal Digestion.** W. B. Johnson, W. J. Slack, and R. C. Herrin.—p. 470.
- Neuroendocrine Changes and Conservation of Potassium in Serum (Gonadotropin and Intestine) Induction of Potassium in Serum (Gonadotropin and Intestine).** A. W. Winkler, H. E. Holt, and P. K. Smith.—p. 473.
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- Arbeiten aus dem Reichsgesundheitsamt** Berlin vol. 72 November, 1938
- Extent and Results of Public Research in Prussia in Years 1935 and 1936.** L. Hoppert.—p. 463.
- Cytological Investigation of Bacteria in Ultra-violet Light.** G. Beckert.—p. 465.
- Effect of Temperature on Migration of Bacteria in Development.** W. Bachmann.—p. 497.
- V. Non-infectious Microorganisms released through Temperature Shocks in Various Developmental Stages.** W. Bachmann and N. W. Hoffmann.—p. 504.
- Moral—National and International.**—p. 508.
- Report of First World Congress on Human Culture—Physical, Intellectual, Observations on Work with Urine Powders.** M. Derkard.—p. 506.
- Fluorides as Nutrients to Neighbourhood.** M. P. Bellon.—p. 486.
- Should Anti-venereal Services be organized by the Department?** J. Sauter.—p. 477.
- Paris New Series No. 11 November, 1938**
- Annales d'Hygiène Publique, Industrielle et Sociale**
- Lymphogranuloma Inguinale of Urethra.**—These authors describe fifteen cases of urethritis (Wassermann type) which they believe were caused by the virus of lymphogranuloma inguinale (poradenitis venerea). In all of them the Frei reaction was weak, but antigens prepared from the urethral discharge caused intense reactions when injected into patients suffering from poradenitis venerea but none in healthy patients.
- Annales de Dermatologie et de Syphiligraphie** Paris vol. 9 October, 1938
- Nicolas and Favre's Disease (Poradenitis venerea) affecting Urethra.** E. Bizozero and A. Miliand.—p. 849.
- Histogenesis of Mucosa Fungosa.** F. Caillaud.—p. 857.
- Lenoxaxine.**—This is the crystalline nitrogenous substance recovered from areas of inflammation. Its liberation offers a reasonable explanation for the mechanism of increased capillary permeability and leucocytic migration in areas of injury.
- Annals of Physiology** vol. 124 November, 1938
- Baltimore**
- Absorption of Fat.**—The absorption of the products of fat digestion into the lymphatics (dog) instead of directly into the blood stream probably protects against haemolysis by a toxic agent (possibly glycerol).
- Lenoxaxine.**—This is the crystalline nitrogenous substance recovered from areas of inflammation. Its liberation offers a reasonable explanation for the mechanism of increased capillary permeability and leucocytic migration in areas of injury.
- Adjustments to Standing.**—Upon the assumption of the erect posture by man the following occur: (1) a marked drop in the alveolar carbon dioxide; (2) accumulation of an oxygen debt and retention of carbon dioxide; (3) decrease in the carbon-dioxide content of venous blood in the upper limbs and an increase in the carbon-dioxide content of venous blood in the lower limbs; (4) a marked increase in the volume of the functional residual air.
- Blood Supply of Skin Areas.**—The skin areas arrange themselves in descending order of the richness of their arterial supply as follows: finger pad; ear lobe; toe pad; palm of hand; skin of forehead and face; dorsum of finger, of hand, and of foot; forearm; knee; and tibia.
- Mechanism of Regulation of Blood Sugar by Liver.** S. Soskin, H. E. Esser, J. F. Herrick, and F. C. Mann.—p. 558.
- Respiration of Liver to Creating-Creatinine Metabolism.** H. H. Beard.—p. 530.
- Respiratory Vagal Reflexes and Carbon Dioxide.** H. V. Rice.—p. 535.
- Isolation and Analysis of Extracellular Muscle Fluid from Frog.** F. W. Maurer.—p. 546.
- Studies on Physiological Effects of Leucotoxins.** V. Menkin and M. A. Kadish.—p. 524.
- Relation of Liver to Creating-Creatinine Metabolism.** H. H. Beard.—p. 530.
- Rate of Group of Pure-bred Dogs.** E. J. de Beer and A. M. Hoffer.—p. 517.
- Analysis of Basal Metabolism, Body Temperature, Pulse Rate, and Respiratory Rate of Group of Pure-bred Dogs.** E. J. de Beer and A. M. Hoffer.—p. 511.
- Haemoglobin Studies on Blood of Female Mice of CBA Strain: Effects of Age, Diet, Strain, and Reproduction.** L. D. Francis and L. C. Strong.—p. 502.
- Action Potentials of Visceral Smooth Muscle.** E. Bozler.—p. 491.
- Respiratory Rate.** S. Sobin and H. C. Nicholson.—p. 491.
- Analysis of Factors involved in Varying Effects of Carbon Dioxide upon Embryo Life in Ovarioectomized Rabbits.** G. Pincus and N. T. Werhessen.—p. 484.
- The British Medical Journal**

acanthomyces. The differential diagnosis of such cases by

Quarterly Journal of Experimental Physiology

London, Vol. 21, December, 1933

Section of Cells of Cat. R. D. WISH, H. W. HARRIS, and M. A. JENNINGS.
—p. 207.

Factors of Resistance to Oxygen Want in the Rat's Lung. J. A. G. REID.
—p. 211.

Resistance to Oxygen Want.—Rats on a pure carrot diet exhibit increased resistance to oxygen want. A synthetic diet containing rice-starch mainly, with yeast, water, and 25 per cent. cellulose, gives some similar protection. Protein enhances the ill effects of oxygen want, and it is suggested that patients with oxygen want should be given diets of low protein content and containing carrot, parsnip, or beetroot.

Experimental Hypertension.—The presence of ischaemic renal tissue (dog) is an indispensable condition for the development of hypertension, some substance being formed which escapes into the general circulation. Increased dietary loads elicit reversible rises in the blood-pressure level of hypertensive dogs. Urea and meat are equally potent and sodium chloride still more effective; with the latter oedema and convulsive "uraemia" have been produced. When interference with the renal blood supply is very severe a syndrome resembling that known as convulsive "uraemia" is observed.

Revue de Chirurgie

Paris, 5th year, No. 8, December, 1933

Intestinal Involvement in Bacteroid Disease in the Guinea Pig. R. LEBLANC and A. JACQ.—p. 551.

Experimental Intestinal Involvement in the Guinea Pig. R. LEBLANC and A. JACQ.—p. 551.

Intestinal Involvement in the Guinea Pig. R. LEBLANC and A. JACQ.—p. 551.

Revue de la Tuberculose

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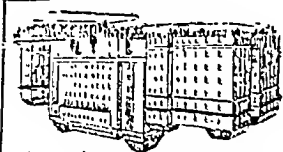
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on
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Dr. T. IZOD BENNETT, M.D., F.R.C.P.,
will be given by
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on JANUARY 23, 1939,
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ROYAL NAVAL MEDICAL SERVICE

DEC. 31, 1938

THE BRITISH MEDICAL JOURNAL

34

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry at the end of March, 1939.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

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Pain is the dominant symptom which induces the majority of patients to seek medical aid; hence the practitioner's reputation depends in no small degree upon his skill in relieving pain. For this he cannot have a more reliable ally than Veganin.

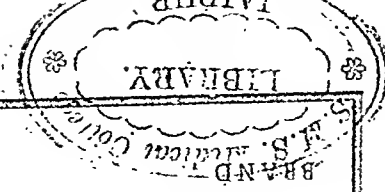
Veganin presents a synergistic combination of acetylsalicylic acid, phenacetin and codeine and is considered one of the safest analgesics. It is quickly absorbed and its action is prompt and prolonged.

Veganin affords effective relief in a vast number of painful conditions and alleviates the nervousness that so frequently accompanies them. There is no aftermath of languor and no systemic disturbance.

VEGANIN

TABLETS

Made in England



WILLIAM R. WARNER
& CO., LTD.
POWER ROAD, CHISWICK
LONDON W.4

A supply for clinical trial sent on request.

dispensing.

Supplied in tubes of 10 and 20; boxes of 100, 500 and 1,000 for

to the public.

Veganin Tablets are not advertised

Veganin has proved particularly serviceable in the treatment of headaches, migraine, rheumatic affections, post-operative and post-puerperal pain, in the backache and muscular pains of influenza.

INDICATIONS—

Out of the
Shadow of Pain

